Joint National and International Measles, Rubella and Congenital Rubella Syndrome Programme Review, Nepal 2019
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## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AEFI</td>
<td>adverse events following immunization</td>
</tr>
<tr>
<td>CRS</td>
<td>congenital rubella syndrome</td>
</tr>
<tr>
<td>DDA</td>
<td>Department of Drug Administration (of Nepal)</td>
</tr>
<tr>
<td>FWD</td>
<td>Family Welfare Division (of Nepal)</td>
</tr>
<tr>
<td>Gavi</td>
<td>Gavi, the Vaccine Alliance</td>
</tr>
<tr>
<td>GoN</td>
<td>Government of Nepal</td>
</tr>
<tr>
<td>MR</td>
<td>measles-rubella vaccine</td>
</tr>
<tr>
<td>MR1</td>
<td>first dose of measles-rubella vaccine</td>
</tr>
<tr>
<td>MR2</td>
<td>second dose of measles-rubella vaccine</td>
</tr>
<tr>
<td>SIA</td>
<td>supplementary immunization activity</td>
</tr>
<tr>
<td>SIAs</td>
<td>supplementary immunization activities</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>WHO-IPD</td>
<td>World Health Organization Immunization Preventable Disease</td>
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</table>
Executive Summary

Measles elimination and rubella/congenital rubella syndrome control is a flagship priority programme for the World Health Organization's South-East Asia Region. The Government of Nepal has committed to reach the goals of measles elimination and rubella and congenital rubella syndrome control by 2019. Progress has been rapid: as of 2017, there had been a 98% reduction in both measles and rubella incidence relative to 2003 levels. In 2018, Nepal was verified by the South East Asia Regional Verification Commission on Measles Elimination and Rubella Control to have reached the rubella and congenital rubella syndrome control goal. However, despite these successes, endemic measles circulation persists.

Measles elimination in Nepal is being undertaken in the context of changes in governance structure: in 2018, the country moved from a unitary to a federal system of government. The government health system is also undergoing restructuring, with major changes started since July 2018. Consequently, the immunization programme is facing challenges in programme oversight and coordination which threaten to affect performance at all levels.

As of January 2019, 82 of 194 countries globally have been verified to have eliminated measles. Experience in these countries has unequivocally shown that reaching measles elimination takes high-level political commitment, strong technical oversight, and operational excellence. One key strategy, strengthening performance of essential immunization services, is a key underpinning of this success.

From 8-17 April 2019, a Joint National and International Measles, Rubella and Congenital Rubella Syndrome Review was convened in Nepal with the following objectives:

- To provide an in-depth review of progress made towards achieving the goal of measles elimination;
- To assess the quality of implementation of the strategies laid out in the Measles Elimination and Rubella/CRS Control, National Strategic Plan, 2015-2019 and provide recommendations on how these should be refined and adapted to the federalized context to accelerate progress towards measles elimination; and
- To identify risks and barriers to progress and ways and means to address them with urgency.

A team of Nepali national and international experts (Annex 1) addressed the core questions through a desk review of relevant policies and guidelines; secondary analysis of available data; interviews with key stakeholders, policy makers, programme staff, volunteer health workers and community members, and direct observation of programme implementation at field sites.

The team made the following overall conclusions and recommendations.
The political commitment in Nepal for health and immunization as a priority is evident; nonetheless, the extent of visible political engagement for the measles elimination goal is lacking. Although immunization coverage for infant antigens is high, coverage with both the first dose and the second dose of measles-rubella vaccine remains below the 95% needed for elimination. In particular, coverage of the second dose of measles rubella vaccine remains at less than 70% in the current reporting year. Surveillance indicators are largely being met, but surveillance and outbreak response guidelines are not yet consistent with elimination standards. In addition, the functioning of the measles and rubella immunization programme is facing challenges stemming from changes in governance and human resources linked to Nepal’s transition to federalization.

In order to move from an accelerated disease control mode to a well-functioning elimination programme that will lead the country to success, the following actions were recommended based on findings from the review.

**Leadership and coordination**

- Establish a national-level measles and rubella elimination steering committee to drive the programme to success. The role of this committee can be summarized in the phrase “provide oversight, review, monitor and respond”. The Chair of the committee should be a high-level Ministry of Health and Population leader/official committed to overseeing and supporting the achievement of the goal.
- Ensure clear lines of authority and accountability for the measles elimination goal (at all levels of the new federalized governance structure) with clear terms of reference. Ensuring adequate oversight and accountability within the immunization programme overall will also be critical to maintaining a well-functioning immunization system.
- Define the role of District Health Offices and support them to provide necessary technical and supervisory support to municipalities.

Ensure active engagement of provincial and local governments.

**Technical excellence** – a key phrase summarized by the team as “Having the right people with the right skills in the right place at the right time”.

- Match existing skills to positions, especially among municipal health coordinators.
- Conduct training needs assessment and institute necessary trainings with appropriate on the job follow-up trainings.
- Update and disseminate technical guidance documents.

**Operational excellence**

- Update the national measles-rubella strategic plan.
- Link this updated plan to a targeted, annually-revised and updated Plan of Action.
• Monitor Health Management Information System data by *palika* and health facility to drive first dose and second dose measles-rubella vaccine coverage – use data for action!

• Use surveillance data to identify and address immunization gaps.

• Use concurrent monitoring data to identify less-well performing municipalities and provide support to these to improve their performance.

• Ensure high quality (≥95% coverage overall and by *palika*) of the upcoming 2019 supplementary immunization activity by conducting pre-campaign readiness assessments, as per global guidance; these should start at least six months before the anticipated date of the activity.

• Use the supplementary immunization activity to strengthen routine immunization, as proposed in Nepal’s application for 2019 supplementary immunization activity funding to Gavi, the Vaccine Alliance.
1. Background

Context

Measles elimination and rubella/congenital rubella syndrome (CRS) control is a flagship priority programme for the World Health Organization (WHO) South-East Asia Region, reflected as goal 2 of the Regional Vaccine Action Plan. At the Sixty-sixth session of the Regional Committee for South-East Asia, the goal of achieving measles elimination and rubella/CRS control by 2020 was adopted by all countries. To date, four countries in the Region have achieved measles elimination and six have achieved rubella/CRS control. A high-level consultation was held in New Delhi in March 2019 to discuss establishing a rubella elimination goal and updating the measles and rubella elimination target to 2023. However, the conclusions of this meeting have not yet been formally adopted by the Region.

The Government of Nepal (GoN) had committed to reach the goals of measles elimination and rubella control by 2019. Progress has been rapid: as of 2017, there had been a 98% reduction in both measles and rubella incidence relative to 2003 levels. In 2018, Nepal was verified to have reached the rubella/CRS control goal, among the first six countries in the Region to achieve this. However, despite these successes, endemic measles circulation persists, highlighting population immunity gaps within the country. National coverage with measles-rubella vaccine (MR) remains below the target of 95% coverage with both first (MR1) and second (MR2) dose; in 2018, the country officially estimated MR1 coverage as 91% and MR2 coverage as 69% (these figures report administrative coverage). (Figure 1).

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2 SEA/RC66/9, https://apps.who.int/iris/handle/10665/128280 Accessed 27 April 2019
4 http://www.searo.who.int/immunization/en/ Accessed 27 April 2019
6 National Verification Committee, Annual Country Report on Progress toward Measles Elimination and Rubella/CRS Control YEAR 2017 (Jan-Dec)
Measles elimination and rubella/CRS control in the Nepal are framed by key national legal and policy documents: the Immunization Act, which affirms immunization as a right; the Comprehensive Multi-Year Plan, and the Measles Elimination and Rubella/CRS Control, National Strategic Plan. In addition to the Regional Vaccine Action Plan, guiding Regional documents are the Guidelines on Verification of Measles Elimination and Rubella/Congenital Rubella Syndrome Control in the WHO South-East Asia Region, and the Regional Measles & Rubella Surveillance and Outbreak Investigation Guidelines.

Measles elimination in Nepal is being undertaken in the context of changes in governance structure: in 2018, the country moved from a unitary to a federal system of government, as mandated by the national constitution. As per the federalized structure, the health system is also undergoing restructuring, with major changes started from July 2018. Consequently, the immunization programme is facing challenges in programme oversight and coordination which threaten to affect performance at all levels.

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12 Constitution of Nepal 2015
As of January 2019, 82 of 194 countries globally have been verified to have eliminated measles. Experience in these countries has shown that reaching measles elimination takes high-level political commitment (which translates into adequate funding), and effective leadership at all levels. Strong technical oversight to the programme with effective partner coordination and a skilled, knowledgeable work force are also critical. Political will and technical excellence must be supported operationally by excellent supervision and sound programme management, strong coordination within all levels of government and across national and international borders, annual updating of plans of action, and the ability of the programme to respond to exceptional and unforeseen circumstances.

From 8-17 April 2019, a Joint National and International Measles, Rubella and Congenital Rubella Syndrome Review team was convened with the following objectives:

- To provide an in-depth review of progress made towards achieving the goal of measles elimination;
- To assess the quality of implementation of the strategies laid out in the *Measles Elimination and Rubella/CRS Control, National Strategic Plan, 2015-2019* and provide recommendations on how these should be refined and adapted to the federalized context to accelerate progress towards measles elimination; and
- To identify risks and barriers to progress and ways and means to address them with urgency.

