



**Government of Malawi**

# **Comprehensive EPI Multi-Year Plan 2012-2016**

## **Malawi**

Expanded Programme on Immunisation  
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Malawi

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## Abbreviations and Acronyms

AD	Autodisable syringes
AEFI	Adverse Events Following Immunisation
AFP	Acute Flaccid Paralysis
AFRO	WHO Regional Office for Africa
ARCC	African Region Certification Commission
BCG	Bacilli Calmette Guerin
CABS	Common Approach to Budgetary Support
CHAM	Christian Health Association of Malawi.
cMYP	Comprehensive Multi-Year Plan
CSF	Cerebrospinal Fluid
DFID	Department for International Development.
DHMT	District Health Management Team.
DHO	District Health Officer
DHS	Demographic Health Survey.
DPT	Diphtheria Pertussis and Tetanus vaccine
DQA	Data Quality Audit
DQS	Data Quality Self Assessment
EHP	Essential Health Package.
EPI	Expanded Programme on Immunization.
GAVI	Global Alliance for Vaccines and Immunizations
GDP	Gross Domestic Product.
GIVS	Global Immunization Vision and Strategies
GNI	Gross National Income
GSK	Glaxo Smith Kline
HepB	Hepatitis B vaccine
Hib	Haemophilus influenza type b
HIV	Human Immuno-Deficiency Virus.
HPV	Human Papilloma Virus
HSA	Health Surveillance Assistant.
HSS	Health System Strengthening
ICC	Inter-agency Coordinating Committee
IEC	Information Education and Communication
IgM	Immunoglobulin type M
IMR	Infant Mortality Rate.
ISS	Immunization Services Support
JICA	Japan International Cooperation Agency
KFW	Germany Development Bank
LQA	Lot Quality Assurance Assessment
MDG	Millennium Development Goals
MICS	Multiple Indicator Survey
MK	Malawi Kwacha.
MLM	Mid Level Management
MoH	Ministry of Health.
NCC	National Certification Committee
NIDs	National Immunisation Days
NIP	National Immunization Programme

NNT	Neonatal tetanus
NPEC	National Polio Expert Committee
NSO	National Statistics Office.
NTF	National Task Force on Laboratory Containment
OPV	Oral polio Vaccine
PBM	Paediatric Bacterial Meningitis
PCV10	Pneumococcal Conjugate Vaccine with 10 strains
PEI	Polio Eradication Initiative
PIE	Post Introduction Evaluation
POW	Programme of Work
QECH	Queen Elizabeth Central Hospital
RED	Reaching Every District Approach
SIA	Supplemental Immunisation Activities
SMC	Suspected Measles Case
SNIDs	Sub-national Immunisation Days
SWAp	Sector Wide Approach.
TWG	Technical Working Group
TOT	Training of Trainers
TT	Tetanus Toxoid vaccine
UNF	United Nation Foundation
UNICEF	United Nations Children's Fund
VMA	Vaccine Management Assessment
WHO	World Health Organization.

# 1 BACKGROUND INFORMATION

## 1.1 Geography

Malawi is a land locked country in Southern Africa sharing borders with Tanzania to the north, Zambia to the west and Mozambique to the east, south and southeast. It has a land coverage area of about 118,500 square kilometres, and a quarter of the surface area is covered by Lake Malawi. The country is divided into three regions (north, centre and south), with a total of 28 administrative districts.

## 1.2 Demography

The projected population for Malawi for 2012 to 2016 is tabulated below.

**Table 1 Projected Population for Malawi, 2012-2016**

	2012	2013	2014	2015	2016
Total population	14,844,822	15,316,860	15,805,239	16,310,431	16,832,910
Live births (4.5%)	668,017	689,259	711,236	733,969	757,481
Surviving infants (4.2%)	623,483	643,308	663,820	685,038	706,982
Under five children (18%)	2,672,068	2,757,035	2,844,943	2,935,878	3,029,924
Under 15 years of age (46%)	6,828,618	7,045,756	7,270,410	7,502,798	7,743,139
Pregnant women (5%)	742,241	765,843	790,262	815,522	841,646
Women of childbearing age (21.6%)	3,206,482	3,308,442	3,413,932	3,523,053	3,635,909

Source: National Population Census 2008 (NSO Revised Population Figures, 2010)

For vital health statistics of Malawi see Table 2:

**Table 2: Vital Statistics for Malawi**

Statistics	Indicator
Annual Growth Rate	3.1%**
Crude Birth Rate	46.5 per 1000**
Crude Death Rate	14.9 per 1000**
Total Fertility Rate	5.9 children per woman**
Neonatal Mortality Rate	31 per 1000 live births*
Infant Mortality Rate	66 per 1000 live births*
Under-five Mortality Rate	112 per 1000 live births*
Maternal Mortality Rate	675 per 100,000 live births*
Male Life Expectancy at birth	49.6 years**
Female Life Expectancy at birth	52.3 years**
Literacy rate of 15-24 year females	77.4%*
Literacy rate of 15-24 year males	81.8%*

Source: \*Demographic Health Survey 2010 and \*\*National Population Census 2008 (NSO Revised Population Figures, 2010).

### 1.3 Socio-economic Status

Malawi is one of the least developed countries in the world with GNI per capita of US \$330 (World Bank 2010). However, there has been a reduction in the proportion of Malawians living below the poverty line from 52% in 2004 to 39% (NSO Welfare monitoring survey 2009). The country is currently undergoing economic transformation, following a period of huge fiscal deficit, large current account imbalance, rapid inflation, and a fluctuating GNI. Agriculture remains the backbone of the country's economy, employing about 80% of the population (Malawi Growth and Development Strategy, MGDS 2011-2016).

## 2 HEALTH CARE DELIVERY SYSTEMS

### 2.1 Health services

In Malawi health care services are delivered by both the public and the private sectors. The public sector includes all facilities under the MoH, Ministry of Local Government and Rural Development, the Ministry of Forestry, the Police, the Prisons and the Army. The private sector consists of private for profit and private not for profit providers (mainly CHAM). The public sector provides services free of charge while the private sector charges user fees for its services. It is the policy of the Government of Malawi that the Essential Healthcare Package should be provided free of charge to all Malawians (Health Sector Strategic Plan 2011-2016). The EHP includes diseases and conditions affecting the majority of the population especially the poor and includes the following conditions: HIV/AIDS; Acute Respiratory Infections; Malaria; Diarrhoeal diseases; Perinatal conditions; Non communicable diseases (NCDs) including trauma; Tuberculosis; Malnutrition; Cancers; Vaccine preventable diseases; Mental illness and epilepsy; Neglected Tropical Diseases (NTDs); and eye, ear and skin infections.

CHAM is a not for profit health services provider and is the biggest partner for the MoH. It provides services and trains health workers through its health training institutions. CHAM facilities charge user fees for other medical services. However, the Government of Malawi has established service level agreements with CHAM facilities regarding the government-funded provision of free maternal and child health services (Health Sector Strategic Plan 2011-2016).

During the implementation of the Health Sector Strategic Plan (HSSP) the health services will be delivered at different levels: namely: primary, secondary and tertiary. These different levels are linked to each other through an elaborate referral system that has been established within the health system. At the primary level, services are delivered through community initiatives, health posts, dispensaries, maternities, health centres and community and rural hospitals. At community level, health services are provided by community-based cadres such as HSAs. District hospitals constitute the secondary level of health care and each district is supposed to have a District Hospital. They are referral facilities for both health centres and rural hospitals. They also service the local town population offering both in-patient and out-patient services. CHAM hospitals also provide secondary level health care. The provision and management of health services has since been devolved to Local governments following the Decentralization Act (1997). The tertiary level comprises of central hospitals: these provide specialist referral health services for their respective regions. Specialist hospitals offer very specific services such as obstetrics and gynaecology. There are currently 4 central hospitals.

## 2.2 Policy of the Ministry of Health

The Malawi Health Sector Strategic Plan (HSSP) (2011-2016) is the successor to the Program of Work (PoW) which covered the period 2004-2010 and guided the implementation of interventions aimed at improving the health status of the people of Malawi. The HSSP has also been informed by the draft National Health Policy (NHP) whose overall goal is to improve the health status of all the people of Malawi by reducing the risk of ill health and occurrence of premature deaths.

According to the HSSP:

- The vision of the Health Sector is: To achieve a state of health for all the people of Malawi that would enable them to lead a quality and productive life.
- The mission of the Health Sector is: To provide strategic leadership by the MoH for the delivery of a comprehensive range of quality, equitable and efficient health services to all people in Malawi by creating an enabling environment for health promoting activities.
- The goal of the HSSP is: to improve the quality of life of all the people of Malawi by reducing the risk of ill health and occurrence of premature deaths thereby contributing to the social and economic development of the country.

The implementation of the HSSP will be the responsibility of all the partners in the health sector. The Sector Wide Approach (SWAp) Memorandum of Understanding lays down the coordination mechanisms for the health sector. The SWAp provides a mechanism through which funding from Government of Malawi and from some funding agencies is pooled together.

The GoM has put in place sector technical working groups in all Ministries in recognition that better coordination of aid and alignment to government systems enhances efficiency and effectiveness, reduces duplication and ultimately improves health outcomes. The EPI sub Technical Working Group (formally ICC) is within the EHP TWG.

## 2.3 Human Resources

The coverage and quality of health services has been adversely affected by shortages of staff at all levels. To address this problem, from 2004 to 2009 Malawi implemented a 6-year Human Resource Emergency Plan. Available evidence indicates that the country has increased the health workforce from 33,470 in 2008 to 33,766 in 2010 (HRH Malawi Country Profile 2010).

Immunization is part of the EHP and mostly delivered by Health Surveillance Assistants (HSAs). To standardize services, and move them closer to the client, the EHP is undergoing an expansion of the community level of health delivery with a target of one HSA per 1,000 of the population. Currently the ratio of HSAs to 1000 in the population is 1:1,200.

### 3 SITUATIONAL ANALYSIS

EPI in Malawi has performed well since its establishment in 1979. Ten years after the establishment, the country attained the universal immunization goal when coverage was 80% and above for all antigens. The high immunization coverage has been sustained for the past years, except when there was a global vaccine shortage or when there was a change in the recommended statistical proportion of children under 1.

#### 3.1 EPI Indicators by system components from 2006 to 2010

The table below presents some selected key indicators of the immunization program for the past 5 years.

**Table 3: Situational analysis of routine EPI by system components from 2008 to 2010**

*Note: Figures for immunisation coverage for 2010 are the official estimates from the Joint Reporting Form, 2010. Coverage figures for 2008 and 2009 reflect both the administrative coverage and the official estimates, as these were the same in both years.*

System components	Suggested indicators	National*		
		2008	2009	2010
Routine Coverage	<i>National pentavalent coverage</i>	91%	93%	93%
	<i>% of districts with &gt; 80% coverage</i>	96%	96%	100%
	<i>National penta1-penta3 drop out rate</i>	-1%	-3%	6%
	<i>Percentage of districts with drop out rate penta1-penta3 &gt; 10%</i>	4%	0%	18%
	<i>Percentage of fully immunised children<sup>1</sup></i>	No data	No data	80.9% <sup>2</sup>
Routine Surveillance	<i>% of surveillance reports received at national level from districts compared to number of reports expected</i>	100%	100%	100%
	<i>Quality of surveillance data sufficient? (Y/N)</i>	Y	Y	Y
Cold chain/Logistics	<i>Percentage of districts with adequate number of functional cold chain equipment</i>	100%	100%	100%
Immunization safety and Waste Management	<i>Percentage of districts supplied with adequate (equal or more) number of AD syringes for all routine immunizations</i>	100%	100%	100%
	<i>Percentage of districts supplied with safety boxes</i>	100%	100%	100%
	<i>Percentage of districts with proper sharps waste management systems</i>	100%	100%	100%

\* It is useful to include the data source for each data set.

