

## Immunisation programmes

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Immunisation programmes have traditionally focused on preventing disease in infants or older children. However, these programmes also have the potential to save newborn lives by preventing tetanus or rubella through the immunisation of women. In sub-Saharan Africa, up to an estimated 70,000 newborns die each year in the first four weeks of life due to neonatal tetanus. This predicament exists, even though neonatal tetanus is eminently preventable through two US\$0.20 injections of tetanus toxoid (TT) during pregnancy or hygienic practices at birth. There has also been growing interest in preventing congenital rubella syndrome through vaccination.

In addition to preventing these life-threatening diseases, the immunisation of newborns and future mothers as part of programmes such as the Expanded Programme on Immunisation (EPI) and financially supported by the Global Alliance for Vaccines and Immunisation (GAVI) and others, provide opportunities to strengthen or deliver other maternal, newborn, and child health (MNCH) interventions. Novel strategies such as Child Health Days/Weeks or Immunisation Days, often offer a package of other interventions besides immunisation, thereby offering the opportunity to deliver interventions specifically targeted at neonates as well as crosscutting maternal and newborn health problems.

What are the opportunities to scale up current immunisation programmes to save newborn lives, and how can immunisation services enable the delivery of other important MNCH interventions?



## Problem

Each year, over four million African children – including over one million newborns – die before their fifth birthday, many of whom die from vaccine-preventable diseases. Vaccination and immunisation programmes are crucial in reducing death, illness, and disability.<sup>1</sup> All countries have established immunisation programmes, but the level of vaccination coverage achieved is often linked to the developmental status of each country's health system, infrastructure, managerial capacity, and available funding. Failure to reach mothers and newborns, especially through antenatal care (ANC) and in the early postnatal period, contributes to gaps in immunisation coverage. Thus the goal of universal coverage, important for both immunity and equity, is still not achieved.<sup>2</sup> The burden of maternal and neonatal tetanus (MNT) and the cost-effectiveness of its prevention make maternal and neonatal tetanus elimination (MNTE) particularly relevant for maternal health and newborn survival. Lack of effective coverage of immunisations, especially tetanus toxoid (TT) vaccination, and missed opportunities within immunisation programmes negatively affect women, newborns, and children.



**Effects on women:** Because maternal tetanus infection is a condition of the poor, affecting women who have not been immunised and who give birth in unhygienic conditions, information about the size of the problem is lacking.<sup>3</sup> The real tragedy is that deaths attributed to tetanus infection could have been prevented through focused antenatal care, immunisation, clean childbirth practices, and effective postnatal care. Immunisation programmes, however, fail to vaccinate many women with two or more doses of tetanus toxoid (TT2+), indicating an inadequate health system infrastructure and mostly affecting those with the least access to care, such as minority groups and rural populations.

**Effects on newborns:** Infections, which include tetanus, account for 39 percent of the 1.16 million newborn deaths occurring every year in sub-Saharan Africa.<sup>4</sup> The region's high neonatal mortality rate (NMR), however, provides an opportunity for dramatic reductions in deaths due to infection, specifically tetanus. According to recent estimates, neonatal tetanus causes up to 70,000 deaths in 30 African countries, but because neonatal tetanus is a disease of the poor, whose deaths often go uncounted, there is uncertainty around such estimates. Case fatality rates for neonatal tetanus are high, and 70 to 95 percent of babies with the infection may die in the absence of intensive care.<sup>4</sup>

**Effects on children:** The protection that a newborn may have against tetanus, which is gained through the passage of tetanus anti-toxins from an immunised mother to the fetus during pregnancy, will not last through childhood, putting the growing child at greater risk of infection. Children should receive a full course of immunisations with vaccines that include TT. In most countries, immunisation schedules include Bacille Calmette-Guérin (BCG) vaccine, diphtheria, pertussis, and tetanus toxoids vaccine (DPT), oral polio vaccine (OPV), measles and Hepatitis B vaccine. The majority aim to reach children before their first birthday. To be fully protected against vaccine preventable diseases, children must have several contacts with the health care system in their first year of life.

Certain social and cultural practices may increase the risk of some conditions that are preventable by immunisation, adversely affecting immunisation coverage. For example, in some cattle-herding communities, putting cow dung on the umbilical cord is seen as a sign of blessing, ensuring the baby will grow up to own many cattle.<sup>5</sup> This practice, however, invites a massive risk of infection from neonatal tetanus. In other cases, communities may fear and reject immunisation that specifically targets pregnant women because they interpret it as birth control.

## Abena – every newborn counts

Abena – her name means “girl born on a Tuesday” – was born in a dark hut. Abena’s mother, Efua, had no money to go to hospital for the birth, and Efua’s aunt helped her, cutting the cord with a dirty blade and covering Abena’s cord with an old piece of cloth. Abena was able to suck well at first, but on the third day, Efua noticed that her sucking was weak. By the fourth day, Abena’s muscles were stiff, she could not suck at all, and her body went into spasms at any disturbance. Her life only lasted five days. Efua’s aunt buried the little body in the yam field and warned Efua not to cry, or the spirits would take away her next child, too. No one registered Abena’s birth or her death.