**Measles epidemiology in Nepal**

Nepal introduced single antigen measles vaccine given at 9 months of age in 1988. Rubella vaccine was introduced as MR1 in 2013, replacing single antigen measles vaccine. MR2 was introduced into the routine immunization programme in 2015 (Table 1 and Figure 1). Nepal has also conducted a series of single antigen measles vaccine and MR supplementary immunization activities (SIAs); the history of these SIAs in terms of target age groups and coverage achieved is summarized in Table 2. The country is scheduled to conduct a nationwide supplementary immunization activity (SIA) with MR targeting all children aged 9-59 months regardless of prior vaccination status in late 2019. An add-on dose of bivalent oral polio vaccine will also be given to 0-59-month-old children residing in high risk districts (~59% of 0-59 month old children in the country).
### Table 1. Coverage with first and second dose of measles-rubella vaccine, Nepal, 2016-2018

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MR1</td>
<td>MR2</td>
<td>MR1</td>
</tr>
<tr>
<td>Administrative coverage</td>
<td>77.1</td>
<td>24.3</td>
<td>84.04</td>
</tr>
<tr>
<td>WHO UNICEF estimates</td>
<td>83</td>
<td>25</td>
<td>90</td>
</tr>
</tbody>
</table>

Sources: DoHS, GoN Annual report 2072/73 (2015/16); DoHS, GoN Annual report 2073/74 (2016/17); DoHS, GoN Annual report 2074/75 (2016/17)-(unpublished); WUENIC immunization coverage, 2017 revision, Official country estimate for 2018 (Joint reporting form submission)

### Table 2. Measles and measles-rubella supplementary immunization activities, Nepal, 2004-2016

<table>
<thead>
<tr>
<th>SIA</th>
<th>Target age group</th>
<th>Date From</th>
<th>To</th>
<th>Target Population</th>
<th>Population Vaccinated</th>
<th>Administrative Coverage</th>
<th>Number of Phases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measles SIA 2004/05</td>
<td>9 Months to &lt;15 years</td>
<td>21-Sep-04</td>
<td>10-May-05</td>
<td>9 423 866</td>
<td>9 839 723</td>
<td>104.41</td>
<td>3 phases</td>
</tr>
<tr>
<td>Measles SIA 2008</td>
<td>9 Months to &lt;5 years</td>
<td>10-Sep-08</td>
<td>21-Dec-08</td>
<td>3 784 581</td>
<td>3 647 442</td>
<td>96.38</td>
<td>2 phases</td>
</tr>
<tr>
<td>Measles Rubella SIA 2012</td>
<td>9 Months to &lt;15 years</td>
<td>14-Feb-12</td>
<td>14-Jan-13</td>
<td>9 579 306</td>
<td>9 685 099</td>
<td>101.10</td>
<td>3 phases</td>
</tr>
<tr>
<td>Measles Rubella SIA 2015/16</td>
<td>9 Months to &lt;5 years</td>
<td>15-Aug-15</td>
<td>12-Apr-16</td>
<td>3 002 263</td>
<td>2 982 204</td>
<td>99.33</td>
<td>4 phases (in 14 earthquake affected districts, target age group was 6 months to &lt;5 years)</td>
</tr>
</tbody>
</table>

Source: DoHS, GoN
**Figure 2.** Measles and rubella cases in Nepal and measles-containing vaccine coverage, 2003-2018

![Graph showing measles and rubella cases in Nepal, 2003-2018.](image)

Data as of 17 Feb 2019. Sources: Case counts: WHO-IPD, Nepal. Includes lab-confirmed, epi-linked and clinically compatible cases. Vaccine coverage: HMIS, DoHS, GoN

**Table 3.** Confirmed measles cases, Nepal, 2012-2018

<table>
<thead>
<tr>
<th>Year</th>
<th># Confirmed cases</th>
<th>Incidence (per million pop)</th>
<th>Genotypes</th>
<th>Laboratory Confirmed outbreaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>727</td>
<td>25.52</td>
<td>D4,D8</td>
<td>21</td>
</tr>
<tr>
<td>2013</td>
<td>40</td>
<td>1.47</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>2014</td>
<td>59</td>
<td>2.16</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>2015</td>
<td>273</td>
<td>9.85</td>
<td>D4, D8</td>
<td>5</td>
</tr>
<tr>
<td>2016</td>
<td>284</td>
<td>9.21</td>
<td>D8</td>
<td>13</td>
</tr>
<tr>
<td>2017</td>
<td>99</td>
<td>3.46</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>2018</td>
<td>253</td>
<td>8.72</td>
<td>D8</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: WHO-IPD, Nepal
Table 4. Confirmed rubella cases, Nepal, 2012-2019

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td># Confirmed cases</td>
<td>675</td>
<td>23</td>
<td>13</td>
<td>9</td>
<td>22</td>
<td>21</td>
<td>34</td>
</tr>
<tr>
<td>Incidence (per million pop)</td>
<td>23.07</td>
<td>0.81</td>
<td>0.48</td>
<td>0.33</td>
<td>0.79</td>
<td>0.73</td>
<td>1.17</td>
</tr>
<tr>
<td>Genotypes</td>
<td>2B</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Laboratory Confirmed outbreaks</td>
<td>36</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: WHO-IPD, Nepal

Table 5. Confirmed CRS cases, Nepal, 2012-2018

<table>
<thead>
<tr>
<th>CRS</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmed cases</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: WHO-IPD, Nepal

In 2018, the majority of cases reported in Nepal were reported in Provinces 2 and 5.

Figure 3. Spot map of measles and rubella cases, Nepal, 2018.
Measles Verification Committee review of Provinces 2 and 5

In February 2019, the national Measles Verification Committee, concerned at reports of increasing measles incidence in Provinces 2 and 5, conducted field visits to these provinces. Using a common aide-memoire, committee members visited selected sites at each administrative level to review challenges and constraints to reaching measles elimination. Observations and recommendations were grouped by administrative level and subject domain, and summarized in a comprehensive but succinct report (full report available at XXXX).

Methodology

A team of national and international experts addressed the core questions through a desk review of relevant policies and guidelines; secondary analysis of available data; interviews with key stakeholders, policy makers, programme staff, volunteer health workers and community members; and direct observation of programme implementation at field sites. Eight smaller teams were formed, each with a national participant, one or more representatives of the WHO and United Nation’s Children’s Fund (UNICEF) country offices, and an international participant. These teams travelled to all seven provinces while one team stayed at national level to meet with federal level committee members, staff of the national public health laboratory, and relevant figures in the federal government. Within each province, one well performing and one sub-optimally performing health facility were pre-selected based on local knowledge, and coverage and surveillance performance indicators. Each team visited the provincial health office to brief and debrief on the findings of the visit to the health facilities. For a complete list of team members by province visited, please see Annex 1.

Figure 4. Composition of teams for National and International Measles and Rubella Review, Nepal, 2019
2. Findings and Recommendations

Programme management, funding and human resources

Background and Findings

Programme Management

As mentioned above, Nepal has recently moved from a unitary governing system to a three-tier structure of federal government (federal, province and local) with a total of seven provinces and 753 local bodies (metropolitan, sub-metropolitan, municipalities, and rural municipalities). As a result of this transition, Nepal’s health system has been undergoing restructuring with major changes starting from July 2018:

At the federal level, the organizational structure of the Ministry of Health and Population has been restructured, including the Department of Health Services within which the immunization programme falls. The former Immunization Section under the Child Health Division now falls under the Family Welfare Division (FWD) as part of the new Child Health and Immunization Service Section. The former Integrated Management of Neonatal and Childhood Illnesses Section and three other sections also fall under the FWD, which in totality now has fewer resources than the combined total in the previous Sections. This is mostly due to staff redistribution to fulfil the suddenly increased staffing needs of the local bodies.

- At the provincial level, the former Regional Health Directorates in each of the previous five regions, which were under direct executive control of the central level, have been replaced by a Health Directorate under the provincial government Ministry of Social Development in each of the seven provinces. In the new constitution of Nepal, districts are not a recognized level of government. The former District (Public) Health Offices in 75 districts, which had been the mainstay of public health programme implementation and controlling budget centres for programme implementation, ceased to be budget and controlling centres in July 2018. Recently, a semblance of a district health structure is being put in place again, although the exact lines of authority, command over resources and interface of these 77 district health offices (two districts have been split) with provincial and municipal levels are yet to be clarified and stabilized. The lines of authority and their scope of work were under discussion at the time of the review.

- At the local level, there are now 753 local bodies (urban or rural municipalities), each with sanctioned posts for a health coordinator to look after all health programmes including immunization. The primary health centres and health posts which used to be under the direct supervision and support of the District (Public) Health Offices are now managed directly by the local bodies which enjoy a degree of autonomy from both federal as well as provincial governments.
Interviews at the federal, provincial, and local levels revealed that a high level of commitment to immunization remains, as the national Immunization Act\(^8\) and Full Immunization Declaration Program\(^{13}\) are well recognized. Local leaders in particular saw federalization as an opportunity to accelerate progress, with stronger accountability and ownership instilled at local levels. However, the transition to a federal structure was also seen to be negatively impacting the management of the immunization programme, a situation which threatens the country’s advancement towards its measles elimination goal. Several challenges were identified during the review:

- There are seven provinces and 753 local bodies. Thus, on an average, each province would have 107-108 local bodies within its geographical bounds. As do the provinces, the local bodies receive direct funding from the federal level and thus enjoy a degree of financial and executive autonomy from the provinces.

- The oversight and coordination mechanisms across the three-tier (federal-provincial-local) structure have continued to evolve during this transition period. For example, the previous 75 District (Public) Health Offices were initially projected to form 35 Health coordination Offices up until a few months ago. However, more recently, Ministry of Health and Population decided that all districts (77) will again have Health Offices and they have been re-established, albeit with a reduced scope of responsibilities. The review team noted that rapidly evolving lines of authority and the unpredictability of changes resulted in a lack of understanding by workers as to how the immunization system as a whole should currently function. The review team also noted the practical and managerial need in the immunization programme for an intermediate administrative level between province and palika.

- Immunization coordination committees were reported to have been formed at the local levels, although the functioning of the committees was found to be variable across geographies.

- Monthly review meetings were reported to be being conducted at the local level, but lacked involvement of staff from district Health Offices and the Provincial Health Directorate. At present, although there is close interaction and programme data sharing between government and partners (WHO and UNICEF) for surveillance and routine immunization at the federal level, standardized mechanisms for responding to the issues identified through the provincial and local level structures are yet to be institutionalized.