<sup>1</sup> BCG, measles, and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)

<sup>2</sup> DHS, 2010 (Preliminary Report)

System components	Suggested indicators	National*		
		2008	2009	2010
Vaccine supply	<i>Was there a stock-out at national level during last year? (Y/N)</i>	N	N	N
	<i>If yes, specify duration in months</i>	n/a	n/a	n/a
	<i>If yes, specify which antigen(s).</i>	n/a	n/a	n/a
Communication	<i>Availability of a national EPI communication plan? (Y/N)</i>	Y	Y	Y
	<i>Percentage of districts which have EPI communication activities in their District Implementation Plans</i>	100%	100%	100%
	<i>Percentage of caretakers of children &lt; 1yr understanding the importance of routine immunization.</i>	No data	No data	No data
Financial sustainability	<i>What percentage of traditional vaccine spending was financed using Government funds?(including loans and excluding external public financing)</i>	100% traditional	100% traditional	100% traditional
	<i>What percentage of new and underutilised vaccine spending was financed using Government funds?(including loans and excluding external public financing)</i>	10% Penta	10% Penta	6.8% Penta
Management planning	<i>Are a series of district indicators collected regularly at national level?(Y/N)</i>	Y	Y	Y
	<i>Percentage of all districts with microplans.</i>	100%	100%	100%
Research/studies	<i>Number of vaccine related studies conducted/ being conducted</i>	2 <sup>3</sup>	2 <sup>4</sup>	3 <sup>5</sup>
NRA	<i>Number of functions conducted related to immunization</i>	No data	No data	No data
National EPI sub-TWG (ICC)	<i>Number of meetings held last year</i>	1	3	7 <sup>6</sup>
Human Resources availability	<i>Percentage of sanctioned posts of vaccinators (HSAs) filled</i>	100%	95.5%	92.7%
	<i>Percentage of health facilities with at least 1 vaccinator (HSA)</i>	100%	100%	100%
	<i>Population per Health Surveillance Assistant (target is 1 per 1000 population)</i>	1,000	1,100	1,200
Transport / Mobility	<i>Percentage of districts with a sufficient number of supervisory/ EPI field activity vehicles/ motorbikes/ bicycles in working condition</i>	100%	100%	100%
Waste Management	<i>Availability of a waste management plan at national level</i>	Y	Y	Y
	<i>Vaccine wastage monitoring at national level for all vaccines? (Y/N)</i>	Y	Y	Y

<sup>3</sup> Invasive Pneumococcal Disease at QECH; GSK Rotavirus vaccine trial;

<sup>4</sup> GSK Rotavirus vaccine trial; Vaccine Management Assessment (MOH)

<sup>5</sup> Measles post-campaign coverage survey (MSF); Measles post-campaign coverage survey (MOH); DHS 2010

<sup>6</sup> Additional EPI TWG meetings were held in 2010 in response to the measles outbreak

System components	Suggested indicators		National*		
			2008	2009	2010
Linking to other Health Interventions	<i>Were immunization services systematically linked with delivery of other interventions (Malaria, Nutrition, Child health etc)?</i>		Y	Y	Y
Programme Efficiency	<i>Timeliness of disbursement of funds to district and service delivery level</i>		Y	Y	Y
M&E	<i>M&amp;E framework available</i>		N	N	N
School Immunization Activities	Age	Antigens provided	Coverage 2008	Coverage 2009	Coverage 2010
	n/a	n/a	n/a	n/a	n/a

System components	Suggested indicators		National*		
			2008	2009	2010
Routine Coverage	<i>National pentavalent coverage</i>		91%	93%	93%
	<i>% of districts with &gt; 80% coverage</i>		96%	96%	100%
	<i>National penta1-penta3 drop out rate</i>		-1%	-3%	6%
	<i>Percentage of districts with drop out rate penta1-penta3&gt;10%</i>		4%	0%	18%
	<i>Percentage of fully immunised children<sup>7</sup></i>		No data	No data	80.9% <sup>8</sup>
Routine Surveillance	<i>% of surveillance reports received at national level from districts compared to number of reports expected</i>		100%	100%	100%
	<i>Quality of surveillance data sufficient? (Y/N)</i>		Y	Y	Y
Cold chain/Logistics	<i>Percentage of districts with adequate number of functional cold chain equipment</i>		100%	100%	100%
Immunization safety and Waste Management	<i>Percentage of districts supplied with adequate (equal or more) number of AD syringes for all routine immunizations</i>		100%	100%	100%
	<i>Percentage of districts supplied with safety boxes</i>		100%	100%	100%
	<i>Percentage of districts with proper sharps waste management systems</i>		100%	100%	100%
Vaccine supply	<i>Was there a stock-out at national level during last year? (Y/N)</i>		N	N	N
	<i>If yes, specify duration in months</i>		n/a	n/a	n/a
	<i>If yes, specify which antigen(s).</i>		n/a	n/a	n/a
Communicatio	<i>Availability of a national EPI communication plan? (Y/N)</i>		Y	Y	Y

\* It is useful to include the data source for each data set.

<sup>7</sup> BCG, measles, and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)

<sup>8</sup> DHS, 2010 (Preliminary Report)

n	<i>Percentage of districts which have EPI communication activities in their District Implementation Plans</i>	100%	100%	100%	
	<i>Percentage of caretakers of children &lt; 1yr understanding the importance of routine immunization.</i>	No data	No data	No data	
Financial sustainability	<i>What percentage of traditional vaccine spending was financed using Government funds?(including loans and excluding external public financing)</i>	100% traditional	100% traditional	100% traditional	
	<i>What percentage of new and underutilised vaccine spending was financed using Government funds?(including loans and excluding external public financing)</i>	10% Penta	10% Penta	6.8% Penta	
Management planning	<i>Are a series of district indicators collected regularly at national level?(Y/N)</i>	Y	Y	Y	
	<i>Percentage of all districts with microplans.</i>	100%	100%	100%	
Research/studies	<i>Number of vaccine related studies conducted/ being conducted</i>	2 <sup>9</sup>	2 <sup>10</sup>	3 <sup>11</sup>	
NRA	<i>Number of functions conducted related to immunization</i>	No data	No data	No data	
National EPI sub-TWG (ICC)	<i>Number of meetings held last year</i>	1	3	7 <sup>12</sup>	
Human Resources availability	<i>Percentage of sanctioned posts of vaccinators (HSAs) filled</i>	x%	x%	x%	
	<i>Percentage of health facilities with at least 1 vaccinator (HSA)</i>	100%	100%	100%	
	<i>Percentage of vaccinators' (HSA) time available for routine EPI<sup>13</sup></i>	45%	45%	45%	
	<i>Population per Health Surveillance Assistant (target is 1 per 1000 population)</i>	x	x	1,200	
Transport / Mobility	<i>Percentage of districts with a sufficient number of supervisory/ EPI field activity vehicles/ motorbikes/ bicycles in working condition</i>	100%	100%	100%	
Waste Management	<i>Availability of a waste management plan at national level</i>	Y	Y	Y	
	<i>Vaccine wastage monitoring at national level for all vaccines? (Y/N)</i>	Y	Y	Y	
Linking to other Health Interventions	<i>Were immunization services systematically linked with delivery of other interventions (Malaria, Nutrition, Child health etc)?</i>	Y	Y	Y	
Programme Efficiency	<i>Timeliness of disbursement of funds to district and service delivery level</i>	Y	Y	Y	
	<i>M&amp;E framework available</i>	N	N	N	
School Immunization Activities	Age	Antigens provided	Coverage 2008	Coverage 2009	Coverage 2010
	n/a	n/a	n/a	n/a	n/a

<sup>9</sup> Invasive Pneumococcal Disease at QECH; GSK Rotavirus vaccine trial;

<sup>10</sup> GSK Rotavirus vaccine trial; Vaccine Management Assessment (MOH)

<sup>11</sup> Measles post-campaign coverage survey (MSF); Measles post-campaign coverage survey (MOH); DHS 2010

<sup>12</sup> The majority of EPI TWG meetings in 2010 were dedicated to the measles outbreak

<sup>13</sup> Estimated by job description and monthly activity plans

### 3.2 Strengths and Weaknesses of the EPI Programme

The strengths and weakness of the EPI programme are tabulated below.

**Table 4: Summary of the Strengths and Weaknesses of the EPI Programme**

Component	Strength	Weakness
<b>1. Service Delivery</b>	<ul style="list-style-type: none"> <li>• Immunization coverage has been sustained above 80%.</li> <li>• No districts with drop-out rate more than 10%.</li> <li>• Use of AD syringes in all health facilities.</li> <li>• High coverage achieved in measles SIA.</li> <li>• RED strategy is implemented in all 28 districts.</li> <li>• Integration of child survival interventions with routine EPI.</li> </ul>	<ul style="list-style-type: none"> <li>• Poor documentation of vaccine doses (negative drop-out rates) and vitamin A administered in some health facilities.</li> <li>• Lack of adherence to national policy of checking for BCG scar by some health workers.</li> <li>• Booking system for vaccinations still practiced in some health facilities resulting into missed opportunities.</li> </ul>
<b>2. Vaccine Supply, Quality and Logistics</b>	<ul style="list-style-type: none"> <li>• Ongoing rehabilitation and procurement of cold chain equipment, vehicles, motorcycles and bicycles.</li> <li>• Adequate funding and timely procurement of vaccines, injection materials and equipment.</li> <li>• No stock outs for vaccines and injection materials at the national and the regional levels.</li> <li>• Existence of a new and spacious national dry store warehouse.</li> <li>• Computerised stock management tool in use in all regions.</li> </ul>	<ul style="list-style-type: none"> <li>• Occasional problems in the distribution of EPI supplies at service delivery level.</li> <li>• Occasional problems with stock management at the service delivery level: e.g. mismatch of measles and BCG vaccines with diluents.</li> <li>• Inadequate number of incinerators.</li> <li>• Inadequate storage capacity for the national and regional vaccine storerooms.</li> <li>• High number of refrigerators and freezers in need of repair.</li> <li>• Occasional shortages of kerosene and gas.</li> </ul>
<b>3. Disease Surveillance</b>	<ul style="list-style-type: none"> <li>• Availability of Paediatric bacterial meningitis, S.Pneumoniae and Hib Surveillance Site at Queen Elizabeth Central Hospital.</li> <li>• Sustenance of quality AFP surveillance activities.</li> <li>• Measles case-based surveillance sustained.</li> <li>• Sustained elimination status of neonatal tetanus.</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate IDSR case reporting forms in some health facilities.</li> <li>• Poor implementation of operational guidelines for disease surveillance among some health workers.</li> </ul>
<b>4 Advocacy, Social Mobilisation and Communication</b>	<ul style="list-style-type: none"> <li>• Active EPI Sub-Technical Working Group (TWG).</li> <li>• High political commitment.</li> <li>• Structures exist in the community that can be used for communication in immunization services.</li> <li>• Support from partners in mobilizing resources for EPI activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate media coverage on EPI issues</li> <li>• Communication plan exists but not updated.</li> </ul>
	<ul style="list-style-type: none"> <li>• Programme considered as a priority by</li> </ul>	<ul style="list-style-type: none"> <li>• Supervision at all levels is inadequate.</li> </ul>

<b>5. Programme Management</b>	the MOH. <ul style="list-style-type: none"> <li>• Consistent staff for EPI programme.</li> <li>• Technical assistance from partners.</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge and skills regarding EPI management systems is inadequate in some districts.</li> <li>• Irregular feedback to health facilities on surveillance performance.</li> <li>• of staff in the Southern region.</li> </ul>
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### 3.3 The EPI Programme Structure

The EPI programme falls under the Directorate of Preventive Health Services of MoH. At the central level, the programme is managed by the EPI Manager and assisted by a Data Manager, Logistics Officer, Cold Chain Officer, Assistant Data Officer and two Assistant Cold Chain Officers. The Regional EPI Officers in the North and South are responsible for coordinating EPI activities in their respective regions and are assisted by the Regional Cold Chain Officers. In each district there are two EPI Coordinators assisted by Cold Chain Technicians. At health centre level, the majority of immunization services are provided by HSAs, supported by other health workers.