### Package

- Immunising a high proportion of babies before, at, or soon after birth is integral to the success of many of the vaccines that reduce death or illness in infancy and later life. Immunisation programmes can safeguard the health of babies not only by vaccinating newborns during the postnatal period, but by administering the vaccines to the mother, thereby impacting the newborn. Most immunisations that target newborn health, such as TT and the rubella vaccine, are administered to the mother. Of these, TT has the greatest impact, but other vaccinations given prior to pregnancy, such as the rubella vaccine, also have the potential to save lives and reduce serious illnesses and disability. In addition, there are a number of vaccines given to babies just after birth, notably:
  - BCG vaccination to reduce the risk of tuberculosis
  - Hepatitis B vaccination to prevent hepatitis B infection
  - OPV to prevent polio infection

This chapter will focus on immunisations that directly save newborn lives, particularly from tetanus, but will also mention the rubella vaccine. It will briefly outline the immunisations delivered in the neonatal period and discuss opportunities to enhance existing immunisation services by delivering other MNCH interventions and collecting better data for decision making. Finally, it will list practical steps for integrating immunisation and MNCH programmes.

#### Prevention of maternal and neonatal tetanus

Recognising the importance of MNT, the public health community has called for MNTE. Elimination status is defined as less than one case of neonatal tetanus per 1,000 live births per year at the district level.<sup>6</sup> This differs from eradication, which, as the efforts against smallpox exemplify, constitutes one concerted effort to stop the spread of a particular disease. Tetanus cannot be fully eradicated, and to achieve and maintain elimination, ongoing efforts are necessary to sustain the cases at less than 1 per 1,000 live births per year. The package for MNTE is built primarily on widespread delivery of the vaccine. It also includes the promotion of hygienic childbirth practices and active surveillance to identify and manage remaining or new cases of tetanus, even after a country attains elimination.

#### *Provision of tetanus toxoid vaccination to women*

Immunising the mother prior to childbirth with TT protects both her and her newborn against tetanus, and antenatal care is the main programmatic entry point for routine TT immunisation. A pregnant woman should receive at least two doses while pregnant, unless she already has immunity from previous TT vaccinations. Five doses of TT can ensure protection throughout the reproductive years and even longer. In areas where the health system is weak, however, supplemental immunisation activities (SIA) are used to deliver TT to all women of childbearing age in a campaign approach.

#### *Promotion of clean childbirth services to all pregnant women*

In areas with low TT coverage, health systems are usually too weak to provide women with skilled childbirth care, which can prevent MNT. With the majority of births in Africa taking place outside health facilities and slow progress in scaling up skilled care in the community, skilled attendance continues to be a challenge. However, certain community-based strategies have been successful at promoting clean childbirth and hygienic cord care outside the facility. One strategy of behaviour change addressing high risk habits after childbirth resulted in a 90 percent reduction of neonatal tetanus among the Masai in Kenya, even without increasing TT coverage.<sup>5</sup>

#### *Implementation of active surveillance and response for maternal and neonatal tetanus*

Surveillance of cases can be used to identify areas with specific disease burdens.<sup>7</sup> Unfortunately, despite legal requirements, births and deaths are often not registered in African countries, and reliable cause-specific data are even rarer. Neonatal tetanus cases and deaths are therefore grossly under-reported, at less than 20 percent – sometimes less than 1 percent – of cases (see Table III.9.1). Where reliable surveillance is unavailable, models can estimate the impact of interventions on the neonatal tetanus burden. Different models and methods produce varying results and have diverse purposes, strengths, and weaknesses, as discussed in the data notes on page 226. The main point of such models is to estimate progress and guide decision making.

**TABLE III.9.1 Under-reporting of neonatal tetanus in West Africa**

Country	Reported	Efficiency of notification
Benin	10	7%
Burkina Faso	8	<1%
Cote d'Ivoire	95	6%
Gambia	1	7%
Ghana	105	4%
Guinea	272	16%
Guinea-Bissau	5	3%
Liberia	166	20%
Mali	31	1%
Mauritania	11	3%
Niger	27	1%
Nigeria	1871	4%
Senegal	16	1%
Sierra Leone	0	0%
Togo	39	11%

Source: From reference<sup>8</sup>. Based on reported and estimated cases of neonatal tetanus

### Rubella vaccination and prevention of congenital rubella syndrome

Globally, approximately 100,000 babies are born with congenital rubella syndrome each year as a result of their mothers being infected with rubella during pregnancy.<sup>9</sup> Congenital rubella syndrome may result in stillbirth, neonatal or child death, or long term disability due to growth restriction, heart defects, cataracts, and deafness. Congenital rubella syndrome is known to be under-reported in Africa,<sup>10</sup> and awareness of the illness is often low, particularly as women may have very non-specific, unrecognised symptoms in the early weeks of pregnancy.<sup>11</sup>

Congenital rubella syndrome in the newborn is prevented by avoiding rubella infection of the mother during the first trimester of pregnancy. This can be achieved if the mother has immunity to rubella prior to the pregnancy, either after natural infection or through vaccination. Vaccination against rubella during childhood will prevent rubella infection later in life, but if coverage cannot be maintained at high levels, adult women who have not been vaccinated will have a higher risk of infection, resulting in a greater susceptibility to congenital rubella syndrome. An alternative strategy, therefore, is to immunise adolescent girls and/or women of childbearing age, either as a routine immunisation strategy or as a campaign approach, for example in schools.

