GOBIERNO DE LA
REPÚBLICA DE HONDURAS

SECRETARÍA DE SALUD

EXPANDED PROGRAMME ON IMMUNISATION (EPI) MULTI-YEAR PLAN
HONDURAS 2016-2020

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Executive summary

In 1979, the Honduran Ministry of Health (SESAL) set up the Expanded Programme on Immunisation (EPI), currently subordinate to the Directorate General for Standardisation, which has as its mission to formulate, regulate, plan, coordinate, disseminate and monitor the application of immunisation and VPD monitoring policies, guidelines and technical standards by health service providers from the public and private sectors.
Its vision is of a "technical regulatory programme with the remit of guaranteeing access to vaccination services, permanently and free of charge, following the national vaccination schedule based on target population. The programme should be capable of responding in an effective and timely manner to the demands of the population in relation to immunisation services, based on principles of quality, equity and solidarity, through standard technical and administrative processes with wide-based community participation, within a policy framework of the decentralisation and co-management of the Ministry of Health".

In 2014, within a framework of reforming the health sector and restructuring SESAL, a national transition and regulation process was set in place, transferring components related with epidemiological monitoring, cold chain and supply chain. The process operates essentially at regional level. Maintaining the achievements of the EPI, overcoming its gaps and confronting future challenges represent major challenges in this process.

Although vaccination coverage has dropped since 2012, over 90% coverage rates in the 1991-2011 period have meant a falling trend in VPD incidence and mortality rates. The main achievements can be summarised as follows:

- ✓ 34 years with no recorded cases of diphtheria (most recent case in 1981)
- ✓ 26 years with no recorded cases of poliomyelitis (most recent case in 1989)
- ✓ 18 years with no recorded cases of measles (most recent case in 1997)
- ✓ 14 years with no recorded cases of congenital rubella syndrome (most recent case in 2001)
- ✓ 11 years with no recorded cases of rubella (most recent case in 2004)

Significant reduction in neonatal tetanus, meningitis, TB and Hib among children aged under five years and in mumps, reduction in rotavirus gastroenteritis and pneumonia and bacterial meningitis among children aged under five years.

Nevertheless, there are still huge challenges to be overcome in order to maintain these achievements, incorporate new vaccines and extend the use of underused vaccines.

With regard to funding from 1987 onwards, national funding for vaccines and syringes was first incorporated into SESAL's budget under the 1987-1989 multi-year plan, the remaining programme components being incorporated progressively into the amount set aside for the ministry. In 1998, the Vaccines act was formulated and passed by the Honduran Congress, guaranteeing the financial stability of EPI by setting aside funding for vaccines, syringes, safety boxes and other EPI supplies in the national budget. Adding to this the 1996-2000, 2001-2005, 2006-2010 and 2011-2015 five-year plans, which also receive national and external funding, and the EPI annual action plan and annual operating plan, on average 1.8% of all national funding allocated to SESAL in the 1998-2005 period goes to EPI; this percentage has increased over the past five years.

The current plan is the result of a collective construction process, based on participative analysis of the national situation of the EPI, prioritising interventions and planning strategic interventions at all levels, and is closely linked with attaining national and worldwide VPD eradication, elimination and control goals.

For the 2016-2020 period, bearing the current situation of the programme in mind, operating targets have been established which aim at improving the efficacy and efficiency of the programme, setting annual coverage rates of at least 95% of the target population nationwide for each type of vaccine; sustained greenlight cold chain operation at all levels of the service network in all 20 health regions; sustained active monitoring of VPDs in the process of being eradicated, eliminated and controlled, and AEFI; and efficient, effective and cordial promotion of immunisation services, as well as fostering effective demand for immunisation services among the target population in the context of the healthy municipalities and communities strategy and the EPI health promotion process.