### 3.4 Routine Immunization

The programme currently provides measles, DPT-HepB-Hib, OPV, BCG, PCV and TT vaccines. Immunization activities are carried out along with growth monitoring, nutrition, vitamin A supplementation, antenatal and postnatal care throughout the country.

In January 2002, Malawi introduced DPT-HepB+Hib with support from the Global Alliance of Vaccines and Immunization (GAVI) for a period of five years. Since 2007, GAVI has continued to provide support, alongside the Government of Malawi that has been co-financing the procurement of DPT-HepB-Hib vaccine and injection materials. In November 2011, Malawi introduced PCV13 with financial support from GAVI and co-financing from the Government of Malawi. The Ministry of Health has also benefited from GAVI grants on Immunisation Services Support (ISS) and Health Systems Strengthening (HSS).

Malawi plans to apply to GAVI for support to introduce the second dose of the measles vaccine in 2013.

### 3.4.1 Routine Immunisation Strategies and Schedule

Measles, DPT-HepB-Hib, OPV, PCV and BCG vaccines are given to children under one year of age. Tetanus toxoid vaccine is provided to pregnant women and women of child bearing age. These immunization services are presently delivered through static and outreach clinics across the country. Refer to table 5 for the routine vaccination schedule:

**Table 5: Malawi Immunization and Vitamin A Supplementation Schedule**

Age	Vaccine
At birth or first contact	BCG
At birth up to 2 weeks	OPV 0
At 6 weeks	OPV 1 and DPT-HepB-Hib 1 and PCV 1
At 10 weeks	OPV 2 and DPT-HepB-Hib 2 and PCV 2
At 14 weeks	OPV 3 and DPT-HepB-Hib 3 and PCV 3
At 9 months	Measles
First contact (15-45 yrs and Pregnant women)	TT 1
At 4 weeks after TT1	TT 2
At 6 months after TT2	TT 3
At 1 yr after TT3	TT 4
At 1 yr after TT 4	TT 5
At 6 months and every 6 months up to 59 months	Vitamin A (children)
Within two weeks of delivery	Vitamin A (post natal mothers)

### 3.4.2 Routine Immunisation Coverage

The immunization coverage for all antigens has been above 80% for the past 5 years except for measles in 2006 and TT in all the years. The number of districts with >80% DPT-HepB-Hib3 coverage has been steadily going up for the past five years towards the 90/80 goal. Refer to table below for performance for 2006 to 2010.<sup>14</sup>

**Table 6: Annual Coverage for Malawi, 2006 to 2010**

*Note: Figures for 2010 are based on the revised population figures provided by the National Statistics Office in 2010.*

<sup>14</sup> 2011 figures are not currently available

Antigen	2006	2007	2008	2009	2010
BCG	91%	95%	97%	95%	110%
OPV3	85%	88%	92%	93%	102%
DPT-HepB+Hib3	84%	87%	91%	93%	102%
Measles	79%	83%	88%	92%	99%
TT2+ (Pregnant)	59%	61%	63%	58%	75%

Source: MOH EPI Program / JRF 2010

### 3.5 Disease Surveillance

The Expanded Programme on Immunization is currently focusing on three main diseases that are of global concern for eradication and elimination: polio, measles and neonatal tetanus (NNT).

Surveillance at community level is strengthened by Health Surveillance Assistants (HSAs) who are based in the communities. Case detection and reporting is done at community, health centre, district hospital and central hospital levels.

Transport is arranged at either district or regional level to collect specimens and deliver them to the EPI Unit that in turn sends:

- Acute Flaccid Paralysis (AFP) stool specimens to WHO accredited laboratory in Harare, Zimbabwe.
- Measles blood specimens to Kamuzu Central Hospital Measles laboratory.

The EPI programme has adopted the integrated approach to surveillance activities regarding the three priority conditions: measles, NNT and AFP. The integration for the three diseases is done through supervisory visits, active search and training. In addition, there is a surveillance site for Paediatric Bacterial Meningitis - *Haemophilus influenzae* (PBM-Hib) at Queen Elizabeth Central Hospital (QECH) in Blantyre.

#### 3.5.1 AFP Surveillance

Malawi has maintained certification quality surveillance by detecting at least one case of AFP per 100,000 population of children under fifteen and collecting at least 80% of stool specimens within 14 days of the onset of paralysis (with the exception of 2007 and 2010). To strengthen surveillance activities in the country, health worker briefings on detection, investigation, and reporting of AFP cases are ongoing. Each admitting health facility has a surveillance focal person.

**Table 7: AFP surveillance performance in Malawi from 2006 to 2010**

Year	Expected Number of non-polio AFP cases	Total AFP cases reported	No of confirmed polio cases	Total non-polio cases reported	Non-polio AFP rate*	AFP cases with adequate stool samples %
2006	61	103	0	103	1.7	80
2007	62	80	0	80	1.3	75
2008	59	148	0	148	2.5	88

<b>2009</b>	65	180	0	180	2.8	83
<b>2010</b>	65	119	0	119	1.8	79

*\*Based on 1 case per 100,000 population aged less than 15 years*

*Source: EPI Surveillance Data.*

African Region Certification Commission (ARCC) accepted Malawi's Polio documentation on polio free status in October 2005 and each year, an updated AFP annual report is submitted to ARCC.

### 3.5.2 Measles surveillance

In 1998 Malawi conducted a nation-wide catch-up campaign targeting children from 9 months to 15 years and achieved a coverage rate of over 90%. This resulted in a reduction in measles incidence. Follow-up campaigns targeting children 9 to 59 months were conducted in 2002, 2005, 2008 and 2010 with >95% coverage achieved. The campaign in 2010 was in response to a measles outbreak in the country that affected the Southern African region.

Case based surveillance was introduced in 1999 and Malawi is in the elimination phase for measles. Blood samples from all suspected cases of measles presenting with febrile rash are sent for IgM testing at Kamuzu Central Hospital, the national measles laboratory.

**Table 8: Measles surveillance**

<b>Indicator</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Expected number of measles cases	128	132	131	269	276
Reported suspected measles cases	51	143	312	627	118,712
Confirmed measles cases	1	19	20	21	464 (lab)
Proportion of suspected measles cases with serum investigation	100%	96%	99%	100%	0.8%
Proportion of districts that have investigated at least 1 measles case	54%	87%	96%	96%	100%
SIA coverage attained	N/A	N/A	100%	N/A	107%

*Source: EPI Surveillance Data.*

### 3.5.3 Neonatal Tetanus Surveillance

Malawi achieved neonatal tetanus (NNT) elimination status in 2002 through Lot Quality Assurance assessment (LQA). In 2010, there were 4 cases of neonatal tetanus in 4 districts (Dowa, Phalombe, Blantyre and Karonga), representing an incidence rate of about 0.04/1,000 live births. All neonatal deaths with unknown cause were investigated within 48 hours of notification to establish the cause of the death.

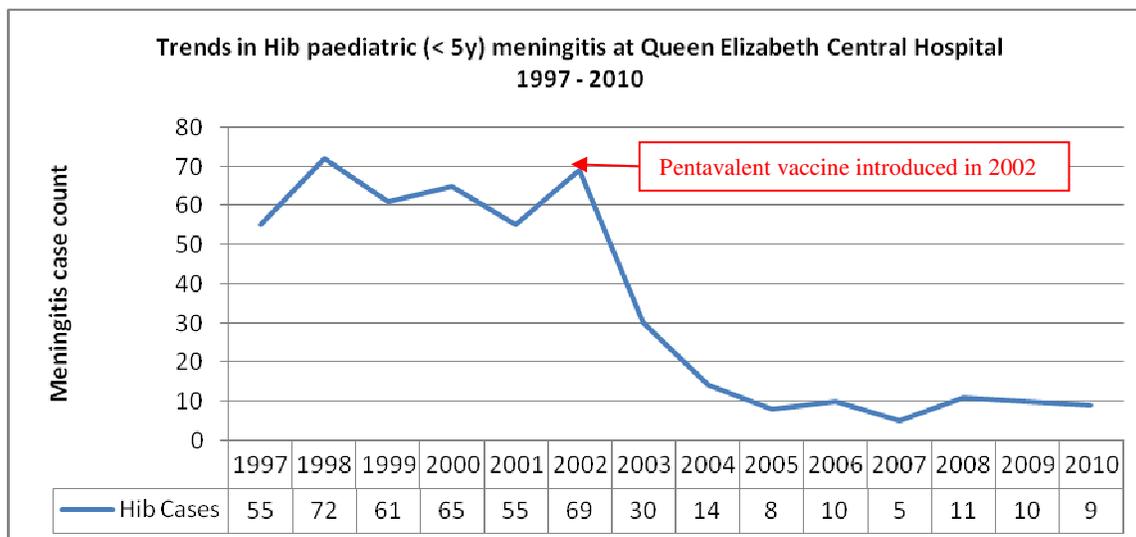
Training of health workers in detection, investigation and reporting of NNT cases using investigation forms is ongoing as part of the integrated vaccine-preventable disease surveillance training.

### 3.5.4 Paediatric Bacterial Meningitis/Hib Surveillance

The Paediatric Bacterial Meningitis - *Haemophilus influenzae* (PBM-Hib) surveillance site has been operational at Queen Elizabeth Central Hospital (QECH) in Blantyre since November

2001 before the introduction of DPT-HepB+Hib vaccine in 2002. The sentinel site monitors incidence trends in Hib meningitis among under five children presenting with meningitis in order to assess the impact of the pentavalent vaccine.

**Figure 1: Paediatric Bacterial Meningitis Trend at QECH, 1997-2010**



Surveillance data have shown that Hib meningitis cases have decreased significantly since the introduction of the pentavalent vaccine in 2002.

## 4 INTRODUCTION OF NEW VACCINES

### 4.1 Rotavirus Vaccine

The introduction of the rotavirus vaccine has been discussed extensively with key stakeholders at EPI-subTWG (ICC) and members agreed to submit a proposal to GAVI for support. Malawi's application for rotavirus vaccine was approved for funding by GAVI in 2011. The Government of Malawi plans to introduce the rotavirus vaccine in October 2012. It will be the third vaccine to be introduced in the country with GAVI support, following DPT-HepB+Hib, which was introduced in 2002, and PCV in 2011.

The introduction plan for the rotavirus vaccine outlines key activities to be conducted in preparation for the introduction of the vaccine and includes a timeline for the different activities.