WHO recommends that in low coverage settings, governments consider a policy of immunising adolescent girls and/or women of childbearing age, and once routine DPT and measles coverage rises above 80 percent, the country should consider introducing rubella into routine child immunisation programmes.<sup>11</sup>

### Immunising newborns for protection later in life

Although TT is the most obvious example of a vaccine to reduce newborn deaths, there are other relevant vaccines that impact health throughout the lifecycle. These interventions require contact between health services and the mother and baby during the postnatal period. The most frequently used are BCG, OPV, and Hepatitis B vaccine.

#### *Bacille Calmette-Guérin vaccination to reduce the risk of tuberculosis and leprosy:*

The BCG vaccine has existed for 80 years and is one of the most widely used of all current vaccines. It has a documented protective effect against the most frequent causes of TB-related deaths in childhood, tuberculosis meningitis and disseminated tuberculosis in children, as well as leprosy. It does not however, prevent primary infection and, more importantly, does not prevent reactivation of latent pulmonary infection, the principal source of bacillary spread in the community. The impact of BCG vaccination on transmission of mycobacterium tuberculosis, the infective agent, is therefore limited. High coverage of BCG indicates that infants and their mothers are within reach of the health care system and opportunities exist to deliver additional newborn care.

#### *Hepatitis B vaccination to prevent mother-to-child hepatitis B infection:*

The outcomes of infection with hepatitis B virus are age-dependent and include acute (clinically apparent) hepatitis B, chronic hepatitis B infection, cirrhosis and hepatocellular carcinoma (liver cancer). The younger the child is infected, the higher the chance of serious complications later in life. It is estimated that globally, more than two billion people have been infected with hepatitis B, of which 360 million suffer from chronic infections with a risk of serious illness and death from cirrhosis and hepatocellular carcinoma. Cirrhosis and hepatocellular carcinoma cause an estimated 500,000 to 700,000 deaths annually worldwide. Common modes of transmission include mother-to-child transmission, child-to-child transmission, unsafe injection practices, blood transfusions, and sexual contact. Vaccination with 3-4 doses of hepatitis B vaccine induces protective antibody levels in over 95 percent of recipients, lasting at least 15 years and possibly for life. A variety of schedules are used for hepatitis B immunisation in national programmes, depending on the local epidemiological situation and programmatic considerations. In most African countries, mother-to-child transmission is less common, so immunisation can begin later, based on the feasibility and cost-effectiveness of the optimal vaccination schedule. However, in countries where a high proportion of hepatitis B infections are acquired during childbirth, the first dose of the vaccine should be given as soon as possible (within 24 hours) after birth.<sup>12</sup>

### **Oral polio vaccination to prevent polio infection:**

Poliomyelitis is an acute communicable disease caused by poliovirus types 1, 2, and 3, transmitted through person-to-person contact. On average, only 1 out of 200 infected children develop paralysis.<sup>13</sup> Poliomyelitis can be prevented through vaccination, either with an inactivated injectable vaccine (IPV) or with a live oral vaccine (OPV), both of which are usually effective against the three poliovirus types. The widespread use of the OPV vaccine, both in routine settings and in campaigns, has been a cornerstone of the global polio eradication programme. The routine immunisation schedule consists of four OPV doses in the first year of life, the first of which is given at birth.