The following targets have been defined for the period:

1. Homogeneous coverage of at least 95% of the target population for all vaccines on the national schedule in all municipalities throughout the country.
2. Sustained certification of eradication of the outburst of wild poliovirus in the country, within the context of the integral strategic plan for polio eradication, final phase 2013-2018.
3. Sustained elimination of endemic measles transmission.
4. Sustained elimination of rubella and congenital rubella syndrome.
5. Sustained control or elimination of neonatal tetanus.
6. Control of pertussis, diphtheria, severe forms of infant tuberculosis, mumps, hepatitis B, Hib invasive diseases (meningitis, pneumonia, epiglottitis, celulitis), rotavirus diarrhoea, invasive pneumococcal disease (meningitis, pneumonia and septicaemia, among others), seasonal flu and HPV.
7. Roll-out of new and underused vaccines, analysing technical-political, scheduling and feasibility aspects.

To attain these goals, strategies and lines of action have been clearly defined in 12 components: political priority and legal bases, planning and coordination, vaccines and supplies, cold chain, training, communication and social mobilisation, operating expenses, supervision and monitoring, information system, epidemiological monitoring and laboratory, investigation and evaluation. Major interventions aimed at improving immunisation coverage and VPD monitoring have also been defined.

The objectives, targets and strategies all respond to national approaches, such as RAMNI (Strategy for Accelerated Reduction of Mother and Child Mortality). and international approaches, such as the Millennium Development Goals, recommendations of the PAHO/WHO VPD Technical Advisory Group for the Americas, and the 2016-2020 RIAP Regional Immunisation Action Plan, all of which form the basis for the EPI 2016-2020 multi-year action plan.

The plan details the funding required for the 2016-2020 period, broken down by component and year. It is the sixth EPI multi-year plan and forms part of SESAL's strategic national planning process: National Plan to 2038, Health Sector Plan to 2021, 2014-1018 National Health Plan and 2013-2016 Institutional Strategic Plan.

The 2016-2020 multi-year plan provides for increased external cooperation in the vaccines and supplies component over the previous edition of the plan; this is associated with Gavi funding of the IPV and HPV vaccines. The leading sources of external funding considered in the plan are the Gavi Alliance, PAHO/WHO, UNICEF, UNFPA and the Church of Jesus Christ of the Latter Day Saints. In order to cover gaps, projects will be designed to mobilise national resources via the private sector and NGOs, and external funding via friendly governments, NGOs and others. If the 2014 Vaccines Act approved is implemented, municipal funding for the social outreach component should help to reduce this gap.

This multi-year plan has been designed with a view to maintaining achievements in immunisation coverage, preventing and controlling VPDs, attending to new challenges in vaccine roll-outs and evaluating their impact, and strengthening health services for effective vaccine management.

I. Introduction

The EPI is a SESAL project, subordinate since 2014 to the Directorate General for Standardisation, whose mission is to formulate, regulate, plan, coordinate, disseminate and monitor the application of policies, guidelines and technical standards for the VPD immunisation and monitoring services delivered by public and private sector health service providers.

From 2014 onwards, as part of the reforming of the health sector and the restructuring of SESAL with a new organisational layout, a national process has been defined to eliminate programmes and transition towards other processes: standardisation, integrated health service networks, monitoring compliance with technical standards, and more, with separation of powers.

In the case of the EPI, from 2014 onwards certain supply chain and VPD monitoring components have been transferred to other departments, in accordance with their competences. At health region levels, there have been cutbacks in the number of human resources who had been working as EPI coordinators for over a decade. This has initiated the transfer of competences to a range of regional departments, although to date these new departments have not fully assumed competences for EPI components. This is one of the major challenges faced in maintaining the achievements of the EPI, overcoming its gaps and confronting future challenges.

Significant advances to the benefit of the Honduran population, particularly children, have been made on accelerating the achievement of Millennium Development Goal no. 4 to contribute to reducing infant mortality, apart from reducing the risk of disability caused by VPDS.