#### 4.1.1 Rationale for the Introduction of the Rotavirus Vaccine

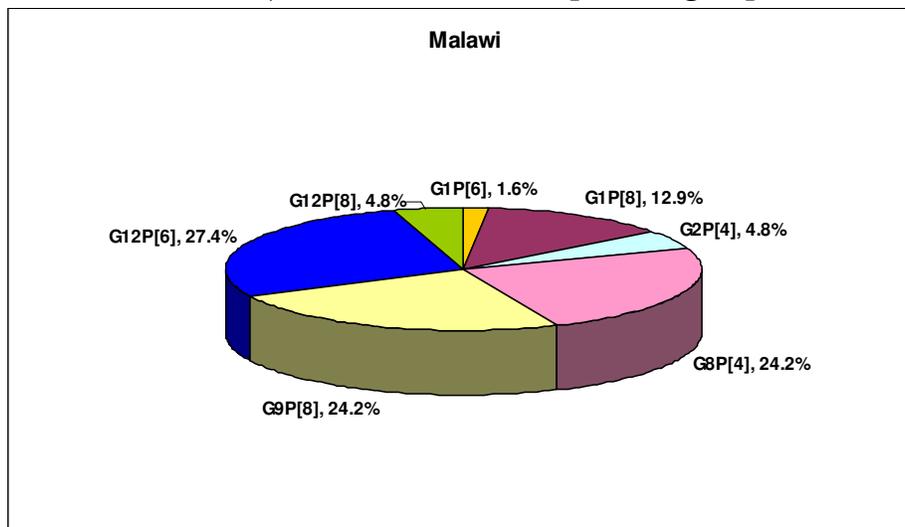
Rotavirus is the most important cause of severe gastroenteritis among children worldwide. In Malawi, data from the Multiple Indicator Cluster Survey (MICS) of 2006, showed that about a quarter of under five children (23.3%) had diarrhoeal episodes in the previous two weeks of the survey. Between 1997 and 2007, 3740 children under five years of age with acute gastroenteritis who received hospital care at the Queen Elizabeth Central Hospital in Blantyre, Malawi, were surveyed for rotavirus.<sup>15</sup> In those under 1 year of age, three-quarters of all infections were caused by rotavirus. In children under 6 months of age, one-third was

<sup>15</sup> Cunliffe NA, Bagrey M Ngwira, Winifred Dove, et al. Epidemiology of rotavirus infections in children in Blantyre, Malawi, 1997-2007. J Infect Dis [article in press].

caused by rotavirus. Rotavirus circulated throughout the year, with the detection proportion greatest during the dry season months of May to October, when total, all-cause diarrhoea was lowest. Surveillance activities for rotavirus in other hospitals<sup>16</sup> have shown similar detection rates.

From October 2005, a Phase III, double-blind, randomized, placebo-controlled multicenter study was conducted in Malawi (Blantyre) and South Africa to assess the efficacy, safety and immunogenicity of Rotarix™ (GlaxoSmithKline [GSK] Biologicals)<sup>17</sup>. Efficacy against severe rotavirus gastroenteritis was 49.4%. At this efficacy level it is estimated that up to 6.7 cases per 100 infants of severe rotavirus gastroenteritis were prevented by the vaccine. This was achieved despite a relatively high attack rate for severe rotavirus GE and a striking diversity in the strains of rotavirus circulating as assessed in the placebo group. 75% of strains comprised serotypes G8, G9 and G12 (see Figure 2). These findings demonstrate the great potential to reduce rotavirus disease burden in Malawi through vaccination.

**Figure 2: Distribution of major rotavirus strains in placebo group in Malawi:**



## 4.2 Monitoring of Immunization Coverage for New Vaccines

Monitoring of immunization coverage for new vaccines will be done on a monthly basis as part of ongoing monitoring of routine immunization, using updated monitoring tools such as monthly vaccination reports. Data from all health facilities is submitted to districts where aggregation and preliminary analysis is done and later submitted to the EPI Unit. At the national level, data is consolidated, analyzed and feedback is given to all health facilities. The EPI Programme has a bulletin, which should be produced every six months and covers issues on immunizations, logistics, disease surveillance and social mobilization. Recently, there has been a lack of funding to produce the bulletin, but the EPI Unit plans to re-establish the bulletin once resources are mobilised.

<sup>16</sup> Kamuzu Central Hospital, in Lilongwe, Mangochi District Hospital and Karonga District Hospital

<sup>17</sup> Shabir A. Madhi<sup>1,\*</sup>, Nigel A. Cunliffe<sup>2,\*</sup>, Duncan A Steele, et al. Impact of Human Rotavirus Vaccine on Severe Gastroenteritis in African Infants: A Multicenter Clinical Trial. *New England Journal of Medicine* [article in press]

## 5 NATIONAL EPI PRIORITIES

### 5.1 Vision and mission

The vision of the Malawi Expanded Programme on Immunization is to keep Malawian children free from vaccine preventable diseases.

The Expanded Programme on Immunization's mission is to reduce infant morbidity and mortality rates due to vaccine preventable diseases by providing quality immunization services.

### 5.2 Priorities

The main priorities of the programme from 2012 to 2016 are:

- Sustaining high routine immunisation coverage;
- Sustaining high quality surveillance on AFP, Measles & NNT;
- Conducting programmatic evaluations, including a cold chain inventory, comprehensive EPI review, DQS, DQA, EVM and a 30 cluster coverage survey;
- Capacity building at all levels;
- Improving documentation and data management;
- Improving monitoring, supervision and feedback on performance to lower health facility levels;
- Cold chain expansion, rehabilitation and management;
- Strengthening advocacy and social mobilisation activities;
- Replacing and maintaining transport equipment (vehicles, trucks, motorcycles, boats and bicycles);
- Strengthening safe injection practices and waste management;
- Introducing the rotavirus vaccines and measles second dose.

### 5.3 Programme Objectives, Targets and Milestones

The programme has determined a number of objectives and targets between 2012 and 2016 in order to accomplish the national priorities. These are tabulated below.

**Table 9: National objectives, milestones and AFRO regional goals**

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
<b>Routine Coverage</b> - Low coverage in hard to reach areas  High drop-out rate in some districts	Sustain high routine DPT–HepB–Hib 3 vaccination coverage of at least 90% nationally with at least 80% coverage in every district.	2012-2016: Sustain vaccination coverage above 90% nationally and above 80% in each district.	All countries will have routine immunization coverage of 90% nationally with at least 80% coverage in every district.	1
	Reduce drop out rates for DTP1-DTP3 to less than 10% in all districts by 2013.	2012: DTP1-DTP3 drop out rate is less than 10% for 91% of districts.  2013-2016: DTP1-DTP3 drop out rate is less than 10% for all districts.		
<b>Polio</b> – sustaining coverage of OPV 3 to support eradication efforts	Achieve and sustain high routine OPV 3 vaccination coverage of at least 90% nationally with at least 80% coverage in every district.	2012-2016: Achieve in 2012 and sustain vaccination coverage above 90% nationally and above 80% in each district.	All countries will have routine immunization coverage of 90% nationally with at least 80% coverage in every district.	1
<b>Measles</b> – reduce outbreaks of measles through high routine measles coverage	Sustain high routine Measles vaccination coverage of at least 90% nationally and achieve at least 80% coverage in every district (CABS indicator).	2012-2016: Sustain vaccination coverage above 90% nationally and above 80% in each district.	Greater than 90% MCV1 national level coverage with at least 80% coverage in every district.  Greater than 95% measles SIAs coverage in all districts.	1
	Introduce Measles second dose nationally by 2013.	2012: Application to GAVI for Measles second dose introduction developed and submitted.  2012-2013: Preparation for Measles		1

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
		second dose introduction.  2013: National introduction of Measles second dose in routine immunisation schedule.		
<b>NNT</b> Improve TT coverage	Improve and Sustain high routine TT 2+ coverage among pregnant women beyond 2012.	2012: 77% TT national coverage and at least 60% of districts achieve 65% coverage.  2013: 78% TT national coverage and at least 65% of districts achieve 65% coverage.  2014: 79% TT national coverage and at least 70% of districts achieve 65% coverage.  2015: 80% TT national coverage and at least 75% of districts achieve 65% coverage.  2016: 81% TT national coverage and at least 80% of districts achieve 65% coverage.		1
<b>Pneumococcal vaccine</b> – Successful incorporation into routine immunisation services	Achieve high routine PCV 3 vaccination coverage of at least 90% nationally by 2012.  Sustain PCV 3 coverage of at least 80% coverage in every district.	2012-2016: Achieve in 2012 and sustain from 2013 onwards, vaccination coverage above 90% nationally and above 80% in each district.	Routine immunization coverage of 90% nationally with at least 80% coverage in every district.	1
<b>Rotavirus vaccine</b> – introduce the vaccine nationally	Achieve high routine Rota 2 vaccination coverage of at least 90% nationally by 2013.  Sustain Rota 2 coverage of at least 80% coverage in every district by 2013.	2012: Achieve at least 15% vaccination coverage nationally.  2013-2016: Sustain vaccination coverage above 90% nationally and above 80% in each district.	Routine immunization coverage of 90% nationally with at least 80% coverage in every district.	1
<b>Infrastructure</b>	Increase number of under five clinic shelters	2012-2016: 400 under five shelters constructed across Malawi		2
<b>Vitamin A Supplement</b>	Improve routine vitamin A	2012: 50 % vitamin A national coverage and 100 % of the districts		1

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
ntation – increase uptake of Vitamin A supplementation	supplementation among under 5 children beyond 2012.	attaining 40% coverage. 2013: 52 % vitamin A national coverage and 100 % of the districts attaining 40% coverage. 2014: 54 % vitamin A national coverage and 100 % of the districts attaining 40% coverage. 2015: 56 % vitamin A national coverage and 100 % of the districts attaining 40% coverage. 2016: 58 % vitamin A national coverage and 100 % of the districts attaining 40% coverage.		
<b>Immunization Safety</b>	Sustain use of auto-disable syringes for all injectable immunizations.	2012-2016: Sustained use of AD syringes for routine and supplemental immunization in all health facilities.		1
<b>Waste Management</b>	Sustain use of safety boxes for all injectable immunizations.	2012-2016: Sustain use of safety boxes for waste management for routine and supplemental immunization in all health facilities.		1
	Expand use of incinerators	2012-2016: Use of incinerators in the 223 MOH and CHAM Health Centres that do not currently have one.		
<b>Surveillance</b>  Improving AFP surveillance to reduce the risk of importation of polio	Sustain polio free status beyond 2012.	2012-2016: Non polio AFP rate of at least 4/100,000 <15 population. 2012-2016: 4 NPEC meetings conducted annually 2012-2016: 4 NCC meetings conducted annually 2012-2016: NTF visits to laboratories conducted at least once per year 2012-2016: 12 active search visits conducted annually 2012-2016: Polio documentation updated annually	Non polio AFP rate of at least 4/100,000 <15 population, and stool adequacy ≥80%.	1
	Sustain measles elimination status beyond 2012.	2012-2016: Non-measles febrile rash rate of at least 2/100,00 population.	Non-measles febrile rash rate of at least 2/100,000 population and each district reporting at least two cases of suspected	1

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Improving measles surveillance to reduce outbreaks of measles			measles case with blood collected for laboratory confirmation.	
Sustain improvement in NNT surveillance	Sustain NNT elimination status beyond 2012.	2012-2016: <1 case per 1,000 live births per district per year.		2
<b>Vaccine Supply</b> - Improve the availability of EPI supplies at district and health facilities	Strengthen the availability of adequate vaccines and injection materials beyond 2012.	2012-2016: 100% of districts with no stock outs of vaccines and injection materials		1
<b>Cold Chain / Logistics</b>  Expand, rehabilitate and manage the cold chain and dry storage at all levels	Increase cold chain capacity at all levels	2012: Completion of new national cold store and regional cold stores in the South and the North.  2012-2016: Sufficient number of functional cold chain equipment available according to the cold chain assessment updates.  2013-2016: Construct 1 dry store/cold store at district level annually.  2013-2016: Functional Fridge-tag provided for every fridge.  2012: Cold chain technician toolkits purchased and distributed in each district.		1
	Provide well trained human resources for effective cold chain management	2013 & 2015: 90 Cold chain technicians refreshed in cold chain management.  2013: 2382 health workers trained in cold chain use (3 per facility).		
<b>NRA</b>	Strengthen post marketing surveillance including adverse events following	2013: Manuals on AEFIs revised.  2013: Training plan on AEFIs developed.		