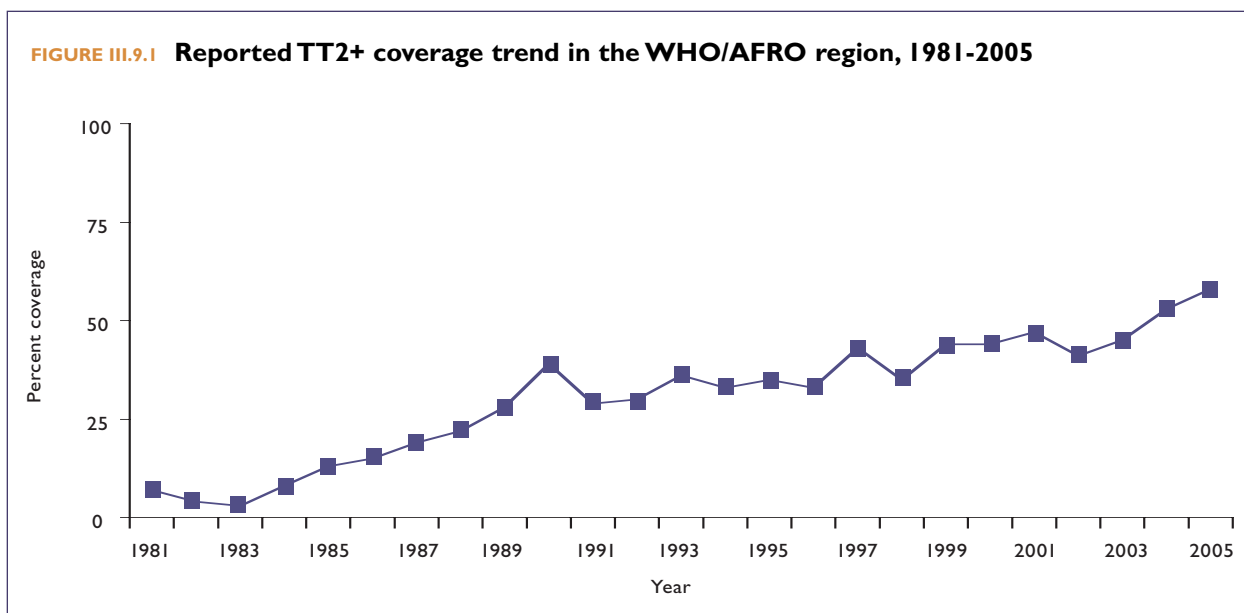
### **Current coverage and trends**

Immunisation programmes have been implemented since the 1970s and 1980s, and progress in immunisation coverage has led to a substantial reduction in the burden of childhood infectious diseases. However, according to 2004 data, only 65 percent of children under one year of age in sub-Saharan Africa received three doses of DPT3 vaccinations, compared to 78 percent globally.<sup>14</sup> While immunisation saves millions of lives every year, there remains scope for improvement, particularly among populations that do not benefit from regular health services.

### **Tetanus**

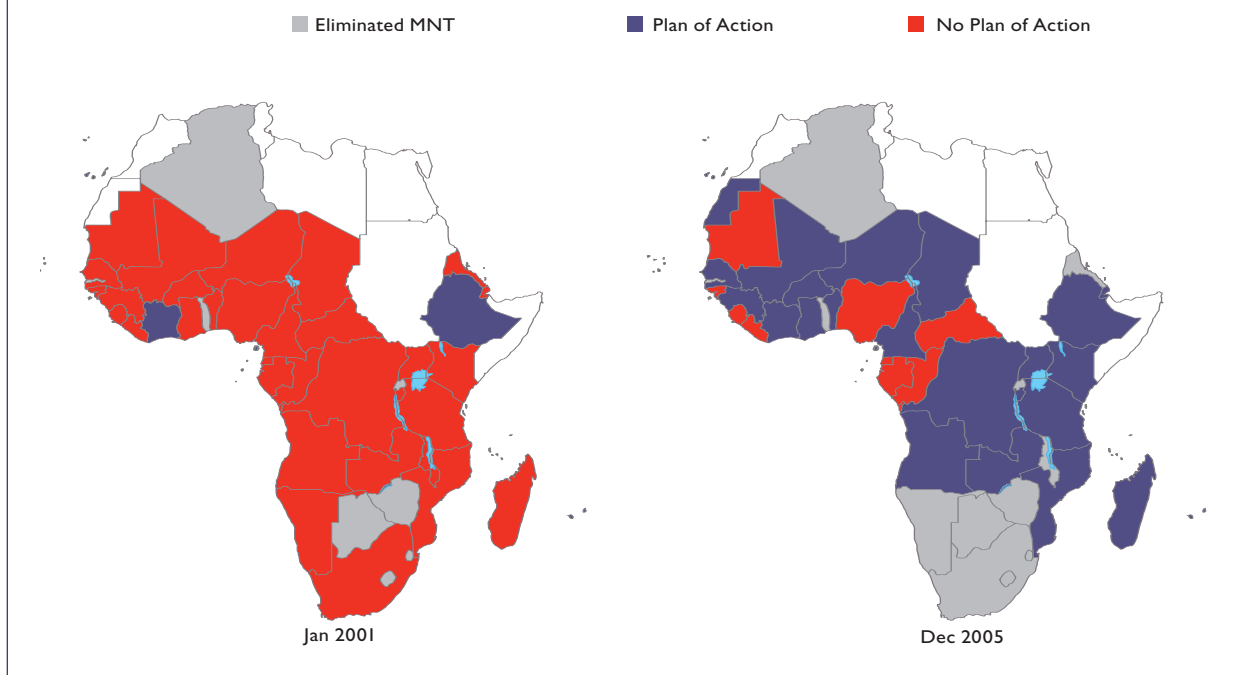
Routine tetanus immunisation among pregnant women, or TT2+ coverage in the African region, was 37 percent in 1990, 44 percent in 2000, and has been increasing recently to around 58 percent in 2005.<sup>14,15</sup> (Figure III.9.1)

In addition to increased coverage, more governments are now committed to reducing MNT, as exemplified by the development of national action plans. (Figure III.9.2) In order to accelerate progress towards MNTE, SIA have been implemented across the region, targeting all women of childbearing age in high risk areas with three doses of TT. This approach has allowed the immunisation of over 20 million women in 21 African countries living in underserved areas. These women and their children would have otherwise remained at risk of MNT. As a result of this progress, seven African countries have been validated since 2000 as having eliminated MNT.<sup>16</sup> In addition, improvements in childhood immunisation or DPT3 coverage will have an impact in the long term, as the childhood DPT doses will reduce the need for future mothers to receive multiple TT boosters in adulthood.