– Similarly, while data were reported at the local level, there was no feedback loop across the three-tier structure. In addition, the systematic use of data for corrective action was rarely observed.

– Planning and budgeting were taking place at the federal, provincial and local levels, but a standardized process for joint planning across levels seemed to be lacking, leading to sub-optimal use of resources due to potential duplication of activities. Local leadership in particular voiced the need for a consultative planning process to ensure effective targeting of resources to address local priorities and alignment with national goals.

**Funding**

Overall financing for the immunization programme is well described in the 2018 Joint Appraisal report, 2018 to Gavi, the Vaccine Alliance (Gavi). In this document, polio transition was identified as a key risk to programme implementation, due to the significant support, currently funded through the Global Polio Eradication Initiative that the WHO-Immunization Preventable Disease (WHO-IPD) unit provides to Nepal’s immunization programme and vaccine-preventable disease surveillance functions overall. This includes support to measles surveillance; such surveillance is critical to reaching measles elimination. A national polio transition plan has been developed and was endorsed by the Polio Legacy Committee in 2017. However, this plan has not yet been reviewed and endorsed in the context of federalization.

At present, the GoN funds MR1 vaccine doses in entirety, as well as the rubella component of MR2. The measles component of MR2 is funded by Gavi, but this support will end in late 2020. Gavi will fund both commodity and operational costs for the 2019 MR SIA.

The review team was told of some delays in programme funding and salary disbursements to government staff as a result of the change to the federal structure. Also, while MR SIA funding will be provided by Gavi, the financial oversight mechanism for the 77 Health Offices and 753 local bodies which will receive direct funding (under the current governance structure) for campaign operational support was not clear.

**Human resources**

The GoN has in the past issued guidelines regarding staffing of health facilities. These can be found in Section 4.2. A comprehensive document that describes the staffing at different health facilities and the terms of reference for staff could not be located; comprehensive information on current staffing was also not available to the review team.

A study on the distribution and skill mix of the health workforce in Nepal published in 2013 identified that, despite a 45% increase in population in the last two decades, the

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number of sanctioned health posts remained based on the 1991 National Health Policy and did not take into consideration the demographic shifts and population growth of the last decades.

**Staffing**

- **Federal:** As noted above, there has been a merging of the previous Child Health Division and Family Health Division to form the new, larger, FWD. One of the five sections under FWD is the Child Health and Immunization Service Section. The combined staffing of the two previously-existent separate Sections (Child Health and Immunization) was 10 individuals; the staffing of the new Child Health and Immunization Service Section is now only four persons at the federal level.

- **Province:** The new provincial government structure does not have a ministry of health. The Division of Health Services is under the provincial Ministry of Social Development, under which there is a Health Section, under which again there is a public health sub-section looking after all public health services including immunization. Overall the Health Section has a small number of staff tasked with supporting around hundred odd municipalities in the province. Moreover, as the municipalities enjoy a degree of autonomy from the province with direct funding from federal level, it is not clear what kind of leverage the provincial Ministry of Social Development, and/or Health Section would have on guiding municipal health staff.

- **District:** Under the restructuring process, staff has been reduced and exact responsibilities remain to be further defined.

- **Municipal and health facilities** were observed to be adequately staffed.

- **Most significantly,** the rapid establishment of 753 autonomous administrative units and the consequent increased staffing needs have resulted in personnel without necessary skills and experience as immunization managers being put in charge of immunization services in many of the 753 local bodies.

**Motivation and performance**

- **The review team noted good knowledge and commitment among health workers regarding measles elimination and the need for achievement of full immunization.**

- **The review team appreciated the crucial role that the Female Community Health Volunteers played in helping reach previously unreached populations.** The team often commented that the Volunteers’ work most likely prevented the substantial decline in immunization coverage experienced in many other countries that have undergone decentralization, including many countries in Latin America.

- **Restructuring and the lack of predictability of transfer posting** appeared to be affecting staff morale and productivity, especially at provincial and district levels. Health staff at these locations was not clear about terms of reference for positions.
The review team noted that Expanded Programme on Immunization activities related to planning, training, supervision and coordination appeared affected. This, in turn, was felt to put at risk the maintenance of high quality immunization services, high immunization coverage, possibly disease surveillance and, ultimately, the elimination of measles.

**Staff capacity and training needs**

- Administrative data on immunization coverage are available. However, the review team did not see evidence that health workers or programme managers systematically analysed these data and used them to improve coverage on a consistent basis. This lack of analysis seemed attributable to a lack of the necessary skills among health workers as well as programme managers.

- As per the cascade training plan, one person from each health facility is trained with the understanding that he or she will train the remaining staff at the health facility. However, this further training of health facility staff does not appear to occur routinely.

- Female Community Health Volunteers did not report regular training on communications with stakeholders in the community.

- Cold room helpers were not always aware of proper vaccine storage and handling procedures.

- At municipality level, mismatches were noted between workers’ skills and terms of reference.

**Supervision**

- The review team did not see evidence of supervision happening from province to facility level except by the province-positioned surveillance medical officers doing substantial work to support the strengthening of essential immunization services.

- The general supervisory checklist used by provincial-level staff in supervisory positions to supervise workers in health care facilities was very broad based and had only three immunization-related questions.

**Conclusions**

Overall, Nepal has what can be characterized as an “accelerated disease control programme”, not yet reaching the level of an elimination programme. Political commitment to immunization and measles elimination is high, and some immunization-focused structures are in place. However, to ensure high-quality and rigorous programme implementation to accelerate progress towards achieving the measles elimination goal, programme oversight and coordination mechanisms need to be strengthened in the context of the new federal structure. Aspects of financial management, some of which have direct implications for the 2019 SIA,
also require urgent attention. In terms of human resources, health workers have good basic knowledge and commitment to immunization. However, restructuring and uncertainty around transfer posting is affecting morale and may risk productivity, especially at province and district levels. Oversight mechanisms from federal as well as provincial levels in the context of the new federal structure are yet to be established. Maximizing the potential of staff to improve the immunization programme will require further training, especially on the use of data to drive actions for routine immunization strengthening and measles elimination.

**Recommendations**

**Programme Management**

- Establish a national-level measles and rubella elimination steering committee to drive the programme to success. The role of this committee can be summarized in the phrase “provide oversight, review, monitor and respond”. The Chair of the committee should be a high-level Ministry of Health and Population leader/official committed to overseeing and supporting the achievement of the goal.

- Establish clear lines of authority within and between levels of government in the federal structure that will ensure accountability and set clear terms of reference necessary to reach measles elimination.

- Provincial Health Directorate and District Health Offices need clear authority to provide technical and supervisory support to palikas.
  - A mid-level role (between province and municipality) is urgently needed to support supervision and management of municipality activities.

**Funding**

- Ensure domestic funding for sustainability of MR2 after Gavi support for the measles component of this ends in late 2020.

- Establish clear, streamlined, manageable, and time-tested financial and programmatic mechanisms practised in past MR campaigns for disbursement, spending and reporting of the 2019 SIA operational support funding.

- Review and update the 2017 polio transition plan in the new federal context to ensure funding and technical assistance for routine immunization and measles and rubella elimination activities.

**Human resources**

**Key recommendations**

- The Child Health and Immunization Service Section at the FWD should be adequately staffed to guide the Expanded Programme on Immunization in the federalized context when the newly formed provinces and municipalities need technical assistance.
• The Provincial and District Health Offices need clear authority to provide technical and supervisory managerial and financial support to all municipalities in their catchment areas. A dedicated focal point on immunization will help ensure that the measles elimination target is reached.

• Establish minimum criteria for staff in terms of the right public health skills set, training and experience required in order to be appointed to health coordinator positions at palika level.

• Conduct training needs assessment for staff at different levels.

• Health coordinators need training on human resource management, communications and use of data.

• Recent structural changes mean that all health workers are now vaccinators; hence health workers should receive need based training on immunization practices.

• New health workers require an initial orientation and basic training on vaccination skills while existing staff require regular refresher training on immunization and vaccine-preventable disease surveillance.

• Female Community Health Volunteers will benefit from training in communication, especially inter-personal communication skills.

Cold room helpers and sub-centre helpers require training to ensure proper vaccine storage and handling procedures.

Additional recommendations
• Province and local levels need to adapt and use the existing immunization training modules.

• Budget should be allocated for additional trainings and the instituting of systems to track the health manpower being trained

• The existing generic supervisory tool used by the FWD should be revised to include more immunization-focused questions.

Service delivery, advocacy and communications, and cold chain

Background and Findings

Service Delivery
• Nepal considers essential immunization service delivery as key to implementing effective primary health care services. By virtue of its national Immunization Act passed by Parliament in January 2016, immunization in Nepal is a child’s right. Country ownership is a core guiding principle of the Global Vaccine Action Plan
To that end, the Act also includes provisions for an immunization trust fund and approximately 20-30% of the country’s vaccine needs are now procured from the nation’s national budget. Nepalese authorities recognize that country ownership will be crucial for sustaining the future of immunization in Nepal. As a result of these approaches to child health, immunization service delivery benefits from being a national priority and progress towards establishing a national programme of effective immunization service delivery has been substantial.

- Although experience from other countries shows that the decentralization of immunization services often results in a decrease in immunization coverage, to date Nepal’s coverage, both nationally and sub-nationally, does not seem to have suffered substantially. This could be because the roll out of federalization for the peripheral levels started from July 2018 and the national Health Management Information System has not yet captured the full year’s data (July 2018 to July 2019) to make firm conclusions.

- Nonetheless, it was clear to all review teams that visited the provinces that the newly established three tiers of autonomous governance structure is expected to take some time to stabilize, especially with regard to coordination and oversight modalities between the three tiers. During this period, it is very likely that the national immunization programme would be severely challenged to mount any aggressive or innovative actions, like the upcoming MR campaign. Further, the country’s capacity for high quality vaccine-preventable disease surveillance, critical to reaching measles elimination, will be adversely affected by the anticipated decreases in polio eradication funding unless appropriate actions are taken now.