This plan analyses the main components of the programme over the 2011-2015 period, identifying constraints, indicating achievements with regard to established objectives and targets, and suggesting short-term actions to enhance the impact of interventions.

It details the funding required for each component of the programme for the 2016-2020 period, per year. This is the sixth EPI multi-year plan and it forms part of SESAL's strategic national planning process: National Plan to 2038, Health Sector Plan to 2021, 2014-1018 National Health Plan and 2013-2016 Institutional Strategic Plan.

The objectives, targets and strategies all respond to national approaches, such as RAMNI (Strategy for Accelerated Reduction of Mother and Child Mortality), international strategies, such as the Millennium Development Goals, recommendations of the PAHO/WHO VPD Technical Advisory Group for the Americas, and the PAHO/WHO regional vaccination action plan, aligned with the Global Vaccination Action Plan (GVAP), all of which form the basis for the EPI 2016-2020 multi-year action plan.

Its activities are oriented towards sustaining achievements, completing its unfinished agenda and confronting future challenges.

The actions proposed, and the funding for their implementation, will be analysed with external cooperation agencies and the organisations represented on the Interagency Coordination Committee (ICC) with regard to the EPI; the required financial adjustments will be made during the formulation of the EPI action plan.

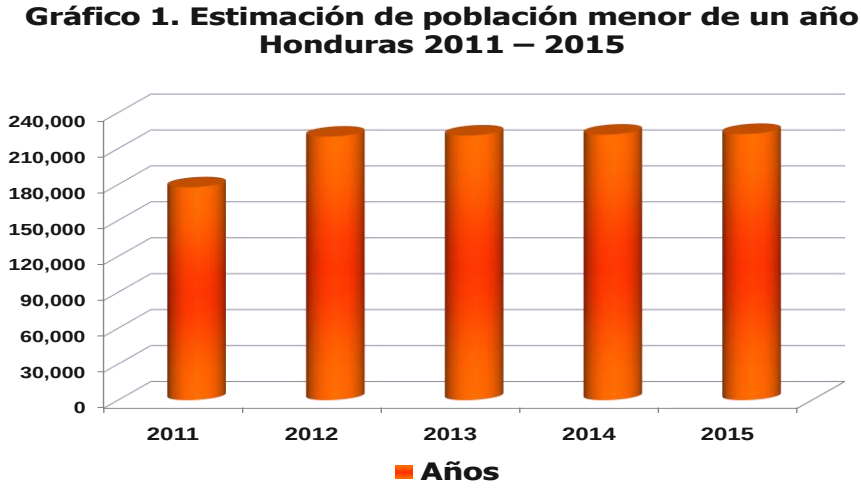
II. EPI situation analysis 2011-2015

2.1 Immunisation coverage status

2.1.1 Routine immunisation

- In 2007, the National Statistics Institute (INE) conducted a review and adjusted the figures for the infant population and children aged one to four years. Nonetheless, coverage of all vaccines has been above 100% since 2010, due to population underestimates in the adjusted figures. On this basis, the SESAL Department of Statistics has consulted with the Honduran Statistics Office, recommending that they no longer use population estimates for infants based on the 2007 figures, instead using official projections for 2012. However, almost two years later, the official figures for the 2012 Census on Population and Housing have not yet been made available. Based on the national analysis and evidence generated at local level through rapid coverage monitoring in certain locations and municipalities, and national surveys, these figures were overestimated (Figure 1).