Source: WHO, Global and Regional Immunization Profile: African Region, 2005

**FIGURE III.9.2 Progress towards elimination of maternal and neonatal tetanus in Africa: development of countries' plans of action for MNTE**



Source: WHO regional office for Africa, 2005

### Rubella

Routine rubella vaccination remains the exception for most African countries. In 2004, only two African countries reported using a vaccine containing rubella in their childhood immunisation schedules.<sup>17</sup> Very few cases of congenital rubella syndrome are reported annually to WHO, but studies suggest that rubella is often under-reported.<sup>9,18</sup>

### BCG, Hepatitis B, and OPV

In 2004, 76 percent of newborns received BCG in sub-Saharan Africa, a proportion that has remained stable in recent years.<sup>14</sup> All countries in sub-Saharan Africa use the vaccine, and all except one administer it at birth. Of the 30 countries in sub-Saharan Africa that report the administration of the hepatitis B vaccine, four report including a birth dose.<sup>17</sup> With polio, the global effort towards eradication has narrowed the occurrence of the disease to just a few countries, with around 1,000 to 2,000 cases occurring annually. OPV is used in all sub-Saharan African countries, and in 37 of them, an OPV dose at birth is part of the routine immunisation schedule.

### Opportunities for integrating immunisation activities and MNCH

Immunisation and MNCH services are natural 'partners', given their similar target groups. It is now widely recognised that opportunities to link immunisation with other interventions must be further explored if health programmes are to generate maximum benefit. For

example, the Global Immunisation Vision and Strategy has described this integration as one of its four primary strategic areas, and the Global Alliance for Vaccines and Immunisation (GAVI) has made US\$500 million available to support health systems strengthening, which should benefit all health services, including MNCH. Immunisation services often have access to communities, enabling more equitable delivery of vaccines.<sup>2,19</sup> The programmes are flexible and use a variety of approaches, including fixed posts, outreach services, and mobile teams, depending on the distance to be covered and the target population. There are few examples where immunisation and other interventions specifically aimed at improving newborn health have been linked. A number of countries are exploring the following four opportunities, which may serve as a basis for further integration initiatives.

#### 1. Antenatal care and routine immunisation services

Several entry points exist for integrating MNCH and various immunisation programmes, specifically MNTE. This is especially evident in the opportunity to vaccinate pregnant women and women of childbearing age against tetanus. Africa's relatively high ANC coverage – 69 percent – presents an opportunity for both biomedical and behavioural interventions, including vaccinating women against tetanus, promoting skilled attendance at childbirth, and ensuring clean cord care practices. This opportunity is even greater where ANC coverage is high; in 15 countries in sub-Saharan Africa, the coverage of women attending at least one antenatal visit is 90 percent



or higher.<sup>14</sup> (See Section II chapter 2) ANC services provide an excellent opportunity to deliver a package of health interventions that includes TT in health facilities.