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
	immunisation (AEFIs)	<p>2014: 58 facilitators trained on monitoring and management of AEFIs.</p> <p>2014-2015: Bi-annual meetings on post marketing surveillance conducted.</p> <p>2014-2015: Feedback on AEFIs provided.</p>		
<b>Advocacy and Communications</b>	Enhance national immunization advocacy and communication	2012, 2014 & 2016: Communication plan revised.		1
<b>Management and Planning</b>	Improve EPI planning and management.	2012-2016: cMYP updated annually.		1
		2012-2016: Plan of action developed for each year.		1
		2012-2016: Joint Reporting Form completed annually.		1
		2012: EPI policy developed and EPI manual reviewed.		1
	Improve efficiency of data storage and management.	2014: 59 computers and accessories procured and distributed.		
<b>Capacity Building</b>	Improve capacity of health workers on EPI delivery system	<p>2013-2016: 5 EPI trained and 6 support staff trained at masters level.</p> <p>2012-2016: 2,000 health workers trained in <i>Immunisation in Practice</i> per year.</p> <p>2012: 115 trainers trained in RED Approach.</p> <p>2012-2016: 2,000 health workers trained in RED Approach per year.</p> <p>2012 &amp; 2013: 170 trainers trained in MLM.</p> <p>2012-2016: 2,000 health workers training on disease surveillance per year.</p> <p>2012, 2014 &amp; 2016: 100 health workers trained in data management.</p> <p>2012-2016: 4 visits conducted by the national team to each district for supervision per year.</p>		

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
		2013-2016: 4 visits conducted by the district teams to each health facility within the district for supervision per year.		
<b>Transport</b> - Providing adequate transport for EPI activities at all levels	Strengthen the performance of EPI services	2013-2016: 8000 bicycles (2000 yearly)  2013-2016: 96 motorcycles (2013:32; 2015:32; 2016:32)  2013-2014: 5 motorised boats (2013:3; 2014:2)  2013-2016: 38 utility vehicles (2013:19; 2014:19)  2013: 5 three tonne light trucks  2014 : 4 ten tonne trucks  2015-2016: 33 Ambulances (2015:17; 2016:16)		
<b>Programme Monitoring &amp; Efficiency</b> - Improving the EPI programme	Improve EPI programme performance through monitoring and evaluation	2012: Coverage Survey; Knowledge, Attitudes and Practices Survey; Comprehensive EPI review; DQS; DQA; and external Surveillance Review conducted. Effective Vaccine Management (EVM) Assessment conducted. Monitoring tools revised to include new vaccines. Post introduction evaluation of PCV.  2013: Post introduction evaluation of Rotavirus. M & E framework developed.  2014: Coverage survey.  2015: Cold Chain Inventory, Comprehensive EPI Review, DQS, DQA and external Surveillance Review conducted.		
	To strengthen feedback to districts on EPI activities beyond 2012	2012-2016: EPI bulletin produced twice a year.  2012-2016: Review meetings conducted quarterly with district teams.		2
<b>Financial Sustainability</b>	To mobilise financial resources in a timely manner for	2012-2016: 100% of traditional vaccines funded annually by Government of Malawi.		1

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
	procurement of traditional vaccines, co-financing of new vaccines and operational costs.	2012-2016: Co-financing sustained annually by Government of Malawi.  2012-2016: Operational costs adequately funded annually by Government of Malawi and partners.		
<b>Human Resources Management</b>	Advocate for additional human resources to support EPI activities.	2012: Deployment of national and regional staff reviewed.		1
<b>Research / Studies</b>	Improve the EPI programme through operational research.	2012-2016: One operational research study conducted each year.		2
<b>Linking to Other Health Interventions</b>	Revise monitoring tools in partnership with HMIS, nutrition, HIV, reproductive health and other programmes.	2012: Child health profile with new vaccines pre-tested and finalised.		2

#### 5.4 Strategies and activities

The programme has planned a set of activities to be conducted between 2012 and 2016 in order to achieve the national objectives. The activities are outlined in the tables below.

#### National objectives, Strategies and Key Activities

**Table 10A: Service delivery and Programme Management**

National Objective	Strategy	Key Activities
Achieve and sustain high routine OPV 3, PCV 3 and rota 2 vaccination coverage of at least 90% nationally with at least 80% coverage in every district.  Sustain high routine DPT – HepB+Hib 3 and measles vaccination coverage of at least 90% nationally with at least 80% coverage in every district.	Strengthen routine immunisation services through the RED approach	Train health workers on micro planning
		Develop a defaulter tracing system
		Monitor implementation of the defaulter tracing system
		Conduct supportive supervision to lower levels

National Objective	Strategy	Key Activities
<p>Reduce drop out rates for DTP1-DTP3 to less than 10% in all districts by 2013.</p> <p>Improve and sustain high routine TT 2+ coverage among pregnant women</p> <p>Improve routine vitamin A supplementation among under 5 children</p>	<p>Improve coverage in districts with low coverage areas</p>	<p>Conduct local immunization days in areas with low coverage in each health facility (periodic intensification of routine immunization)</p>
<p>Increase number of under five clinic shelters</p>	<p>Improve service delivery of immunization at outreach clinics</p>	<p>Construct shelters in selected outreach sites</p>
<p>Introduce measles second dose nationally by 2013.</p>	<p>Advocate for introduction of measles second dose</p>	<p>Dialogue with policy makers and stakeholders on the introduction of measles second dose</p> <p>Mobilize masses for the measles second dose</p> <p>Engage NSO on the target population for the measles second dose (18 months)</p>
	<p>Ensure availability of resources to support introduction of measles second dose</p>	<p>Develop and submit funding application to GAVI to support measles second dose.</p>
	<p>Build capacity of health workers</p>	<p>Conduct training on the introduction of measles second dose</p>
	<p>Achieve in 2013, and sustain from 2014, high routine rota 2 vaccination coverage of at least 90% nationally with at least 80% coverage in every district.</p>	<p>Advocacy with policy makers and EPI sub-TWG</p>
<p>Resource mobilisation</p>		<p>Co-financing of rotavirus vaccine from the 2012-13 MOH budget onwards</p>
<p>Capacity building of health workers</p>		<p>Training of health workers for rotavirus vaccine introduction.</p>
<p>Social mobilisation</p>		<p>Sensitise communities on rotavirus vaccine introduction.</p>
<p>Improve EPI planning and management.</p>	<p>Optimise use of the cMYP</p>	<p>Update cMYP each year.</p>
		<p>Disseminate updated cMYP to district level each year.</p>
		<p>Develop an annual work plan</p>
		<p>Compile Joint Reporting Form to partners each year</p>

National Objective	Strategy	Key Activities
		Compile the Annual Progress Report (APR) to GAVI each year
	Improve communication with health workers and policy makers	Develop an EPI policy.
		Review the EPI manual.
Improve efficiency of data storage and management	Strengthen data storage and management	Procure and distribute computers and their accessories
Strengthen the performance of EPI services	Improve transport for delivery of EPI services at all levels	Procure motor vehicles Procure motor cycles Procure trucks Procure bicycles Procure motorised boats
Improve EPI programme performance through monitoring and evaluation	Strengthen monitoring and evaluation.	Conduct the following assessments: <ul style="list-style-type: none"> <li>• Comprehensive EPI review</li> <li>• Cold Chain Inventory (CCI)</li> <li>• Post introduction evaluation of PCV</li> <li>• Post introduction evaluation of Rotavirus vaccine</li> <li>• Regular DQS and DQA</li> <li>• External Surveillance Review</li> <li>• Effective Vaccine Management (EVM) Assessment</li> </ul>
		Develop an M & E framework.
		Conduct quarterly EPI reviews.
		Conduct support supervision at all levels
		Conduct data management training for health workers
Revise monitoring tools in partnership with HMIS, nutrition, HIV, reproductive health and other programmes.	Institute joint programme tools	Support HMIS to pre-test and finalise monitoring tools containing EPI information.
To strengthen feedback to districts on EPI activities.	Enhance information sharing and performance monitoring	Produce biannual EPI feedback bulletin and circulate to districts and other stakeholders
		Conduct quarterly EPI review meetings at the national level and disseminate materials to district EPI coordinators and other stakeholders
To secure financial resources in a timely manner for procurement of traditional vaccines, co-financing of new vaccines and operational costs.	Mobilise adequate financial resources to support EPI services	Develop and submit timely proposals to partners
		Advocate for increased financial resources from the government and EPI partners for EPI activities.
Advocate for additional human	Advocate for	Lobby for additional human resources to

National Objective	Strategy	Key Activities
resources to support EPI activities.	additional human resources to support EPI activities.	support EPI activities.
Improve capacity of health workers on the EPI delivery system	Strengthen capacity of health workers on EPI delivery systems.	Provide scholarships for training at masters level to 5 EPI programme staff.  Conduct training in <i>Immunisation in Practice</i> for health workers; conduct RED Approach training for health workers; undertake ToT in MLM; train health workers in disease surveillance; train health workers in data management; undertake supportive supervisory visits at all levels.
Improve the EPI programme through operational research	Strengthen the EPI programme through operational research	PCV Uptake Assessment.
Strengthen post marketing surveillance, including adverse events following immunisation (AEFIs)	Advocate for post marketing surveillance, including adverse events following immunisation (AEFI)	Revise manuals on AEFIs
		Develop training plan on AEFIs monitoring for health workers
		Train facilitators
		Conduct meetings on post marketing, including AEFIs
		Provide feedback on AEFIs

**Table 10B: Advocacy and Communications**

National Objective	Strategy	Key Activities
Enhance national immunization advocacy and communication.	Enhance national immunization communication with civil society organizations and stakeholders	Disseminate information to civil societies and stakeholders
		Revise communication plan

**Table 10C: Surveillance**

National Objective	Strategy	Key Activities
Sustain polio free status beyond 2012.	Institute and continuously monitor WHO surveillance targets on polio.	Train health workers in AFP surveillance activities
		Detect, investigate and report AFP cases
		Conduct NPEC meetings
		Conduct active search visits

		Conduct NCC meetings
		Conduct NTF visits to laboratories
		Update the annual polio documentation
Sustain measles elimination status beyond 2012.	Institute and continuously monitor WHO surveillance targets on measles	Train health workers in measles surveillance activities
		Detect, investigate and report febrile rash cases
Sustain NNT elimination status up to 2010 and beyond	Institute and continuously monitor WHO surveillance targets on NNT.	Train health workers in NNT surveillance activities
		Detect, investigate and report NNT cases

**Table 10D: Vaccine supply, quality and logistics**

National Objective	Strategy	Key Activities
Sustain use of auto-disable syringes for all injectable immunizations	Ensure availability of auto-disable syringes.	Procure and distribute auto-disable syringes to all immunization sites.
Sustain use of safety boxes for all injectable immunizations	Ensure availability of safety boxes	Procure and distribute safety boxes to all immunization sites.
Expand use of incinerators	Ensure community safety from used syringes and needles	Advocate for the use of incinerators in selected health facilities.
Strengthen the availability of adequate vaccines and injection materials	Ensure availability of adequate vaccines and injection materials.	Procure and distribute adequate quantities of bundled vaccines.
Expand, rehabilitate and manage the cold chain and dry storage at all levels	Ensure sufficient cold chain capacity at all levels to meet the needs of new vaccine introductions and population growth.	Construct national, regional and district cold stores Construct dry storage warehouse in selected districts Procure vaccine refrigerators and freezers Procure cold chain technicians toolkits Procure vaccine carriers and cold boxes Procure Fridge-tags and Freeze-tags Procure spare parts
Provide well trained human resource for effective cold chain management	Build capacity of health workers in cold chain management	Conduct refresher course for Cold chain management Conduct cold chain training for users

## **6 COSTING, BUDGETING AND FINANCING**

### **6.1 Cost, budget and Financing**

The success of the programme largely depends on adequate financing for all proposed activities to be undertaken during implementation. It will be the responsibility of the EPI program through the Ministry of Health to ensure that the programme has adequate financial and material support from the Government of Malawi and its partners. The government through SWAp is committed to supporting the procurement of traditional vaccines and co-financing the new vaccines; however, there is a shortfall in the budget for cold chain equipment, transport equipment, operational costs, surveillance, social mobilization and monitoring and evaluation.