Figure 1. Estimated infant population. Honduras 2011 - 2015



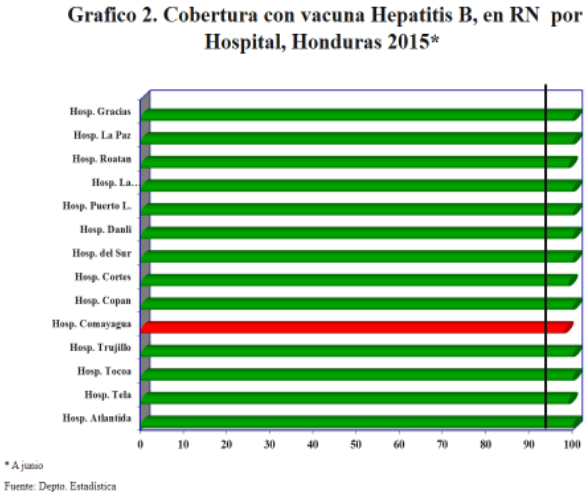
Years

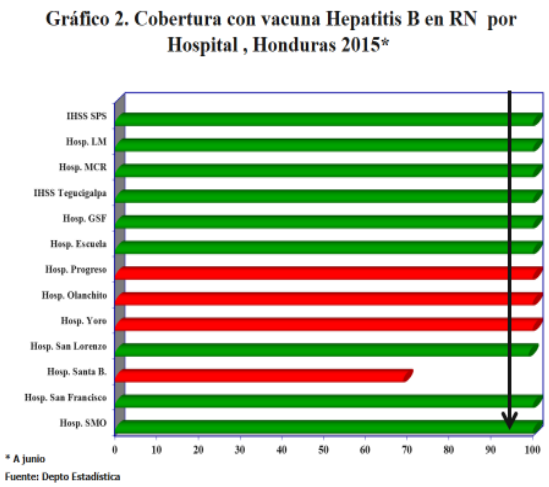
- Under the national vaccination schedule, new-borns receive the hep B and BCG vaccines in hospitals and maternity clinics, as follows:

1. In the 2011-2014 period, over 95% of non-pathological infants born in hospitals and maternity clinics received the hepatitis B vaccine; from June 2015 onward, 23 of SESAL's 25 public hospitals (92%) were vaccinating 95% or more of new-borns; the exceptions

were Santa Bárbara and Mario Catarino Rivas (Figure 2). All 72 maternity clinics in operation were vaccinating new-borns, although only 63 (88%) were vaccinating 95% of non-pathological infants, the exceptions being Cuyamel (Cortés health region), El Triunfo (Choluteca), Usibila and Wampusirpe (Gracias a Dios), Erandique (Lempira), Zazacapa (Ocotepeque) and Trascerros, Las Vegas and Trinity (Santa Bárbara). Also in the public sector, two of two Honduran Social Security (IHSS) hospitals (100%) were vaccinating over 95% of new-borns.

Figure 2. Hep b vaccine coverage of newborns by hospital, Honduras 2015*	**Figure 2. Hep b vaccine coverage of newborns by hospital, Honduras 2015***





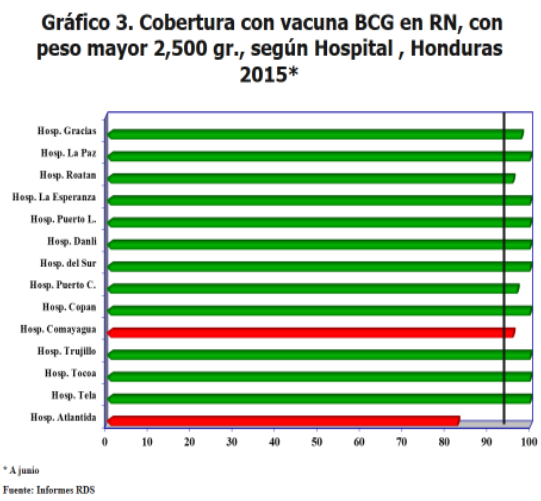
*To June
Figures: Dept Statistics
*To June
Figures: Dept Statistics