## 2. Immunisation Plus Days, Child Health Days/Weeks, and similar interventions

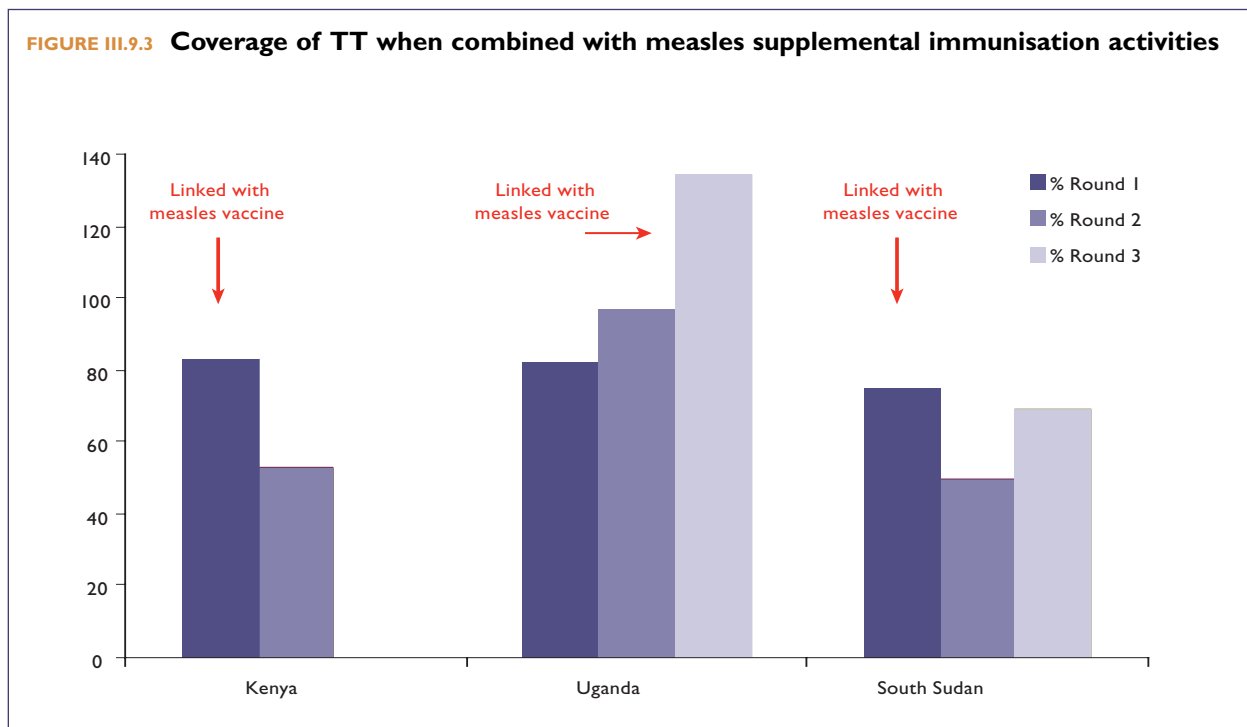
Several countries are currently implementing Child Health Days, Child Health Weeks or Immunisation Plus Days. While known by different names, these activities share a common goal of delivering a series of interventions on a regular basis (e.g. quarterly or semi-annually) by mobilising large numbers of health workers. They are more frequent but less vertical than immunisation campaigns. They are based in any combination of fixed posts, such as health facilities, temporary posts, like markets, schools, places of worship, and they use community approaches with house-to-house teams to deliver the interventions. These focused days provide additional opportunities to deliver MNCH messages as well as high impact preventative and curative interventions at the community level, including among remote populations. Packages can be tailored to country needs, available funding and supplies, and feasibility. For example, in addition to TT, intermittent preventive treatment for malaria during pregnancy, insecticide treated bednets, ANC messages such as birth preparedness, maternal antihelminthic treatment, and micronutrient supplementation can be provided to pregnant women during such outreach activities. Children can be offered a different package.

Incorporating relevant MNCH interventions with Child Health Days/Weeks not only makes a greater impact, but also reduces the overall delivery time and cost to individual programmes, because health care teams and community members converge so that the services are delivered at one well-advertised place and time.

## 3. Immunisation campaigns

Immunisation campaigns are used to achieve high coverage quickly in areas where routine immunisation has failed. They are also used to interrupt transmission and reduce the number of susceptible individuals. Throughout Africa, measles campaigns have reduced mortality, polio campaigns have interrupted poliovirus transmission, and TT campaigns have immunised women in high risk areas.

While all such campaigns provide opportunities to deliver interventions other than immunisation, such as vitamin A during polio campaigns or insecticide treated bednets during measles campaigns, SIAs for TT are especially suited to reach women in otherwise underserved areas. Districts where SIAs are to be implemented are identified using a series of indicators, such as neonatal tetanus incidence, TT2+ coverage, ANC coverage, and rates of clean childbirth. The aim is to select those districts where routine immunisation services are poor, and MNT has not yet been eliminated (see Box III.9.1). This way, the districts selected usually represent the worst-served areas in the country, and as such, they can also be labelled for other interventions.



Note: Coverage exceeds 100 percent because real population figures are unknown and target populations are based on estimates of census data and undercounting occurs in some countries.

Source: MNTE Programme Committee Meeting presentation. "The role of supplementary immunisation activities in achieving MNTE, The Example of Uganda," Gezahegn Mengiste, May 2004.

### BOX III.9.1 Mobilising communities for tetanus prevention in Ethiopia

In 2000, nearly 147,000 babies in Ethiopia died in their first 28 days of life. At that time, tetanus was the cause of an estimated 14,000 to 20,000 newborn deaths each year. Tetanus is still a major problem in Ethiopia.

Since only one in four women come for antenatal care, and an even lower proportion of poor and rural women receive ANC, the government and UNICEF decided to conduct outreach campaigns in underserved areas to ensure those women not attending ANC received tetanus toxoid (TT) immunisation whilst also working to increase antenatal care (ANC) attendance. Because only six percent of women in Ethiopia give birth in health facilities, approaches that were not dependent on health facilities were required to promote clean births, at least in the short term.

Low TT coverage was a problem of both supply and demand. The supply of the vaccine and vaccination services was not always available or accessible to poor and rural communities. When the vaccine was available, women did not necessarily come to be immunised. Save the Children US worked with partners to undertake formative research in five regions to understand why demand for TT was low. This research examined the following aspects:

- Knowledge and recognition of tetanus
- Knowledge, attitude, and practices regarding TT immunisation and reasons for not accepting the immunisation
- Practices during pregnancy and childbirth
- Access to health prevention, care services, and preferred communication channels
- Quality of care, support, and challenges among health providers and in facilities
- Opportunities for social mobilisation
- Local system in support of TT immunisation – local administration as well as community and religious leaders

It was found that neonatal tetanus was well recognised but often attributed to evil spirits. Where families knew about TT immunisation, they were often suspicious of the reasons for immunising pregnant women – would the baby die? Would the woman become infertile? At the peripheral level, it was found that health workers were often unaware of the causes of neonatal tetanus and not actively promoting immunisation or clean birth. There were issues related to quality of service as well as misinformation about when to return and temporary soreness of the injection site.