- Visits to the field confirmed that community engagement and demand for immunization are considerable. The tools used to ensure that effective immunization delivery reaches the unreached include, but are not limited to: universal use of micro-plans, the extensive network and work of the Female Community Health Volunteers, and implementation of the Fully Immunized District policy (which has recently been expanded to include MR2, although this expanded definition has not yet been applied in the field). These factors may explain how immunization coverage does not appear, from the data available to date, to have been substantially affected by decentralization. Despite the change and the attendant uncertainty, the programme continues to perform relatively well with some variability, suggesting that there is always room for improvement.

- Service delivery rests on programme management and human resources; the gaps noted in service delivery have largely been mentioned in the previous sections on these topic areas and include: leadership; effective supervision and management lines of authority; effective coordination of all levels of government, as well as

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with beneficiaries, interested stakeholders, and key partners; optimal and rational distribution of human resources; and data quality.

Advocacy, communications and demand creation

Under the Ministry of Health & Population, the National Health Education Information and Communication Centre is responsible for developing, producing, and disseminating messages to promote and support all health-related programmes and services in an integrated manner, and has previously developed an integrated communication strategy. One of the main strategic pillars of this document, *National Communication Strategy on Maternal, New-Born, Child Health 2011–2016*[^17], was community mobilization of unvaccinated and under-vaccinated communities to increase coverage. However, this document has not been updated and no strategy on tailored communications for immunization (that is to say, targeting specific populations or diseases) has been developed. Communications and health advocacy are not mentioned in the National Immunization Technical Advisory Group’s 2018 annual report[^18] or in the GoN’s Joint Appraisal report to Gavi[^14].

Nepal’s 2016 Demographic Health Survey examined the extent to which different media were accessed by the public, with television being most commonly accessed, followed by radio and newspapers. Men were more likely to access all forms of media than women. Reported immunization-related communication challenges were: reaching mobile and migrant families as well as urban and peri-urban communities; interpersonal communication challenges; and lack of awareness of vaccination among unreached and underserved populations[^19].

No national data are available on vaccine hesitancy, although this is anecdotally reported to be very low. Nepal has conducted media orientation during SIAs.

During field visits, it was observed that community members trust the health and immunization system. Female Community Health Volunteers, who number over 52,000 (on average one per ward of each erstwhile village development committee) nationwide, play a key role in creating links between national programmes and the community, creating demand, and leading to good community awareness of immunization in general. However, there was a major gap in knowledge and awareness of and community demand for MR2, with little evidence of demand generation for this relatively-recently introduced vaccine dose.

At many sites visited, health staff was not aware of new initiatives in immunization, such as the second year of life immunization platform and measles elimination. Staff reported that no training on advocacy and social mobilization had been held since 2015. Availability of printed information, education and communication materials was variable. In some areas...


[^18]: NITAG (NICIP) Country Report for Nepal. 2018. Annual report on monitoring of the implementation of the National Immunization Programme by the NITAG. NICIP

good posters and job aids were displayed, but, in general, teams found that communication materials available at the community level were inadequate or outdated - for example, some print materials did not reflect introduction of MR2 and fractional inactivated polio vaccine. In the two provinces (2 and 5) currently experiencing the greatest transmission of measles, sociocultural barriers were observed to lead to under-vaccination of some sub-populations and communities. Nonetheless, there were no tailored communication strategies or plans available at provincial or palika levels specifically targeting these underserved communities.

Best practices were also observed by teams. In one setting in which low acceptance of vaccine had led to a measles outbreak, the review team was able to speak to the mayor, resulting eventually in the positive involvement of local religious leaders and an advocacy visit by the team to a local religious school (Figure 5).

*Figure 5. Review team advocacy visit to religious school, Nepal, 2019*

In another setting, a list of missed children was prepared monthly and used by Female Community Health Volunteers to locate missed children and inform them of vaccination sessions. The in-charge had also made a number of efforts to reach out to religious minorities. Through these activities, the municipality had achieved Fully Immunized status.

Vaccine procurement, licensing, lot release, management and cold chain

Procurement, licensing and lot release

Nepal’s National Immunization Program provides vaccination against 11 vaccine-preventable diseases. The immunization service is delivered through the government health network and non-governmental sectors. The government supplies all vaccines and immunization-related logistics to all institutions, including those in the private sector, free of cost. The National Immunization Program coordinates with other divisions of the Department of Health Services, including the Logistics Management Section, for immunization supply chain management and with the Management Division for waste management, biomedical equipment maintenance and information management.

Traditional Expanded Programme on Immunization vaccines are procured by the GoN through competitive bidding. New and under-used vaccines are procured through UNICEF
and funded by Gavi with co-financing by the government except for inactivated polio vaccine which is entirely supported through Gavi/Global Polio Eradication Initiative funding. Vaccine licensing is overseen by the Department of Drug Administration (DDA), an entity directly under the Ministry of Health and Population and independent of the FWD, headed by a Director General. Vaccine licensing is provided on the basis of licensing within the vaccine’s country of origin; no human vaccines are currently manufactured in Nepal. All vaccines and devices used in Nepal’s Expanded Programme on Immunization (including MR) and including those procured directly by the GoN are WHO pre-qualified. Once vaccine clears customs, the consignment is stored under cold chain in the Logistics Management Section awaiting lot release certificate from the DDA. The vaccine lot number(s) are recorded by the DDA, the accompanying documents checked and the lot release certificate issued before the lot is released to the programme. A detailed record of lot distribution is maintained by the Logistics Management Section. Although plans exist to develop seven provincial drug authority offices, with standards and coordination remaining with the federal office, vaccine procurement and licensing will continue to be handled federally.

**Management and cold chain**

Two types of software to manage vaccine logistics are currently in use at national level, each covering specific provinces. In 2015, an online Inventory Management System for cold chain equipment and vaccines was introduced with support from UNICEF/Nepal to address previously-identified issues with stock management systems and procedures.

A cold chain equipment inventory was conducted in 2016, and an effective vaccine management assessment in 2017, with a subsequent effective vaccine management improvement plan developed for the period 2017-2019. The latest effective vaccine management assessment report has established that the country scored at or above 80% on four parameters as targeted in the effective vaccine management assessment improvement plan.

Based on these, other programme parameters and a proposed supply chain design in the country, a comprehensive cold chain equipment rehabilitation and expansion plan has been formulated for the Nepal immunization supply chain for the period 2016-22, supplemented by a repair and maintenance plan, although maintenance is largely donor-dependent. A cold chain equipment optimization platform support group has been formed and is now functional. The cold chain equipment optimization platform proposal submitted to Gavi has been approved and equipment roll out and installation is expected to start from 2019.

Trainings have been conducted in recent months on cold chain equipment repair and maintenance, cold chain and vaccine management, and temperature monitoring of vaccine cold chain. Gavi support for health system strengthening has contributed to supply chain leadership through capacity building of the supply chain work force.

Based on recent assessments, at field level, 3,608 health facilities (service points) have no cold store and are providing immunization services to their catchment population through
outreach services only. However, many of these facilities cover large catchment areas and would benefit from a functional cold chain in order to provide both fixed and outreach sessions to improve immunization coverage and availability of services. At present, there is not adequate national level storage space for all MR required for the 2019 SIA. In view of this, arrangements have been made to have vaccine delivered in four instalments, each of which will be moved to the field prior to the arrival of the next instalment.

Teams observed that temperature charts were maintained in many places, and back-up generator facilities were available at provincial and district vaccine centres. In general, no shortage of vaccines was reported in the past three months. In 2018, however, there was a shortage of Bacille Calmette-Guerin syringes attributed to distribution errors.

In the current fiscal year, several difficulties with budget allocation for transportation of vaccine and supplies were reported. Although there are now seven provinces, two of these new provinces (2 and 6) do not have vaccine stores, leading to some gaps in timely supplies. In some districts visited, although supervisory visits were happening regularly, there was no dedicated budget for monitoring and supervision of district stores and sub-stores. Gaps in dry supply storage space were observed in provincial cold rooms, especially at the Provincial Health Logistic Management Centre – Butwal. Here vaccine supplies, including auto-disable syringes, were stored outside of the building (covered only with a roof), while other dry commodities (in this case, condoms) were stored inside next to the newly installed walk-in cold room refrigeration unit (Figures 6&7).

Figure 6. Condoms stored indoors next to walk-in cold room
Figure 7. Syringes stored outdoors under roof

One of the three walk-in cold rooms at Provincial Health Logistic Management Centre – Butwal had been out of order for the last month despite a formal request to the Central Vaccine Store. Various items of small equipment (for example, the data logger and electronic transmitter) were also noted to be out of order. The vaccine inventory software system in
some Provincial Health Logistic Management Centres also did not function properly. The team noted that, in Kailali District, the alarm system in the walk-in cold room was broken, resulting in the need for a staff person to be on watch. Almost all field teams noted that, in most health facilities visited, vaccine carriers were old and needed replacement. However, these shortcomings were not universally observed – for example, the district vaccine store of Kapil Vastu was well kept, clean, and in excellent condition, and all required records were well maintained.

**Conclusions**

*Health service delivery*

- Progress toward measles elimination may be fragile given the risks of decentralization, subnational coverage inequities and the epidemiology of measles virus transmission leading to large outbreaks after periods of seemingly low levels of transmission with the simultaneous accumulation of susceptibles. The longer that identified programme gaps remain unaddressed, the greater the risk to maintaining essential immunization services, sustaining high quality surveillance, and, ultimately, reaching the elimination of measles.