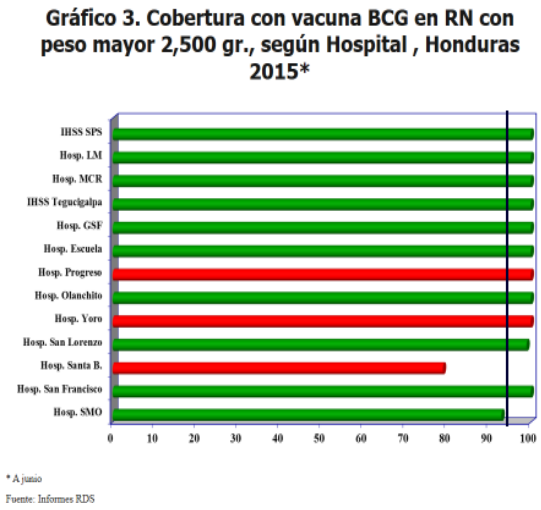
2. Hospitals and maternity clinics were vaccinating 95% or more of new-borns with the BCG vaccine in the 2011-2014 period. In June 2015, 23 of 25 SESAL public hospitals (92%) were applying the vaccine to 95% of new-borns; the exceptions were Atlántida, San Marcos de Ocotepeque and Santa Bárbara (Figure 3). Only 56 of 72 maternity clinics (77%) reported coverage rates of 95% or above; the exceptions were Siguatepeque (Comayagua), Cuyamel (Cortés), El Triunfo (Choluteca),Wampusirpe (Gracias a Dios), Marcala and Santiago Puringlua (La Paz), Edna Yolani Batres (Lempira); Zazacapa and Sinuapa (Ocotepeque), Guayape and San Esteban (Olancho), Colinas, Trascerros, Las Vegas and Trinidad (Santa Bárbara), and Amapala (Valle).

Coverage rates for the BCG vaccine at IHSS hospitals were above 95%.

Figure 3. BCG vaccine coverage of newborns weighing over 2,500 g	Figure 3. BCG vaccine coverage of newborns weighing over 2,500 g

by hospital, Honduras 2015*	by hospital, Honduras 2015* *





To June
Figures: RDS reports
*To June
Figures: RDS (Sustainable Development Network) reports
[

- In the 1991 to 2011 period, above 90% coverage rates are being attained for all EPI vaccines applied to the population under two years of age (BCG, sabin, DTP-hep B-Hib and MMR). Taking the pentavalent vaccine as a tracking indicator for immunisation coverages in infants, above 100% coverage rates were reported in the 2010-2011 period. In the 2012-2014 period, there was a sustained drop in immunisation coverage, from 88% in 2012 to 85% in 2014. This was due to several factors, particularly overestimation of the official INE denominator for infants. In June 2015, coverage rates for vaccines applied to infants and children aged one year were below 95% (Table 1 and Figure 4).

Table 1. Vaccination coverage in population aged under two years by vaccine. Honduras, 2010-2015*

Cuadro 1. Cobertura de vacunación en población menor de dos años de edad por tipo de vacunas
Honduras, 2010 - 2015*

AÑO	POBLACION < 1 AÑO	BCG	%	SABIN	%	ROTAVIRUS	%	PENTAVALENTE	%	NEUMOCOCO	%	POBLACION 12-23 M	SRP	%
2011	177,733	198,485	112	187,220	105	186,544	105	187,271	105	112,461	78**	174,101	186,970	107
2012	220,060	195,725	89	193,836	88	191,347	87	194,088	88	193,703	88	205,238	191,493	93
2013	220,983	12,116	76	13,181	83	13,009	82	13,183	83	13,180	83	214,999	13,153	85
2014	221,718	191,727	86	188,012	85	187,915	85	188,026	85	187,935	85	215,900	190,222	85
2015	222,256	92,415	42	98,260	44	100,151	45	98,298	44	98,677	44	216,396	92,986	43