Malawi started co financing for DPT-HepB-Hib vaccine and injection materials in 2006. In recognition of this effort, the country was given three awards by GAVI for successful co-financing. The Ministry of Health, through SWAp, allocates funding for all traditional vaccines and injection materials, including funds for co-financing. In the 5-year period (2012-2016) the Ministry of Health will contribute about US\$8,805,570 for traditional vaccines and their injection supplies, US\$5,561,235 for co-financing new and underutilised vaccines (DPT-HepB-Hib, PCV and rotavirus). This amounts to US\$14,366,805 Government contribution for vaccines and injection materials. Although the Government will strive to ensure the availability of vaccines and injection materials, competing priorities within the health sector may not guarantee adequate funding for EPI activities.

### **6.2 Methodology for costing the cMYP**

The costing of this comprehensive Multi Year plan was based on the national objectives and priorities of the programme. The national objectives have been linked with those of the overall health sector strategic plan (HSSP). The costing for the plan was carried out using the standard WHO cMYP costing tool v2.5.1 and EPI Log Forecasting Tool.

### **6.3 Program activities, other recurrent costs and surveillance**

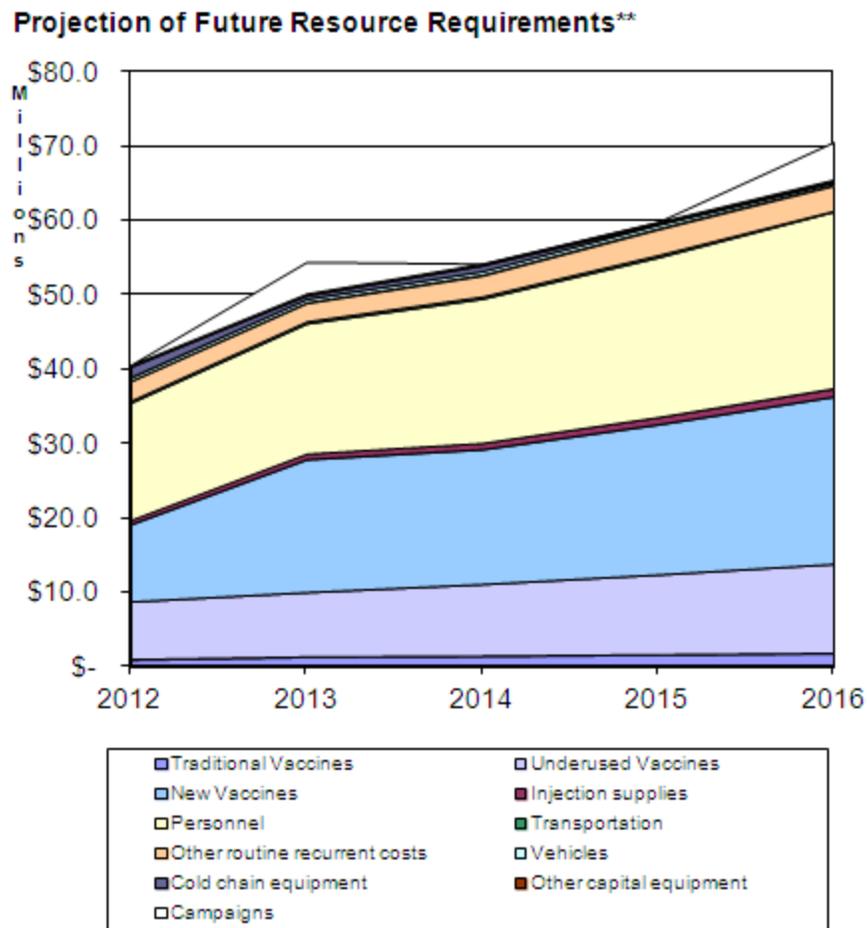
The total budget for 5-year period is US\$383,000,385, of which 39% is for the purchase of vaccines and injection supplies. Costs are illustrated in Table 11:

**Table 11 Cost projections**

Cost Category	Costs		Future Cost Projections				Total 2012 - 2016
	2011	2012	2013	2014	2015	2016	
<b>Routine Recurrent Costs</b>	<b>US\$</b>	<b>US\$</b>	<b>US\$</b>	<b>US\$</b>	<b>US\$</b>	<b>US\$</b>	<b>US\$</b>
Vaccines (routine vaccines only)	\$8,658,018	\$19,175,537	\$27,972,170	\$29,319,963	\$32,693,271	\$36,441,112	\$145,602,053
Traditional	\$857,490	\$959,944	\$1,325,333	\$1,437,424	\$1,615,523	\$1,808,173	\$7,146,397
Underused	\$6,992,028	\$7,794,213	\$8,688,976	\$9,682,145	\$10,794,094	\$12,028,022	\$48,987,449
New	\$808,500	\$10,421,381	\$17,957,861	\$18,200,394	\$20,283,654	\$22,604,918	\$89,468,207
Injection supplies	\$409,529	\$654,612	\$764,280	\$842,090	\$942,538	\$1,054,324	\$4,257,844
Personnel	\$14,193,069	\$15,764,064	\$17,482,232	\$19,375,315	\$21,436,548	\$23,704,578	\$97,762,737
Salaries of full-time NIP health workers (immunization specific)	\$212,980	\$237,595	\$256,840	\$277,644	\$300,134	\$324,444	\$1,396,658
Per-diem for outreach vaccinators/mobile teams	\$13,815,575	\$15,340,754	\$17,022,368	\$18,875,753	\$20,896,521	\$23,120,809	\$95,256,207
Per-diem for supervision and monitoring	\$164,514	\$185,715	\$203,023	\$221,918	\$239,893	\$259,324	\$1,109,873
Transportation	\$140,625	\$300,108	\$324,417	\$350,695	\$379,101	\$202,226	\$1,556,547
Fix site strategy (incl. vaccine distribution)	\$126,562	\$270,097	\$291,975	\$315,625	\$341,191	\$182,004	\$1,400,892
Outreach strategy	\$14,062	\$30,011	\$32,442	\$35,069	\$37,910	\$20,223	\$155,655
Mobile strategy							
Maintenance and overhead	\$108,685	\$178,106	\$213,765	\$230,541	\$225,944	\$250,343	\$1,098,699
Cold chain maintenance and overheads	\$14,554	\$58,764	\$42,017	\$43,432	\$25,568	\$36,407	\$206,187
Maintenance of other capital equipment	\$47,785	\$69,242	\$117,591	\$128,565	\$137,090	\$145,523	\$598,011
Building overheads (electricity, water...)	\$46,345	\$50,099	\$54,157	\$58,544	\$63,286	\$68,413	\$294,500
Short-term training	\$258,994	\$288,708	\$321,861	\$358,857	\$400,144	\$446,181	\$1,815,752
IEC/social mobilization	\$323,743	\$360,884	\$402,327	\$448,572	\$500,180	\$557,727	\$2,269,690
Disease surveillance	\$647,485	\$721,769	\$804,653	\$897,143	\$1,000,361	\$1,115,454	\$4,539,380
Programme management	\$582,737	\$649,592	\$724,188	\$807,429	\$900,325	\$1,003,908	\$4,085,442
Other routine recurrent costs	\$82,000	\$412,911		\$71,418	\$435,511		\$919,840
<b>Subtotal</b>	<b>\$25,404,884</b>	<b>\$38,506,291</b>	<b>\$49,009,894</b>	<b>\$52,702,021</b>	<b>\$58,913,922</b>	<b>\$64,775,854</b>	<b>\$263,907,982</b>
<b>Routine Capital Costs</b>							
Vehicles	\$157,937	\$430,170	\$465,014	\$502,680	\$543,397	\$354,274	\$2,295,535
Cold chain equipment	\$282,046	\$1,414,728	\$467,511	\$762,268	\$104,909	\$126,659	\$2,876,075
Other capital equipment	\$69,220	\$163,700	\$163,700	\$163,700	\$163,700	\$163,700	\$818,499
<b>Subtotal</b>	<b>\$509,203</b>	<b>\$2,008,598</b>	<b>\$1,096,225</b>	<b>\$1,428,648</b>	<b>\$812,006</b>	<b>\$644,633</b>	<b>\$5,990,110</b>
<b>Campaign Costs</b>							
Polio			\$2,130,925			\$2,527,832	\$4,658,757
Vaccines and Injection Supplies			\$1,031,260			\$1,428,168	\$2,459,428
Operational costs			\$1,099,665			\$1,099,665	\$2,199,329
Measles			\$2,130,664			\$2,527,622	\$4,658,286
Vaccines and Injection Supplies			\$1,031,000			\$1,427,957	\$2,458,957
Operational costs			\$1,099,665			\$1,099,665	\$2,199,329
<b>Subtotal</b>			<b>\$4,261,589</b>			<b>\$5,055,454</b>	<b>\$9,317,043</b>
<b>Shared Health Systems Costs</b>							
Shared personnel costs	\$10,203,825	\$11,303,834	\$12,515,097	\$13,848,421	\$15,315,631	\$16,929,671	\$69,912,654
Shared transportation costs	\$5,243,638	\$5,668,373	\$6,127,511	\$6,623,840	\$7,160,371	\$7,740,361	\$33,320,455
Construction of new buildings	\$86,867	\$93,903	\$101,509	\$109,731	\$118,619	\$128,228	\$551,990
<b>Subtotal</b>	<b>\$15,534,330</b>	<b>\$17,066,110</b>	<b>\$18,744,118</b>	<b>\$20,581,992</b>	<b>\$22,594,622</b>	<b>\$24,798,259</b>	<b>\$103,785,100</b>
<b>GRAND TOTAL</b>	<b>\$41,448,417</b>	<b>\$57,580,999</b>	<b>\$73,111,826</b>	<b>\$74,712,661</b>	<b>\$82,320,550</b>	<b>\$95,274,200</b>	<b>\$383,000,235</b>
Routine Immunization	\$41,448,417	\$57,580,999	\$68,850,236	\$74,712,661	\$82,320,550	\$90,218,746	\$373,683,192
Supplemental Immunization Activities			\$4,261,589			\$5,055,454	\$9,317,043

Figure 3 below shows a projection of future resource requirements:

**Figure 3:**



#### 6.4 Vaccines and injection equipment

The cost of vaccines and injection materials for a period of five years is estimated at US\$149,859,897 as shown in Table 11 above.