- The chain of command and terms of reference of involved actors with emphasis on supervision, management, monitoring and evaluation need to be defined. There is an enormous local capacity development opportunity that will need technical and supervisory oversight; this is well-understood by virtually everyone. These issues are raised elsewhere in this report but ensuring that they are addressed is critical to ramping up service delivery. This will be required to move from an accelerated disease control to a measles elimination programme.

- Implementation of Independent Monitoring of Routine Immunization has been impressive and should be prioritized during this transition period, with continued focus on reaching the unreached, ethnic minorities, urban slums, and other high-risk areas. Variability in the approach could threaten successful achievement of measles elimination.

- Future sustainability of effective service delivery, supported by effective supervisory oversight, timely distribution of vaccines and supplies, and rapid outbreak response measures, will require careful consideration of the role of each level of the government structure (federal, provincial, and local), including districts. In particular, there is uncertainty about the role of the district health office.

*Communications and health advocacy*

- Despite the excellent practices observed in selected communities, overall the existing advocacy and communication strategies are not sufficient to create adequate community demand, especially for vaccines beyond infancy, or to generate support from the local political leadership to achieve the national measles elimination goal.
At present, advocacy, communication and social mobilization activities do not appear to be a priority within the immunization programme.

- To reach the national measles elimination goal and to increase immunization coverage equity, there is a need to focus on targeted communication interventions to address specific populations, such as religious groups, the urban poor and remote underserved communities.

**Cold chain and vaccine management**

- Although deficiencies were noted with vaccine management at field level, the effective vaccine management improvement plan which is in place should help to address these. The Gavi-supported cold chain equipment optimization platform will play a pivotal role in improving the national cold chain system over the next few years and beyond.

- The data management component, especially real time electronic recording through a nationally supported uniform logistics system with visibility of vaccines and ancillary equipment stock levels, is an area for immunization system strengthening which requires special attention through additional technical assistance. Also, there is a critical gap in provincial level stores in two provinces.

**Recommendations**

**Service Delivery**

**Key recommendations**

- Programme management and human resources are critical to service delivery. Recommendations on these topics are found in the corresponding sections of this report.

- Develop and implement a plan of action that would ramp up service delivery from the current accelerated disease control status to a programme of elimination. Such a plan should be updated annually and serve as a road map for the strategies and actions necessary to achieve the elimination target. Specific items would include:
  
  - Sustaining and improving upon current service delivery efforts to reach the unreached;
  
  - Implementing the high quality SIAs required for measles elimination; and
  
  - Other components, such as disease surveillance, laboratory network, training, operations, communication and advocacy, and more aggressive outbreak vaccination response. Specific suggestions for improvements in these areas are found in corresponding sections of this report.
**Additional recommendations**

- Use data for action, for example use coverage monitoring charts and drop-out rates to enhance the established approach to reaching the unreached.
- Ensure micro-plans include migratory populations, underserved communities and all urban wards.
- Strengthen the capacity of Female Community Health Volunteers to assist with tracing and following up appropriately on children who have been missed for vaccination.
- Ensure implementation of the new Fully Immunized District policy that includes MR2 vaccination in the definition. Districts to be re-evaluated on a yearly basis to sustain Fully Immunized status.
- Engage the private sector, non-governmental organizations, civil service organizations and professional associations to increase coverage and reach measles elimination.
- Implement a policy that all health providers either show documentation of having received two doses of MR or receive two doses of vaccine.

**Communications and advocacy**

- Develop a risk communication plan and strategy.
- Increase advocacy and engagement for measles elimination by orienting local leadership and communities.
- Develop evidence-based, tailored immunization communication strategies and plans, information, education and communication materials, and community engagement activities (including infographic and interactive approaches for low-literacy populations). Develop targeted communication strategies for communities at high risk for low vaccination coverage (for example, Dalit, Madheshi and Adibasi Janajati communities) and peri-urban populations.
- Build the capacity of health staff in interpersonal communication and how to engage communities, especially for MR2 vaccination.

**Cold chain and vaccine management**

**Key recommendations**

- Conduct careful planning to ensure that all cold chain requirements of the 2019 SIA are adequately met.
- Accelerate and ensure optimal implementation of the effective vaccine management improvement plan in the context of federalization and strengthen effective vaccine management practices.
• Ensure effective monitoring and timely implementation of the cold chain equipment optimization plan roll-out as per the intended target for 2019 and subsequent years.

• Undertake temperature mapping of all cold rooms as per effective vaccine management standards and conduct a regular temperature monitoring study every 3-4 years.

**Additional recommendations**

• Develop a vaccine and cold chain handler’s handbook and train staff on a regular basis.

• Consolidate the software used nationally to monitor vaccine supplies to a single system.

**Disease surveillance, outbreak investigation and response, laboratory support**

**Background and Findings**

**Disease surveillance, outbreak investigation and response**

Laboratory supported case-based surveillance is one of the key strategies laid out in the *Measles Elimination and Rubella/CRS Control, National Strategic Plan.* The Midterm Review Of The “Strategic Plan for Measles Elimination and Rubella and Congenital Rubella Syndrome Control In The South-East Asia Region: 2014–2020” conducted in 2017 highlighted ensuring optimal laboratory supported case-based surveillance as a top priority and urged all Member States in the Region to shift to broad fever and rash surveillance to increase the sensitivity of the surveillance system. The Ninth Meeting of the WHO South East Asia Regional Immunization Technical Advisory Group also emphasized the need to have a robust surveillance system and recommended that countries urgently update surveillance guidelines to conform to elimination standard surveillance. This meeting also recommended increasing the reporting efficiency for measles cases by ensuring expansion of the measles and rubella surveillance reporting system as well as broadening the case definition of suspected cases to “acute fever and maculopapular rashes”. Finally, the Third Meeting of the WHO South-East Asia Regional Verification Commission for Measles Elimination and Rubella/CRS Control recommended that Nepal report on the efforts made to evaluate granular surveillance data below second

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administrative level, on involvement of private sector in measles and rubella surveillance and on efforts to implement and strengthen CRS surveillance in the country. 22

The Epidemiology and Disease Control Division of the GoN is responsible for general communicable disease outbreak investigation and response. However, vaccine-preventable disease outbreaks are, practically speaking, handled by WHO (through the surveillance medical officer network) in conjunction with the FWD, following WHO technical guidelines. The funding support that was earlier available for district level rapid response teams for outbreak response is currently not available after federalization.

Surveillance for measles, integrated into the acute flaccid paralysis surveillance network, started in Nepal in March 2003, with laboratory testing of suspected measles cases. Rubella testing was started in 2004. In 2007, measles case-based surveillance was started.

Currently, measles and rubella surveillance are conducted as laboratory-supported case-based surveillance for acute fever and maculopapular rash through the WHO-supported acute flaccid paralysis and other vaccine-preventable disease surveillance network that has dedicated surveillance medical officers hired by WHO. Measles and rubella cases are also reported through aggregated reporting in the Health Management Information System. However, different disease surveillance programmes are currently using different case definitions for suspected measles and rubella: The Health Management Information System and Integrated Management of Childhood Illnesses surveillance use the definition of “fever, rash and one at least of cough, coryza or conjunctivitis” while the vaccine-preventable disease surveillance network uses “fever and rash”.

National measles, rubella and CRS surveillance guidelines exist but are not aligned with elimination requirements, particularly in regard to definitions used for outbreaks and the outbreak response protocol. CRS surveillance is done as sentinel site surveillance.

Most surveillance performance indicators are met. In 2018, the key performance indicator of non-measles non-rubella cases of fever and rash per 100 000 population as a proxy to measure sensitivity of surveillance was more than 4 per 100 000, double the target of 2 per 100 000 population. Six of seven provinces met this target. However, only 73% of districts met this indicator. Surveillance performance indicators are jointly reviewed by WHO-IPD and the FWD at national level every quarter, but such mechanisms do not exist at the provincial, district and municipal levels. The indicator for timeliness of sample collection and turnaround time from the laboratory has been well met except during a brief period in 2018; this was due to difficulties with test kits and has since been resolved.

The health coordinators in municipalities have been designated as focal points for and coordinate all surveillance activities but are limited by their knowledge and skills and

are mainly dependent upon WHO polio surveillance staff. No dedicated focal points for vaccine-preventable disease surveillance at federal and provincial levels exist.

Not all health facilities are reporting units (that is to say, mandated to report weekly regardless of number of cases) or informants (mandated to inform only when cases are seen) and only selected large hospitals and some private institutions are reporting units (735) and/or informants (1100+) for suspected measles and rubella cases. Measles cases are looked for only in paediatric outpatient departments and wards and not in medical (adult) wards, dermatology clinics or emergency rooms, as measles is perceived as an illness restricted to childhood. The surveillance and outbreak guide, case investigation forms and outbreak investigation tools were not found in the health facilities visited. A lack of capacity to conduct case and outbreak investigations was noted in local health facilities; these investigations are fully dependent on the surveillance medical officer network.

Skilled human resources for venepuncture, particularly for children and in the mountains and high hills, were not always available to collect blood samples. Maintaining the reverse cold chain during sample transportation is not always easy and is expensive. In 2018, less than 16% of samples met timeliness indicators for transportation to the laboratory and reporting back of laboratory results.

An outbreak investigation protocol exists at national level while the concept of rapid response teams exists. However, rapid response teams are yet to be formed in many areas and, where existing, were observed to be incapacitated by lack of skills and funds. In addition, tracing of contacts and identification of the index case do not seem to always be included in outbreak investigations.

The mechanism for cross border collaboration for surveillance findings across districts and international boundaries was not functional.

**National Measles and Rubella Public Health Laboratory**

The National Measles and Rubella Public Health Laboratory, housed within the National Public Health Laboratory, is a laboratory which was re-accredited by WHO in 2018 and provides laboratory support to Nepal’s measles and rubella surveillance network. It is aided by a second laboratory, considered “proficient” by WHO, which tests a relatively small proportion of all specimens and is located in Province 1. ELISA testing and virus isolation is performed in-country, while genotyping is performed by the Regional Reference Laboratory in Bangkok, Thailand. There is no known significant source of private measles and rubella laboratory testing in Nepal.