Based on the findings, campaign messages and materials were developed and tested to target segmented audiences that included both the general public and health workers. A series of television adverts were included as well as posters, flipcharts, billboards, leaflets, storybooks for schools, packets containing key messages for community leaders, videos for showing with a mobile van unit, and other channels such as radio and public talks. Communities were mobilised through existing community-based organisations.

A post-campaign assessment by UNICEF found that over 60 percent of women of reproductive age received at least 2 doses of TT. The assessment also highlighted difficulties in maintaining community mobilisation and messages about clean birth in the absence of ongoing supervision. To reach the poorest and most marginalised communities, materials require further adaptation and translation. Key partners have already begun this process.

Source: Adapted from presentation by Dr. Tedbab Degefie, Save the Children. Newborn Health Stakeholders Meeting, Addis Ababa, March 2006.





TT SIAs, which target women of childbearing age in ‘high risk districts’, offer an opportunity not only to immunise the unreached with TT vaccine, but also to provide key messages and other interventions. For example, measles vaccine has been given to children in Kenya, southern Sudan and Uganda, during TT SIA (see Figure III.9.3). Uganda has also combined polio SIAs with TT with very encouraging results. Unfortunately, few countries have taken advantage of the potential that these additional outreach activities provide.

#### **4. Linking with other services provided by immunisation programmes**

##### **4.1 Social mobilisation network**

The Expanded Programme on Immunisation (EPI) has a robust social mobilisation network that facilitates awareness campaigns in schools and public spaces, while calling on the participation of public opinion leaders and various media to reinforce the messages. This multifaceted strategy has been useful in creating demand for immunisation in many countries. The network available through EPI can also deliver key messages for improving newborn care, such as vaccination against tetanus, birth preparedness, skilled attendance, essential nutrition actions, and others.

##### **4.2 EPI data system**

The monitoring system used for immunisation interventions (routine, surveillance, and survey) provides an opportunity to monitor other maternal, newborn, and child interventions as well. The immunisation system usually monitors its performance on an ongoing basis through a number of indicators, allowing for rapid readjustment of the programme where needed. Particularly for interventions delivered with vaccinations, consideration should be given to the revision of tally sheets so that these interventions can also be monitored. While the EPI data system is an important tool, all data need to be recorded in the national health information system, which may require further strengthening, for the most effective tracking of immunisation and other interventions.

##### **4.3 Inter-Agency Coordinating Committee for EPI**

Many countries have an existing Inter-Agency Coordinating Committee for EPI, through which partners provide strategic, technical, and financial support for immunisation activities. With more attention shifting towards overall MNCH strengthening, these committees should advocate for and commit resources to MNCH rather than exclusively supporting vertically implemented interventions.

## **Challenges**

**Funding.** Funding is essential for the successful implementation and integration of all initiatives. As many initiatives have traditionally taken a vertical approach, so has their funding structure. Donors who support one specific intervention may be reluctant to add funds to support additional interventions. Yet, without such funds, opportunities for linking immunisation to other interventions may be missed. GAVI funds for health system strengthening may provide a partial solution, however, the fundraising and funding approach taken by many initiatives and programmes may require re-evaluation.

#### **Access to hard-to-reach and underserved populations to reduce inequity.**

Although immunisation is a successful programme overall, some societies and groups remain sceptical. Improved advocacy aimed at addressing socio-economic barriers and community involvement in decision making may be required to convince people of the advantages of immunisation. Lack of transportation, poor supply chains, inadequate personnel management, and similar problems may further compound the problems encountered in reaching the unreached. The high risk district approach is one way of reaching these groups. One example of this approach from Uganda is described in Box III.9.2.

**Surveillance.** Surveillance may be difficult to establish, yet it remains an important component of any health programme. The Acute Flaccid Paralysis (AFP) surveillance system, established for polio eradication, could provide a suitable infrastructure for other surveillance activities.

**Sustaining gains.** Once activities have been successfully implemented, the challenge is to continue high quality implementation. This is particularly the case when a campaign approach has been used to improve coverage rapidly and health systems are unable to provide ongoing coverage.

**Coordination of activities.** Where several departments or programmes are involved in delivering a series of interventions, coordination between them may be a challenge. Funding flows, logistical arrangements, supply and managerial issues and communication are just a few of the areas that may require special attention.

### BOX III.9.2 High risk district analysis and action plans in Uganda

In the first quarter of 2005, a review of the districts in Uganda was undertaken. Three categories of districts were classified according to their risk status for tetanus, what activities needed to be implemented to achieve maternal and neonatal tetanus elimination (MNTE), or what would sustain the low risk status. In this exercise, the districts were classified in relation to two or more doses of tetanus toxoid (TT2+) and three doses of diphtheria, pertussis, and tetanus (DPT3) vaccine, but other indicators may be used in other settings. A similar approach could serve as a baseline to prioritise high risk districts for other maternal, newborn and child health (MNCH) interventions.