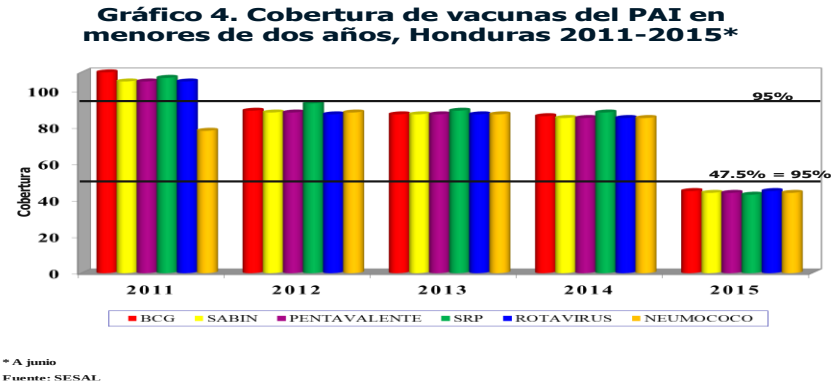
** A junio

** Se calcula en base a meta de 144,510 población menor de 1 año programados en el año de introducción

Fuente: PAI/SESAL

YEAR; INFANT POPULATION; BCG; SABIN; ROTAVIRUS; PENTAVALENT; PNEUMOCOCCAL; POPULATION 12-23 MO; MMR
** To June
** Calculations based on target of 144,510 infants scheduled for year of roll-out
Figures: EPI/SESAL

Figure 4. EPI vaccine coverage in children aged under years, Honduras 2011-2015*

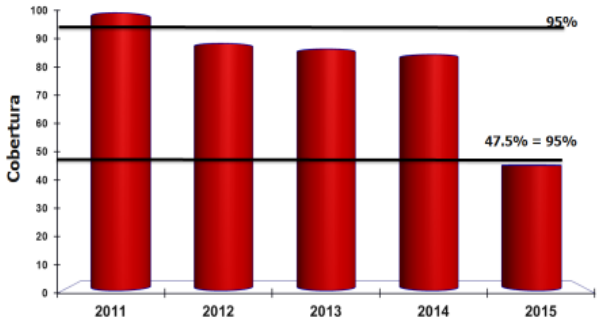


(left margin) Coverage
*(Bottom)*BCG; SABIN; PENTAVALENT; MMR; ROTAVIRUS; PNEUMOCOCCAL
*To June
Figures: SESAL

- Honduras was one the first countries in Latin America and the Caribbean to introduce the rotavirus and pneumococcal vaccines (2011), with Gavi support. The rotavirus and pneumococcal vaccines, the two most recent additions to the schedule, attained above 85% coverage rates in their first year and have maintained above 80% coverage. Similar patterns have been observed for the other vaccines included on the national schedule, and drop-out rates remain steady at below 5% (Figures 5 & 6).

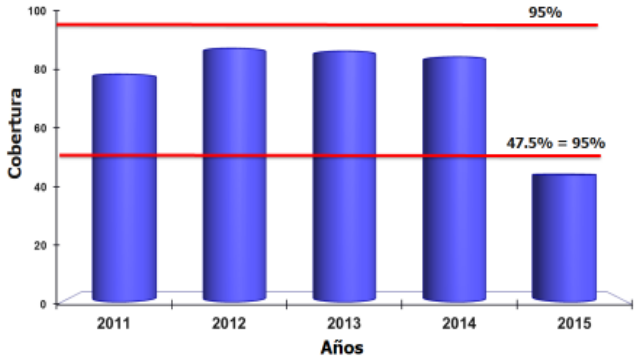
Figure 5. National rotavirus vaccine coverage in infants, Honduras 2011-2015* Coverage	Figure 6. National pneumococcal conjugate coverage in infants, Honduras 2011-2015* Coverage

Grafico 5. Cobertura nacional de vacuna Rotavirus en menores de un año, Honduras 2011-2015*



* A junio
Fuente: SESAL

Grafico 6. Cobertura de vacuna Neumococo conjugada en menores de un año, Honduras 2011-2015*