The National Measles and Rubella Laboratory has a total of five staff including the chief, who is new as of January 2019. Two staff members are contractual, funded through the National Public Health Laboratory by WHO.
Test kits for measles and rubella serology are supplied through the Regional measles-rubella laboratory network; there is currently no provision in the national government procurement system to purchase the kits. Periodic stock outs have been observed due to supply difficulties within the measles rubella laboratory network.

Laboratory results are shared by Excel spreadsheet with WHO-IPD, which inputs them into a consolidated data base and does a final case classification. Monthly data reconciliation meetings as well as ad hoc meetings as necessary are held between WHO-IPD and the National Public Health Laboratory. Specimen testing is done twice weekly, up from weekly in early 2018.

**Conclusions**

Surveillance for measles and rubella is adequate for the indicator non-measles non-rubella rate to be exceeded. Nonetheless, from several perspectives the current approach to surveillance and outbreak investigation is closer to that of an accelerated disease control rather than a disease elimination programme. Overall, measles and rubella surveillance (including laboratory support) and outbreak investigation are heavily dependent on funding derived from polio eradication. Furthermore, in future, surveillance and outbreak response could be hampered by the lack of flexible domestic funding for this activity.

**Recommendations**

*Disease surveillance and outbreak investigation and response*

**Key recommendations**

- Following the completion of the planned SIAs with MR in last quarter of 2019, update surveillance and outbreak guidelines to elimination standard, and implement the updated guidelines. Updates would include moving to outbreak response to each confirmed case. In addition, case definitions should be streamlined across various programmes.

- Broaden the base of informers and reporting units to ensure all measles and rubella cases are captured. Inclusion of all health facilities and front line Female Community Health Volunteers as informants would be important to ensure that all cases of fever and rash are captured. This could be done following a contact analysis to understand care seeking behaviours.

- Conduct periodic reviews of surveillance data at province, district and municipality levels for corrective action as is done in the quarterly review meetings held at national level; this will require building capacity at province and district levels in order to conduct such reviews in municipalities. Identification of focal points at province and district level for vaccine-preventable disease surveillance would permit coordinating and conducting programme performance reviews in municipalities.
similar to those done at national level between WHO-IPD and the National Immunization Program.

- Ensure mechanisms for collaboration across domestic and international boundaries for surveillance. Collaboration within domestic borders could be done through the newly re-established district health offices. Existing International Health Regulation mechanisms should be explored for coordination across international boundaries. Use measles surveillance strengthening to strengthen disease surveillance generally.

- Establish a pool of flexible funding which can be used for outbreak response. This will be important once Nepal begins measles outbreak response immunization.

**Other Recommendations**

- Continuously orient informants and other relevant individuals, including Female Community Health Volunteers, Immunization Coordination Committee members and local leadership on vaccine-prepreventable disease surveillance and any role these individuals may have in reporting suspected cases.

- Explore the feasibility of using alternate sampling mechanisms for laboratory confirmation (for example, dried blood spots, oral fluids) in hard-to-reach areas where sample collection and transportation are challenges.

- Plan the gradual transfer of skills from WHO surveillance medical officer to surveillance programme focal point, if such are designated by GoN, especially for case and outbreak investigations, as has been done in India.

**National Measles and Rubella Public Health Laboratory**

- Continue to implement the improvements suggested during the 2018 (re-) accreditation visit.

- Review and update the national polio transition plan in the context of federalization to safeguard the measles-rubella surveillance infrastructure currently supported by polio eradication funding.

**Surveillance for adverse events following immunization (AEFI)**

**Background and Findings**

Surveillance for AEFI in Nepal was established in 2004. Minor AEFI are reported on a monthly basis through the Health Management Information System. Operational guidelines and standard operating procedures for AEFI reporting exist, but need updating. Severe AEFI are reported immediately at local level to the public health officer and the surveillance medical officer. An investigation of the AEFI is made jointly by the surveillance medical officer and a local government official, who report directly to the FWD. WHO-IPD coordinates case
investigation, information collection, and follow-up as needed, and works with the Chair of the AEFI investigation committee to determine causality. A limited government fund for compensation is available (Immunization Trust Fund); however this fund is rarely accessed.

The AEFI investigation committee is mandated by Nepal’s Immunization Act, which also mandates membership. The mandated members are: three paediatricians (one of whom is Chair and one a representative of the Nepal Paediatric Society), a public health expert, a pathologist, the Chief of the Child Health and Immunization Service Section, and a representative of the DDA. Causality assessment is based on 2017 guidance from WHO. WHO-IPD is the de-facto secretariat of the investigation committee. The committee meets quarterly and also holds ad hoc meetings as needed.

In 2016 the country reported a rate of 255 AEFI per 100,000 surviving infants (34 severe AEFI), and in 2017 a rate of 226 per 100,000 surviving infants (15 severe AEFI). Data are not yet finalized for 2018, however 26 severe AEFI were reported during that year. All reported severe AEFI have been investigated and classified.

In 2012, the program experienced a cluster of eight AEFI cases; four of the children in question died, all due to immunization error. Nonetheless, immunization uptake overall was not affected by this event. Although in general the media has a positive attitude to immunization, individuals interviewed noted that various articles demonstrate a poor understanding of AEFI and causality. No specific arrangements have been made to reach out to the media, for example through conducting media workshops on AEFI, or preparing lists of media contacts.

Conclusions

The AEFI surveillance and case investigation system appears functional. However, operational guidelines and standard operating procedures need to be updated. To date, the country has never experienced a decrease in coverage related to AEFI, but has made only limited preparations to prevent this happening in future.

Recommendations

- A training workshop on AEFI should be held for media. This is of particular importance prior to the 2019 SIA.
- Collaboration between the FWD and the DDA should be encouraged to ensure that the DDA is fully apprised of any AEFI linked to a specific vaccine lot. This would be particularly important prior to the 2019 SIA.
Federal committees

Background and findings

National Immunization Advisory Committee (NIAC)

The NIAC, which functions as Nepal’s national immunization technical advisory group, is mandated by Nepal’s 2018 Immunization Act.8

The previous NIAC was dissolved in mid-2018 and re-formed in December 2018. The re-formed committee has not yet been in existence long enough to assess many aspects of its functionality. Some members of the new NIAC underwent recent training by WHO’s Regional Office for South-East Asia which offered guidance to national immunization technical advisory groups on providing programme oversight and evidence-based decision making. The NIAC is still in the process of operationalizing the training that was received and defining its role vis-à-vis other immunization-related committees (for example, the Measles Verification Committee). It intends to implement a conflict-of-interest statement policy for members.

The Chair expressed concern as to how the recommendations of the NIAC would be implemented within the country’s newly federalized context.

Measles Verification Committee

The Measles Verification Committee was assessed against standards in the Regional Verification Guidelines for Measles and Rubella Elimination.10 It is a stand-alone committee which reports to the GoN through the NIAC. The five-member committee was established in 2015, and has participated energetically in field visits, compiled and reviewed information to monitor progress toward measles elimination, and supervised and guided the development of the annual report. Prior to the National and International Review, the Measles Verification Committee conducted field visits to provinces 2 and 5 and offered programmatic recommendations tailored to each administrative level on strengthening the provinces’ approaches to measles elimination (report available at XXXXX).

Conclusions

The NIAC has recently been reconvened and is in the process of becoming fully operational; how this committee’s recommendations can be operationalized in the federal context remains to be defined. The Measles Verification Committee has played an active role to date; as the country nears measles elimination, the guidance needed will shift more toward that needed to meet verification criteria and lines of evidence.

Recommendations

- The NIAC should continue to operationalize recent training received from WHO and establish a conflict-of-interest policy for members.
• Channels for implementation of NIAC recommendations under the federalized structure should be established.

• As the country approaches measles elimination, Measles Verification Committee guidance should focus on providing programmatic guidance consistent with verification criteria and lines of evidence.

Provinces 2 and 5

Background and findings

As noted in Section 1.2, provinces 2 and 5 experienced the greatest incidence of measles cases in the nation in 2018. Of a total of 247 confirmed measles cases nationally, province 2 accounted for 126 (41%) and province 5 for 56 (23%). Identifying and addressing the programmatic challenges leading to this epidemiological picture was of primary importance to the review. This work benefited from the February field visits conducted by the Measles Verification Committee (report available at xxxxxxx). More detailed conclusions and recommendations from the national and international teams visiting provinces 2 and 5 as part of the review are found in Annex 3; full reports are available at xxxxxxx. Key findings and recommendations are summarized here.

In general, teams noted political will and commitment from health staff to reach measles elimination, as well as the important role played by Female Community Health Volunteers in mobilizing the community. Systems and personnel to conduct immunization were in place, however, due to the recent governance transitions, lines of accountability and understanding of who reports to whom were not clear. The role of the province was limited to coordination, and this only if it was acceptable to palikas. There was limited awareness of surveillance indicators, and little evidence of systematic use of data for action at the local level. Nonetheless, the teams noted that the surveillance system had successfully identified these provinces as being areas of high transmission.

Conclusions

Overall, provinces 2 and 5 were noted to have political will and commitment from staff for elimination. However, the ability to reach elimination was considered to be currently hampered by challenges with coordination, oversight, and lines of authority as well as by limited use of data to identify and reach unreached children.

Recommendations

• Advocate with provincial and municipal leadership for oversight of the immunization programme.

• Identify poorly performing health facilities for focused attention.
• Build the capacity of health staff to use data and identify, track and mobilize children who have been missed for vaccination.

• Orient *palika* staff to immunization programme management with an emphasis on accountability.