**Low Risk Districts** (38) with TT2+ coverage in 2004 of 50 percent or more, with 50 percent being the national average, were targeted as those able to improve TT2+ further through routine immunisation services. Sustaining their low risk status will be built on a combination of the following strategies:

- Promotion of routine immunisation of pregnant women with TT vaccine
- Promotion of clean birth practices
- Promotion of active surveillance for neonatal tetanus, case investigation, and response
- Promotion of TT-outreach immunisation for girls in secondary schools along with proper documentation and the issuance of cards
- Promotion of TT catch-up during the biannual Child Health Days in May and November

**Low to Moderate Risk Districts** (9) with TT2+ coverage below 50 percent were still considered to have the capacity to improve TT coverage if they had DPT3 coverage of 70 percent or greater, as these districts could provide access to and utilisation of routine immunisation services. Strategies to improve coverage include increasing awareness, community involvement, accelerating outreach, providing routine immunisation services using the Reach Every District (RED) approach, and utilisation of first antenatal contact when uptake of at least one ANC visit is at least 90 percent. The annual national Child Health Day was also to be used as an opportunity to increase mobilisation for TT.

**High Risk Districts** (9) with TT2+ coverage below 50 percent and DPT3 below 70 percent were considered weak in routine immunisation and without capacity to improve TT coverage easily. This is indicative of poor access, even if utilisation is good. These districts require three rounds of TT SIAs in addition to the activities in low to moderate risk districts. The high risk districts are few in number but account for almost all cases of NT in Uganda. Some of these districts are in the Northern Region, which suffers from instability. However, identification of these populations and a strategic partnership action plan allows for accelerated progress. Simultaneous to the TT SIAs, other strategies as outlined in relation to low risk districts need to be implemented and strengthened once the district moves from high or moderate to low risk.

Source: Adapted from Gezahegn Mengiste, Ahmadu Yakubu., Trip report on review of maternal and neonatal tetanus elimination in Uganda, March 2005.

### Practical steps to advance integration

Despite ongoing challenges, the existing infrastructure, funding, and shared experience of various immunisation programmes offer opportunities to link with MNCH programmes to deliver integrated services. Some practical steps involved with this integration include:

- Ensure that roles and responsibilities between partners and departments are clearly stated and accepted. Establish a coordination body, or review and broaden the remit of an existing body (for example, the national MNCH partnership or the Inter-Agency Coordinating Committee for EPI) to coordinate the activities of partners and departments and to oversee the monitoring of implementation.
- Target high risk districts as a pro-poor strategy and harmonise activities between EPI, MNCH, and other relevant programmes. An analysis of available district-level indicators, combined with local knowledge, can be used to identify such areas. Review the interventions being implemented, key interventions to be added, and existing delivery mechanisms. Look for synergies and linkages between programmes, and take all necessary measures to ensure that necessary supply, funding, and supervision are in place.
- Resolve funding, logistical, supply, managerial, financial, and staffing issues. Utilise existing social mobilisation networks, including those of immunisation and other programmes, to deliver key health messages

and create and sustain demand for MNCH services, especially in areas where the majority of women give birth at home. Messages should emphasise how potentially harmful traditional behaviours can be changed.

- Review existing monitoring systems using selected key indicators to monitor activities. Revise tally sheets, reporting systems, and other tools. Analyse the data and observations after the activity, and use the coordination body to agree on how to further improve the implementation of joint interventions in the future.

## Conclusion

There are many challenges associated with shifting the paradigm of primarily vertical services to one of integrated MNCH services. In strong, well-established programmes, such as those that carry out immunisation, initial consensus-building needs to occur between key players to overcome these challenges. The infrastructure and large scale of EPI activities presents a number of entry points and opportunities that should be studied carefully and utilised to improve maternal, newborn, and child survival.

Immunisation coverage, even in the poorest communities of the poorest countries in Africa, has increased over the last five years. This is a great success, especially given the loss of momentum in the 1990s. Much of the focus has been on illness prevention in the older child, but immunisation is now also preventing neonatal illnesses and deaths and immunisation of neonates is providing further protection later in life.

## Priority actions for integrating immunisation programmes with MNCH

- Ensure effective coordination between partners, revitalise existing coordinating bodies
- Target high risk, under-served areas, and agree on linkages, packages of interventions, best delivery strategies, and age groups to be targeted
- Work out funding, logistical, supply, managerial, financial and staffing issues. Utilise existing social mobilisation networks
- Review existing monitoring systems and work to harmonise and link EPI and MNCH data, using selected key indicators. Evaluate progress and readjust accordingly

In recent years, immunisation programmes have demonstrated that innovative approaches not only provide an opportunity to increase immunisation coverage, but may also serve as a platform for delivery of other health interventions that benefit mothers, newborns and children. Now is the time to move on these opportunities to save lives.