#### 6.5 Personnel costs (EPI specific and shared)

Cost estimates are based on unit expenditure on different personnel cadres working in EPI at different levels of the system, and numbers of personnel, adjusted for by time spent on EPI-related activities. In addition, personnel costs for supervision visits and outreach activities were included for each cadre at the different levels of the system. Unit expenditures are based on Government gross wages and per diems. Cost estimates for a period of five years are outlined in Table 11 above.

## 6.6 Vehicles, and transport costs

An inventory of transportation equipment was carried out as part of the 2011 cold chain assessment and forms the basis of the 2011 figures provided in the Costing Tool. The unit costs for transport were provided by the procurement unit of the Ministry of Health. The introduction of new vaccines will require additional transport capacity for conducting outreach services and transportation of vaccines and injection material. Cost estimates for a period of five years are provided in Table 11.

## 6.7 Cold Chain Capacity

The 2011 cold chain assessment found that the current cold chain capacity at all levels is not adequate for the introduction of new vaccines. Current cold storage capacity at national level is 11,662 litres for the cold room and 4,900 litres for the freezer room. The total capacity for routine immunisation required by 2016 for the national cold room is 55,852 litres of positive cold storage capacity and 5,976 litres of negative cold storage capacity. Without additional capacity, there would be a shortfall of 44,190 litres of positive cold storage capacity and 1,076 litres of negative cold storage capacity. These shortfalls will be addressed by the planned construction of a new national cold room, with a total capacity of 240m<sup>3</sup> (57,144 litres) of positive storage and 40m<sup>3</sup> (10,256 litres) of negative storage. However, the introduction of further vaccines will require additional cold storage capacity at the national level.

Supplementary Immunisation Activities (SIAs) are planned for 2013 and 2016, and will require additional negative cold storage capacity of 7,754 litres in 2013 and 9,688 litres in 2016. The total available negative cold storage capacity at the national level, including both the old and the new walk-in freezer rooms, is 15,156 litres. This covers the total needs for 2013 (13,018 litres). However, the total negative cold storage capacity required for a storage period in 2016 is 15,664 litres; leaving a gap of 508 litres which can be covered through additional freezers.

Tables 12 and 13 below provide an overview of the regional cold storage capacity and requirement. The planned capacity column indicates the capacity of the new cold stores and freezer rooms due for completion in 2012. The figures indicate that the planned capacity will address the regional cold store requirements.

**Table 12: Positive cold storage capacity, by region:**

Cold Store	Current Capacity (Litres)	Planned Capacity (Litres)	Required Capacity in 2016 (Litres)
North	1,380	9,524	3,943
Central	1,153	11,662	4,253
South	8,888	19,048	13,186

**Table 13: Negative cold storage capacity, by region:**

<b>Cold Store</b>	<b>Current Capacity (Litres)</b>	<b>Planned Capacity (Litres)</b>	<b>Required Capacity in 2016 (Litres)</b>
North	338	5,128	137
Central	338	4,900	147
South	421	10,256	457

Additional cold storage will be required during the SIAs in 2013 and 2016 and these requirements will be met by the new cold rooms and freezer rooms constructed at regional level.

In order to determine the needs of the districts and health facilities, a cold chain assessment was carried out in 2011. The results of the assessment were used to develop a 5-year cold chain expansion and rehabilitation plan that allowed for the introductions of PCV and rotavirus vaccines, as well as a growing population. The plan includes procurement of fridges, freezers, vaccine carriers, cold boxes and Fridge-tags for all fridges. The plan has subsequently been revised in light of future planned vaccine introductions, such as measles second dose and HPV.

The results of the cold chain assessment will be used to mobilise resources to procure the additional cold chain equipment required, as well as to optimise its distribution.

Depending on the availability of funding, the four districts with the largest populations, namely Lilongwe, Mzimba, Blantyre and Mangochi, will be provided with walk-in cold rooms, freezer rooms and dry store rooms, in anticipation of future vaccine introductions and population growth.

## **6.8 Operational costs for campaigns and overhead costs**

The polio and measles SIAs will be combined in both 2013 and 2016 and the operational costs are subsequently reduced. Operational costs were based on information from past campaigns. Estimates for a period of five years are shown in Table 14.

## **6.9 Costs for immunization activities during the period for the cMYP**

Of the total resource requirements between 2012 and 2016, vaccine supply and logistics accounts for 41%, followed by service delivery (26%). These costs are further broken down by cost categories, as illustrated in Table 14.

**Table 14: Costs for cMYP components, 2012 – 2016**

cMYP Component		Costs	Future Cost Projections					Total 2012 - 2016
		2011	2012	2013	2014	2015	2016	
		US\$	US\$	US\$	US\$	US\$	US\$	US\$
	Vaccine Supply and Logistics	\$9,639,090	\$21,966,753	\$29,992,283	\$31,762,697	\$34,610,473	\$38,322,000	\$156,654,205
	Service Delivery	\$14,333,694	\$16,064,172	\$17,806,649	\$19,726,010	\$21,815,648	\$23,906,804	\$99,319,284
	Advocacy and Communication	\$323,743	\$360,884	\$402,327	\$448,572	\$500,180	\$557,727	\$2,269,690
	Monitoring and Disease Surveillance	\$647,485	\$721,769	\$804,653	\$897,143	\$1,000,361	\$1,115,454	\$4,539,380
	Programme Management	\$970,076	\$1,401,310	\$1,100,207	\$1,296,248	\$1,799,266	\$1,518,502	\$7,115,533
	Supplemental Immunization Activities			\$4,261,589			\$5,055,454	\$9,317,043
	Shared Health Systems Costs	\$15,534,330	\$17,066,110	\$18,744,118	\$20,581,992	\$22,594,622	\$24,798,259	\$103,785,100
<b>GRAND TOTAL</b>		<b>\$41,448,417</b>	<b>\$57,580,999</b>	<b>\$73,111,826</b>	<b>\$74,712,661</b>	<b>\$82,320,550</b>	<b>\$95,274,200</b>	<b>\$383,000,235</b>

### 6.10 Financing for the Programme

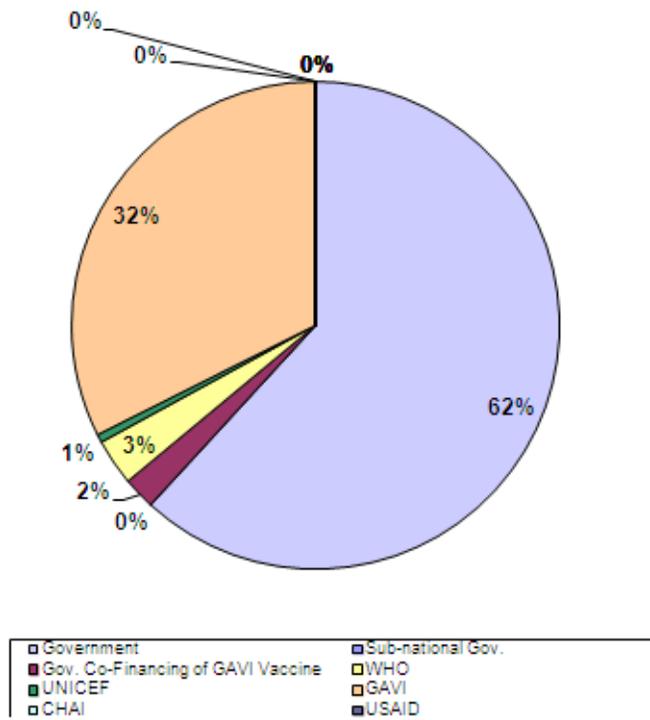
The trends in program financing are presented in this section. Based on the program cost categories, past, and future financing available for the respective cost areas was derived from partners. Support for the program comes from the following:

- Government
- GAVI
- UNICEF
- WHO
- Clinton Health Access Initiative (CHAI)
- USAID through the MCHIP programme

The breakdown of financing for the routine program expenditure from 2012 to 2016 is illustrated in figure 4.

**Figure 4: Breakdown of Financing for Routine Programme**

**Baseline Financing Profile (Routine Only)\***



\* Shared costs and campaigns excluded

\*\* Shared costs excluded

\*\*\* Shared costs included or excluded depending on the whether Y or N is selected in the "5. Gaps & Indicators" worksheet

The major source of financing for the routine program is the national government through SWAp, followed by GAVI that contributes significantly to the procurement of new and underused vaccines and injection materials.

### 6.11 Programme Resource Requirements, Financing and Gaps

There is a substantial increase in the total resource requirements for the EPI program in the next five years, due to the introduction of pneumococcal vaccine in 2011, rotavirus vaccine in 2012 and measles second dose in 2013. While GAVI funds are expected to cover over 90 percent of the cost of the new vaccines and their injection supplies, the Government of Malawi, through SWAp, will need to provide the remaining funds.

Table 15 outlines the resource requirements, funding and gaps. Table 16 provides an overview of the composition of the funding gaps. It shows that there is a high financing gap in 2013 and 2016 due to planned SIAs that are not yet funded. Other items with significant funding gaps include logistics (vehicles, cold chain and other equipment) and activities and other recurrent costs.

**Table 15: Resource Requirements, Financing and Gaps 2012 – 2016<sup>18</sup>**

Resource Requirements, Financing and Gaps*	2012	2013	2014	2015	2016	Avg. 2012 - 2016
<b>Total Resource Requirements</b>	<b>\$57,580,999</b>	<b>\$73,111,826</b>	<b>\$74,712,661</b>	<b>\$82,320,550</b>	<b>\$95,274,200</b>	<b>\$383,000,235</b>
<b>Total Resource Requirements (Routine only)</b>	<b>\$57,580,999</b>	<b>\$68,850,236</b>	<b>\$74,712,661</b>	<b>\$82,320,550</b>	<b>\$90,218,746</b>	<b>\$373,683,192</b>
per capita	\$3.9	\$4.5	\$4.7	\$5.1	\$5.4	\$4.7
per DTP targeted child	\$97.0	\$111.0	\$115.3	\$121.7	\$127.7	\$115.2
<b>Total Secured Financing</b>	<b>\$53,220,895</b>	<b>\$64,806,258</b>	<b>\$69,990,383</b>	<b>\$77,548,156</b>	<b>\$85,681,835</b>	<b>\$351,247,528</b>
Government	\$34,081,293	\$37,691,668	\$41,591,777	\$45,902,696	\$50,420,777	\$209,688,211
Sub-national Gov.						
Gov. Co-Financing of GAVI Vaccine	\$1,265,773	\$1,839,344	\$1,926,564	\$2,147,200	\$2,392,909	\$9,571,790
WHO	\$420,000					\$420,000
UNICEF	\$50,000					\$50,000
GAVI	\$17,348,829	\$25,275,246	\$26,472,042	\$29,498,260	\$32,868,149	\$131,462,527
CHAI	\$55,000					\$55,000
USAID						
<b>Funding Gap (with secured funds only)</b>	<b>\$4,360,104</b>	<b>\$8,305,567</b>	<b>\$4,722,278</b>	<b>\$4,772,394</b>	<b>\$9,592,364</b>	<b>\$31,752,707</b>
% of Total Needs	8%	11%	6%	6%	10%	8%
<b>Total Probable Financing</b>	<b>\$3,047,376</b>	<b>\$4,332,306</b>	<b>\$2,989,135</b>	<b>\$2,751,528</b>	<b>\$4,079,318</b>	<b>\$17,199,663</b>
Government						
Sub-national Gov.						
Gov. Co-Financing of GAVI Vaccine						
WHO	\$110,000	\$680,000	\$530,000	\$500,000	\$650,000	\$2,470,000
UNICEF						
GAVI	\$2,922,511	\$3,652,306	\$2,459,135	\$2,251,528	\$3,429,318	\$14,714,798
CHAI	\$14,865					\$14,865
USAID						
<b>Funding Gap (with secured &amp; probable funds)</b>	<b>\$1,312,727</b>	<b>\$3,973,262</b>	<b>\$1,733,143</b>	<b>\$2,020,866</b>	<b>\$5,513,046</b>	<b>\$14,553,044</b>
% of Total Needs	2%	5%	2%	2%	6%	4%