• Ensure a high quality MR SIA to vaccinate unreached children against measles and rubella.
3. Conclusions and recommendations

Nepal has celebrated many vaccine-preventable disease successes, including polio eradication, maternal and neonatal tetanus elimination, and rubella/CRS control. The measles control programme has also accomplished an impressive and commendable reduction in measles transmission in the past decade and a half. However, in its current state, the programme is operating in an ‘accelerated disease control’ mode, and will need to make improvements in a number of areas in order to become an ‘elimination’ programme. Furthermore, these improvements will need to be made in the context of federalization, which will pose an added challenge.

An elimination programme rests on three key pillars:

- political commitment and leadership at all levels, with particular attention to coordination within and between levels,
- technical excellence, and
- operational excellence.

The political commitment in Nepal for health and immunization as a priority is evident; nonetheless, the extent of visible political engagement for the measles elimination goal is lacking. Immunization coverage for infant antigens is high; however, both MR1 and MR2 coverage remain below the 95% needed for elimination. Surveillance indicators are largely being met, but surveillance and outbreak response guidelines are not yet consistent with elimination standards.

In order to move from an accelerated disease control mode to an elimination programme, the following actions are recommended based on findings from this review.

Leadership and coordination

- Establish a national-level measles and rubella elimination steering committee to drive the programme to success. The role of this committee can be summarized in the phrase “provide oversight, review, monitor and respond.” The Chair of the committee should be a high-level Ministry of Health and Population leader/official committed to overseeing and supporting the achievement of the goal.
- Ensure clear lines of authority and accountability for the measles elimination goal (at all levels of the new federalized governance structure) with clear terms of reference. Ensuring adequate oversight and accountability within the immunization programme overall will also be critical to maintaining a well-functioning immunization system.
- Define the role of District Health Offices and support them to provide necessary technical and supervisory support to municipalities.
- Ensure active engagement of provincial and local governments.
Technical excellence – a key phrase summarized by the team as “Having the right people with the right skills in the right place at the right time”.

- Match existing skills to positions, especially among municipal health coordinators.
- Conduct a training needs assessment and institute necessary trainings with appropriate on the job follow-up trainings.
- Update and disseminate technical guidance documents.

Operational excellence

- Update the national measles-rubella strategic plan.
- Link this updated plan to a targeted, annually-revised and updated Plan of Action.
- Monitor Health Management Information System data by palika and health facility to drive MR1 and MR2 coverage – use data for action!
- Use surveillance data to identify and address immunization gaps.
- Use concurrent monitoring data to identify less-well performing municipalities and provide support to these to improve their performance.
- Ensure high quality (≥95% coverage overall and by palika) of the upcoming 2019 SIA by conducting pre-campaign readiness assessments, as per global guidance; these should start at least six months before the anticipated date of the activity.
- Use the SIA to strengthen routine immunization, as proposed in Nepal’s application for 2019 supplementary immunization activity funding to Gavi.
# Annexes

Annex 1. List of national and international review team members by province visited.

<table>
<thead>
<tr>
<th>S.N</th>
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<th>Designation</th>
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<tr>
<td>1</td>
<td>Dr K Lisa Cairns</td>
<td>Team Lead – Measles Rubella International Review Team</td>
<td>Consultant to WHO</td>
<td>Federal level</td>
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<td>2</td>
<td>Dr Anindya S Bose</td>
<td>MO-EPI, Team Lead, IPD</td>
<td>WHO-IPD</td>
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<td>3</td>
<td>Ms Stephanie Shendale</td>
<td>Technical Officer, Measles Rubella International Review Team member</td>
<td>WHO-HQ</td>
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<td>4</td>
<td>Dr Sarala Malla</td>
<td>Member, National Validation Committee for Measles Elimination (NVCME)</td>
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<td>Dr Sagar Shukra</td>
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<td>6</td>
<td>Dr Sudhir Khanal</td>
<td>Medical Officer, Measles Rubella International Review Team member</td>
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<td>7</td>
<td>Dr Govinda Prasad Ojha</td>
<td>Chair, NVCME</td>
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<td>Ms Lata Bagacharya</td>
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<td>11</td>
<td>Dr Pankaj Bhatnagar</td>
<td>NPO-Deputy Team lead, Measles Rubella International Review Team member</td>
<td>WHO-India</td>
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<td>12</td>
<td>Dr Binod Prasad Gupta</td>
<td>NPO-Surveillance Cluster Lead</td>
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<td>Ms Carol Szeto</td>
<td>Senior Country Manager, - Measles Rubella International Review Team member</td>
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<td>Dr Kedar Baral</td>
<td>Member, NVCME</td>
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<td>Dr Jon Kim Andrus</td>
<td>Member, RVC, Measles Rubella International Review Team member</td>
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<td>22</td>
<td>Dr R P Bichha</td>
<td>Director</td>
<td>FWD</td>
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<tr>
<td>23</td>
<td>Dr Rahul Jha</td>
<td>Medical Officer</td>
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<td>Mr Shiva Subedi</td>
<td>Health Officer</td>
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<td>Ms Mona Lacoul</td>
<td>NPO-Data Cluster Lead</td>
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<td>26</td>
<td>Dr Nanda Lal Sikarmi</td>
<td>RSC</td>
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<td>27</td>
<td>Dr Imran Mirza</td>
<td>Health Specialist, Measles Rubella International Review Team member</td>
<td>UNICEF HQ</td>
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<tr>
<td>28</td>
<td>Dr Jhalak Shama Gautam</td>
<td>Chief-Child Health and Immunization</td>
<td>FWD</td>
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<td>Dr Mohammad Rashidul Alam</td>
<td>MR International Review Team member</td>
<td>MoH Bangladesh</td>
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<td>34</td>
<td>Mr Tulashi Prasad Subedi</td>
<td>Immunization Officer</td>
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<td>Health Officer</td>
<td>UNICEF</td>
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<td>Dr Nirupa Pallewatte</td>
<td>Measles Rubella International Review Team member</td>
<td>MoH Srilanka</td>
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<td>Mr Jagannath Dangal</td>
<td>Immunization Officer</td>
<td>FWD</td>
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<td>Mr Madan Chand</td>
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<td>Imm Monitoring Focal Point</td>
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<td>Dr Namrata Bhatta</td>
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Annex 2: Sanctioned human resources by administrative level

Source: Management Division, DoHS, GoN (2007; translated from Nepali)

Sanctioned human resources at Health Posts

- Senior /Public Health Officer– 1
- Public Health Officer- 1
- Statistic Officer- 1
- Health Assistant- 3
- Public Health Nurse- 1
- Lab. Technician- 1
- Cold chain- 1
- Accountant-1
- Administrative Officer-1
- Office Assistant- 2
- Driver-1

Sanctioned human resources at Primary Health Center/Health Center

- Medical Officer – 1
- Health Assistant (HA) / Senior Auxiliary Health Worker- 1
- Staff Nurse- 1
- Auxiliary Health Worker (AHW)- 2
- Auxiliary Nurse Midwife (ANM) - 3
- Lab. Assistant- 1
- Office Assistant- 3

Sanctioned human resources at Health Office (District)

- Sr./Public Health Officer– 1
- Public Health Officer- 1
- Statistic Officer- 1
- Health Assistant- 3
- Public Health Nurse- 1
- Lab. Technician- 1
- Cold chain- 1
- Accountant-1
- Administrative Officer-1
- Office Assistant- 2
- Driver-1
Annex 3.: Key Conclusions and Recommendations of Field Visits

Province 1.

Conclusions

- Federal structure comes with a huge opportunity for local planning and resource mobilization. Provincial health directorate has a key role to play and ensure that such coordination and accountability mechanism (including supervisory role) are enshrined in the provincial health act or equivalent document.

- Monitoring and supervisory roles of all federal structures need to be streamlined. Ensure that the Immunization Coordination Committee has well defined terms of reference and accountability mechanism.

- Routine immunization performance for first dose of measles rubella vaccine (MR1) and second dose of measles rubella vaccine (MR2) not at desired level for elimination program. Need to strengthen second year of life platform for MR2 coverage.

- Female Community Health Volunteers are pivotal to generate demand for MR2. Provincial and municipality officers need to be fully aware of the Expanded Programme on Immunization as well as national and international commitments.

- Measles and rubella surveillance basically driven by World Health Organization (WHO) and seen as WHO responsibility in the field. Vaccine-preventable surveillance not part of Early Warning, Alert and Response System and only six diseases reported in the Early Warning, Alert and Response System; mismatch between case definition in Integrated Management of Childhood Illnesses and vaccine-preventable disease surveillance guide

Recommendations

- Advocacy by the Family and Welfare Division (FWD) and partners with all Provincial Social Development Ministry to ensure better coordination among various levels of federal structure and allocation of local resources for immunization.

- To ensure that the provincial health acts or equivalents that are in the process of being developed by respective provinces include mechanism on coordination and accountability among various layers of federal structure.

- Federal programme guidelines to ensure such linkages between provinces, districts and local level.
- Reactivation of Immunization Coordination Committee for Routine Immunization, . Ensure the terms of reference of the Immunization Coordination Committee include accountability indicator like reviews and reporting on defaulter tracking for MR2.
- Every municipality to conduct Expanded Programme on Immunization review with focus on defaulter tracking and updating the micro plans to include hard-to-reach populations.
- Instruction to regularly discuss on MR2 during mother groups’ meeting is key to enhance coverage.
- Orientation of the elected members of province and municipalities, wards will have to be conducted at the earliest.
- Streamline measles case definition and surveillance protocol across programs (Integrated Management of Childhood Illnesses, Early Warning, Alert and Response System)
- Data for action- capacity building of province, district and municipalities to periodically review data and use for corrective action.

**Province 2.**

**Conclusions**

- Systems and personnel are in place but oversight and coordination from province and districts are lacking
- Attention on need to improve MR2 coverage for last one year. Data quality variable, use of data for planning corrective actions is weak
- Health staff do not monitor surveillance indicators, some not aware of indicators and sensitivity of surveillance
- Risk of surveillance going down if surveillance medical officer network not continued after 2 years
- Systems in place for outbreak detection and response
- Staff is adequate at different levels there are issues around capacity, coordination and accountability
- Community mobilization is mainly dependent on Female Community Health Volunteers and vaccinators.