**Table 16: Composition of the funding gap, 2012 – 2016**

Composition of the funding gap	2012	2013	2014	2015	2016	Avg. 2012 - 2016
Vaccines and injection equipment		\$244,474	\$251,742	\$286,508	\$322,040	\$1,104,764
Personnel	\$318,739	\$318,740	\$318,739	\$318,739	\$318,740	\$1,593,696
Transport						
Activities and other recurrent costs	\$1,938,864	\$2,283,030	\$2,613,418	\$3,236,521	\$3,123,270	\$13,195,103
Logistics (Vehicles, cold chain and other equipment)	\$2,008,598	\$1,096,225	\$1,428,648	\$812,006	\$644,633	\$5,990,110
Campaigns		\$4,261,589			\$5,055,454	\$9,317,043
<b>Total Funding Gap*</b>	<b>\$4,266,201</b>	<b>\$8,204,058</b>	<b>\$4,612,547</b>	<b>\$4,653,774</b>	<b>\$9,464,137</b>	<b>\$31,200,717</b>

\* Immunization specific resource requirements, financing and gaps. Shared costs are not included.

<sup>18</sup> These figures do not reflect approximately \$70,000 expected from UNICEF in 2012 and 2013

## **6.12 Interventions to improve the financial viability of the program**

The funding gap for the program could be reduced if the probable resources are secured through advocacy with various collaborating partners and donors. Projected funding from Government, SWAp, WHO, UNICEF, CHAI and USAID through the MCHIP programme is assumed to continue.

The Ministry of Health, through the EPI program, will, as part of its regular monitoring process, monitor the trends in financing, to ensure it is moving towards improved financial sustainability by reducing its financing gaps, and converting more probable financing to secure financing.

## Annex 1: Using the GIVS framework as a checklist

GIVS strategies	Key activities	Activity included in MYP			
		Y	N	Not applicable	New activity needed
<b>Strategic Area One: Protecting more people in a changing world</b>		Y	N	Not applicable	New activity needed
Strategy 1: Commit and plan to reach everyone	Strengthen human resources and financial planning	√			
	Protect persons outside the infant age group	√			
	Improve data analysis and problem solving	√			
	Sustain high vaccination coverage where it has been achieved	√			
	Include supplemental immunization activities	√			
Strategy 2: Stimulate community demand for immunization	Assess the existing communication gaps in reaching all communities	√			
	Engage community members and non-governmental organizations	√			
	Develop communication and social mobilization plan	√			
	Match the demand	√			
Strategy 3: Reinforce efforts to reach the unreached in every district	Micro-planning at the district or local level to reach the unreached	√			
	Reduce drop-outs	√			
	Strengthen the managerial skills	√			
	Timely funding, logistic support and supplies	√			
Strategy 4: Enhance injection and immunization safety	Procure vaccines from sources that meet internationally recognized quality standards	√			
	Ensure safe storage and transport of biological products under prescribed conditions	√			
	Introduce, sustain and monitor safe injection practices	√			
	Establish surveillance and response to adverse events following immunization	√			
Strategy 5: Strengthen and sustain cold chain and logistics	Conducting accurate demand forecasting activities	√			
	Building capacity for stock management	√			
	Effective planning and monitoring of cold chain storage capacity	√			

GIVS strategies	Key activities	Activity included in MYP			
		Y	N	Not applicable	New activity needed
<b>Strategic Area One: Protecting more people in a changing world</b>					
	Firm management system of transportation and communication equipment	√			
Strategy 6: Learn from experience	Regular immunization programme reviews	√			EPI Comprehensive Review planned for 2012
	Operations research and evaluation	√			
	Model disease and economic burden as well as the impact		√		To consider activity

GIVS strategies	Key activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Two: Introducing new vaccines and technologies</b>					
Strategy 7: Enhance country capacity to set policies and priorities through informed decision-making	Determine disease burden, as well as the feasibility, cost effectiveness of new vaccines and technologies	√			
	Conduct surveillance, monitor coverage and evaluate the impact of new products	√			
Strategy 8: Ensure effective and sustainable introduction of new vaccines and technologies	Integrate the introduction of each new vaccines into countries' multi-year plans and include a financial analysis	√			
	Information and communication materials	√			
	Surveillance of adverse events	√			
	Surveillance of diseases prevented by new vaccines and strengthen laboratory	√			
Strategy 9: Ensure effective supply of new vaccines and technologies to and within countries	Long-term vaccine demand forecasting	√			
	Long term procurement with adequate financing	√			
Strategy 10: Promote vaccine research and development for diseases of public health importance	Local evidence to influence and prioritize public and private investments in new vaccines and technologies		√		
	Engage local public health authorities and research communities in defining research agendas		√		
	Strengthen the capacity to undertake the research and development of new vaccines		√		

GIVS strategies	Key activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Three: Linking immunization to other interventions</b>					
Strategy 11: Assess and select appropriate interventions for integration	Assess the national and regional public health priorities and potential impact of joint interventions with a priority focus on Child Survival	√			
	Develop and field-test potential joint interventions	√			
	Tailor integrated packages of interventions to local needs	√			
	Monitoring and evaluating the efficiency, effectiveness and impact of combined interventions		√		To be considered
Strategy 12: Establish and optimize synergies	Plan joint interventions at national and district levels	√			
	Special emphasis should be placed on outreach and mobile teams	√			
	Monitor and evaluate impacts of combined interventions		√		To be considered
Strategy 13: Make synergies sustainable	Establish joint management, financing and monitoring and evaluation functions		√		To be considered
	Pool resources needed to cover operational and other cost		√		To be considered
	Quality information to secure sustained community support		√		To be considered
	Advocate for further synergy and explore additional linkages		√		To be considered

GIVS Strategies	Key Activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Four: Immunization in the health systems context</b>		Y	N	Not applicable	New activity needed
Strategies 14: Improve human resources management	Provide sufficient, adequately paid and trained human resources	√			
	Supportive supervision	√			
	Inventory of human resources needs, engage non-governmental organizations and private sector in the delivery of immunization	√			
	Motivate health workers	√			
Strategy 15: Strengthen immunization programmes within health sector reform	Document factors of success and failures	√			EPI Comprehensive Review planned for 2012
	Collective efforts to shape sector-wide policies	√			SWAp
	Use the experiences gained in health sector reform	√			
	Preserve the central role of immunization in the context of health sector reform	√			
Strategy 16: Strengthen coverage monitoring and conduct case-based surveillance to guide immunization programs	Expand the existing polio and measles surveillance system	√			
	Build an evidence base of country experience	√			
	Monitoring of district performance at national level	√			
Strategy 17: Strengthen laboratory capacity through the creation of laboratory networks	Expand the existing polio and measles lab. network to include other VPDs	√			Lab analyses for measles and rubella.
	Provide countries with needed training, equipment and quality control procedures				

GIVS Strategies	Key Activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Four: Immunization in the health systems context</b>		Y	N	Not applicable	New activity needed
Strategy 18: Strengthen data management, analysis, interpretation, use and exchange at all levels	Improve data management through regular training, monitoring and feedback at the local level	√			
	Develop enhanced tools (e.g. computer software) for monitoring vaccine coverage, vaccine and logistics management, disease surveillance	√			

	Regularly review district indicators of performance	√			
	Use surveillance and monitoring data to advocate for improved access to and quality of immunization	√			
Strategy 19: Provide access to immunization in complex humanitarian emergencies	Rapid situation assessment of complex emergencies			√	
	Incorporate immunization services in emergency preparedness plans and activities			√	
	Re-establish immunization services in populations affected by complex emergencies			√	
	Include VPDs in integrated surveillance and monitoring systems set up in complex emergencies			√	

GIVS Strategies	Key activities	Activity included in MYP?			
		Y	N	Not applicable	New activity needed
<b>Strategic Area Five: Immunizing in a context of global interdependence</b>					
Strategy 20: Ensure reliable global supply of high quality, affordable vaccines	Long term forecasting for existing and new vaccines, improving vaccine management skills			√	
	National self reliance in quality assurance and regulatory oversight			√	
	Promote quality and affordable vaccine production by vaccine manufacturers in developing and developed countries			√	
Strategy 21: Ensure adequate and sustainable financing of national immunization systems	Strengthen national capacity for financial planning	√			
	Commit increased and sustained national budget allocations for vaccines	√			
	Encourage local and district level contribution to health services and immunization programmes	√			
	Coordinate immunization financing through the ICCs	√			EPI sub TWG
Strategy 22: Define and recognize the roles, responsibilities between partners	Develop and actively participate in regional and national partnership bodies	√			
Strategy 23: Improve communication and enhance information dissemination	Consider communication and social mobilization to be an integral part of immunization planning	√			

Strategy 24: Use vaccines in global epidemic preparedness

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## Annex 2: Activity timeline

Key activities	2012	2013	2014	2015	2016
<b>Service delivery and Programme Management</b>					
Strengthen outreach services	→	→	→	→	→
Procure and distribute adequate quantities of bundled vaccines	→	→	→	→	→
Appropriate response to AEFIs	→	→	→	→	→
Build capacity of health workers through the provision of training	→	→	→	→	→
Supportive supervision at all levels	→	→	→	→	→
Local immunization days in areas with low coverage in each health facilities	→	→	→	→	→
Introduce the rotavirus vaccine	→				
Introduce the measles second dose		→			
Social mobilization on new vaccine introduction	→	→			
EHP TWG advocacy meeting	→	→	→	→	→
EPI Sub-Technical Working Group meetings	→	→	→	→	→
Social mobilization activities on immunization and disease surveillance	→	→	→	→	→
Review communication plans	→		→		→
<b>Surveillance</b>					
Train health workers on EPI disease Surveillance	→	→	→	→	→
NPEC, NCC and NTF review meetings	→	→	→	→	→
Active search visits on disease surveillance	→	→	→	→	→
Procure measles laboratory supplies and equipment	→	→	→	→	→
Strengthen sentinel surveillance sites for pneumococcal and rotavirus	→	→			
Sustain Hib surveillance site	→	→	→	→	→
<b>Vaccine supply, quality and logistics</b>					
Construct cold rooms and office block	→				
Electrify some health facilities	→				
Train health workers on cold chain use		→			
Train cold chain technicians		→		→	
Procure cold chain equipment and spare parts	→	→	→	→	→
Periodic programmatic assessments	→	→	→	→	→
Procurement of vehicles, trucks, motorcycles, boats and bicycles	→	→	→	→	→