**Recommendations**

- Clarify role of province and district under new structure
- Build capacity of provincial staff, Health Coordinator and HF I/C on supervision and data for action
- Revitalize immunization coordination committee
- Disaggregate data in Health Management Information System by health facilities to allow for identification and follow up of poorly performing health facilities
  - Build capacity of health workers and supervisors on data analysis and actions to be undertaken based on the finding
  - Revise outbreak definition of measles in Nepal context
  - Categorize cases as preventable and non preventable
  - Establish accountability mechanisms at provincial and municipality level
  - Define role of province and district in the new system
  - Train vaccinators to administer vaccines even if mother is not carrying card and use all opportunities for advocacy with parents

**Province 3.**

**Conclusions**

- Strong leadership and engagement in the Expanded Programme on Immunization observed at the local level, but change to the federal structure during this transition period, however, is causing disruption to the system.
- Sessions are being conducted as planned; system at the service delivery is intact, but measles outbreaks had occurred in selected hard-to-reach areas with social and cultural barriers; need for development of a strategy to target these sub-populations (disaggregation by geography, social groups, season).
- Vaccine-preventable disease surveillance system is functioning well; case detection and notification and sample collection are adequate but sample transport, storage and shipment to central laboratory is entirely done by WHO-Immunization Preventable Diseases group (WHO IPD).. There is no plan in place for the government to take over these activities
- Provincial level is aware of the measles elimination goal, but not all local leaders are aware of measles elimination goal.

**Recommendations**

- Have regular (quarterly/biannual) review meetings with local authorities for programme updates and identification of corrective actions.
- Revisit strategy for hard-to-reach populations and build in flexibility to allow for local adaptations; implement strategies to strengthen routine immunization.
- Allocate additional, flexible budget to address issues with hard-to-reach populations.
• Gradually build capacity in the system to take over activities around sample collection, transport and shipment to central laboratory.

• Increase advocacy on measles elimination by orienting local leadership and health coordinators.

• Develop and use mass media and information, education and communication materials to increase awareness of MR2 and measles elimination goal; encourage translation into local languages

Gandaki Province

Conclusions:

• Great progress has been made in Gandaki Province towards universal essential immunization services and coverage, measles rubella surveillance, and the elimination of measles with control rubella and congenital rubella syndrome (CRS). However, the progress may be fragile given the risk of decentralization and the epidemiology of measles virus transmission leading to large outbreaks after periods of seemingly low transmission levels.

• Provincial authorities should be congratulated for their innovations such as the provincial immunization law.

• The implementation of Independent Monitoring of Routine Immunization has been impressive and should be prioritized during this transition period, with continued focus on reaching the unreached, ethnic minorities, urban slums, and other high-risk areas.

• Effective coordination between all levels of the government and stakeholders will be essential for success.

• The Nepalese government should take urgent action to solve the human resource challenge and end the current level of uncertainty that risks the future success of measles elimination.

• Almost everyone we met commented on the data quality challenge. With municipalities being delegated as the local authority for implementation, data entry and transmission emerges a key gap to be addressed urgently.

Recommendations

• Solving the Human Resource distribution issue is absolutely critical; the current status quo is highly concerning. The longer the solution is delayed, the greater the risk to essential immunization services, sustaining high quality surveillance, and ultimately, the elimination of measles. The chain of command and terms of reference of involved actors with emphasis on supervision, management, monitoring and evaluation need to be defined. There is an enormous local capacity development opportunity that will need technical and supervisory oversight; this
is well-understood by virtually everyone. But, the solution has yet to be totally defined and implemented.

- Successful achievement of measles elimination will require developing and implementing a plan of action to ramp up services, especially addressing essential immunization pockets of poor performance (reaching the unreached through continued focus on microplanning and implementation), while also addressing the need to conduct a high-quality nation-wide measles rubella SIA, and to sustain high quality surveillance efforts.
  - Ultimately reaching 95% coverage for MR1 and for high-quality supplementary immunization activities (SIAs) will be critical for elimination. In addition, high coverage with MR2 will also be important.
  - Reaching the measles elimination target will require the implementation of high-quality follow-up vaccination campaigns at least every four years.
  - Successful achievement of measles elimination and increasing the demand for essential immunization services will require a strong component for effective communication and advocacy.
  - Local authorities and providers must understand that immunization does not stop at the age of one, but rather it continues in the second year of life and beyond throughout the life course.

- Measles elimination will also require renewed efforts to address missed opportunities MR1 and MR2 vaccination, and to enhance rapid immunization response to the occurrence of cases.

- Data at the municipality level needs to be used to target planning and delivery of services.

- The District Health Office needs clear authority to provide technical and supervisory support to all municipalities in the catchment area of each district. A dedicated focal point on immunization will help ensure that the measles elimination target is reached.

- Private sector engagement in all aspects of measles elimination (immunization and surveillance included) will need urgent attention.

- Nepal should consider implementing a policy that requires all health care providers to have documentation that they are vaccinated against measles and rubella.
Province 5.

Conclusions

- Overall, commitment and motivation is there, however due to recent changes, line of accountability and reporting is lacking. Role of 2nd tier (province) is only coordination (if accepted by Palikas)
- No special strategies and plans developed or funds allocated to reach hard-to-reach communities
- Extremes of performance (excellent and not so good) were observed at palika level,

Recommendations

- There should be clarity on regulation of monitoring, supervision, reporting and accountabilities (whether by center or province) of the local level for health programmes.
- Minister suggested that there should plans developed on the role of the Province for health.
- Intense supervision and monitoring and capacity building of staff is required.
- Strengthening of defaulter tracing system is also needed.
- Capacity development on how to approach and reach hard-to-reach populations, development of tailored planning and strategies
- Develop a communication strategy and plans for community based activities (due to low literacy, printed information, education and communication materials will not be useful). Tailored communication strategies for deprived communities.
- Build capacity of Female Community Health Volunteers and involve them for defaulter tracing and follow-up.

Province 6.

Conclusions

- Low coverage and low dropout at hard-to-reach areas.
- Female Community Health Volunteers are giving low priority to immunization in mothers’ group meeting (according to Female Community Health Volunteers register)
- Poor monitoring and supervision from municipality side.
- Continuous availability of vaccinators at all level
- As Province has not received any formal letter regarding the SIA from centre, they have not started preparation.
No risk communication plan

Although vaccinators are advocating for immunization, that seems to be not sufficient (high drop out)

Discrepancy between target population and actual population leading to difficulties in calculating administrative coverage

**Recommendations**

- Strengthen the tracing and tracking system of missed children by using Female Community Health Volunteers
- Incentive scheme for HSP in specific areas
- Vaccinators should be trained on regular basis
- Outbreak response committee should be formed at Provincial Level
- In preparation for the scheduled SIA, health facilities and municipality should be sensitized to form a committee for campaign planning, and a line list of targeted children in the community should be prepared
- There should be updated standard jingle for vaccination.
- Information, education and communication material should be developed and municipality should be accountable.
- Data quality assessments should be conducted at all levels

**Sudurpaschim Province**

**Conclusions**

- Immunization is a top priority activity in the province, but health is a low priority at the level of municipalities. Therefore allocation of funds for health activities is very difficult.
- Roles of each institution/ persons are not clear and not documented. This will hamper the oversight mechanism, monitoring and supervision
- There is no proper coordination between the Central Ministry and Provincial Ministry. Coordination between different agencies with in the province does not exist.
- Monitoring and supervision is not adequately happening at all levels. Staff do not have adequate capacity/ resources to conduct monitoring
- Technical guidance from the national level to provincial level poor.
- System of tracing of missing children is poor in urban centres. No strategies identified in the micro plans to approach the hard-to-reach.
• Overall vaccine coverage for MR1 and MR2 is sub-optimal and not sufficient to reach the elimination goals.
• Digitalized inventory management system not properly functioning
• Emergency care facilities not available for management of severe adverse reactions
• The vaccine-preventable disease surveillance is carried out at present by the WHO surveillance medical officers. A system is not established in the government sector yet.
• Case finding is based on passive screening. Contact tracing is not happening.
• Collected data are not used for action and the timeliness and accuracy of information needs improvement
• Training programmes are not based on assessment of training needs. Training plan is not available. Training curricula/modules recently not updated according to the new initiatives. Modules updated by the central ministry not reached to provincial level.
• No clear directive for MR campaigns.

**Recommendations**

• Strong advocacy should be carried out for provincial/local politicians with evidence-based information to draw more attention towards health and immunization.
• Role of each institution should be clearly identified and documented. Job descriptions for each category of staff should be made available.
• Intra & inter-sectoral coordination between different levels should be strengthened
• Monitoring /supervision should be strengthened. Officers of supervisory capacity should be trained. Monitoring indicators should be available and periodic reviews should be carried out in a planned manner.
• Female Community Health Volunteers and mothers groups should be used for tracing children who missed vaccination. Target based approaches should be introduced to reach the hard-to-reach
• Vaccine coverage should be monitored regularly. Reasons should be explored for low coverage and evidence based interventions should be made to improve the coverage. More attention should be paid to the districts with low coverage.
• Emergency kits should be distributed to all vaccination centres and staff should be trained
• Focal point for surveillance should be identified at the province and trained in order to taking over the functions of SMO if necessity arises in future.
• Data analysis should be done on a regular basis and findings should be used for future planning. Feedback and guidance should be given to reporting units for
corrective actions. Staff should be trained on interpretation of data and usage of these.

- Attempts should be made to improve timeliness of reporting. Onsite data verification should be adopted during supervision.
- Training plan should be prepared following a need assessment.
- Proper guidance regarding the SIA should be given timely to enable staff to pre plan the activities.
Joint National and International Measles, Rubella and Congenital Rubella Syndrome Programme Review, Nepal 2019