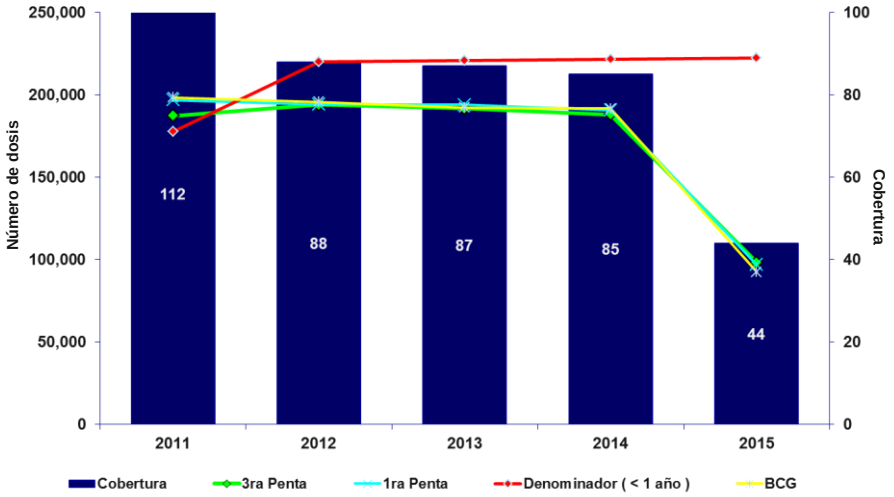


* A junio
Fuente: SESAL

*To June Figures: SESAL	Years *To June Figures: SESAL

Figure 7. National vaccination coverage and number of pentavalent3 doses applied to infants
Honduras 2011-2015*

Gráfico 7. Cobertura Nacional de vacunación y número de terceras dosis de Pentavalente en niños <1 año
Honduras 2011-2015*



* A junio
Fuente: PAI/SESAL

Number of doses
Coverage
Coverage; Penta3; Penta1; Denominator (infants); BCG
* To June
Figures: EPI/SESAL

- On a national scale, the IHSS contribution to national schedule immunisation was: BCG, 6% (13,324 doses); sabin, 4.4% (9,789 doses); pentavalent, 4.4% (9,793 doses); rotavirus, 4.6% (10,204 doses), pneumococcal, 4.4% (9,806 doses) and MMR, 4.4% (9427 doses). There was a slight drop in all vaccines in comparison with 2013. In June 2015, this trend was remaining steady.

- Analysing basic scheme immunisation coverage figures for children aged under two years by health region in 2014, 80% (16/20) of the regions were at risk of below 95% coverage rates for all vaccines, the number having increased since 2013. A similar trend was observed in June 2015 (Table 2 and Map 1).

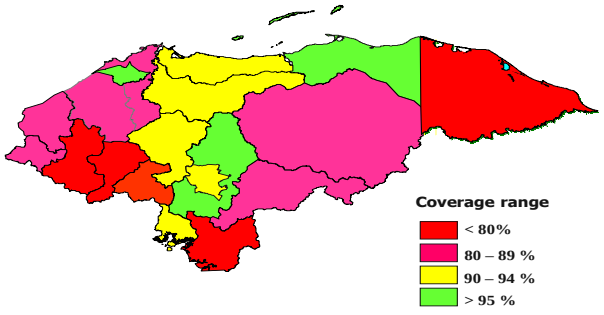
  In the case of the BCG vaccine, however, as the current information system does not filter figures for infants vaccinated in hospitals by origin, the figures do not reflect actual coverage rates for each region. In the June report, figures for this vaccine for the Comayagua, Santa Bárbara and Yoro regions were under-reported, as some hospitals had not returned the information on schedule.

Table 2. Vaccine coverage by vaccine in population aged under two years by health region, Honduras, January-June 2015

HEALTH REGIONS	POPULATION <1	BCG		SABIN 3		ROTAVIRUS2		PENTAVALENT		PNEUMOCOCCAL 3		POPULATION	MMR	
		VAC	%	VAC	%	VAC	%	VAC	%	VAC	%	12-23 M	VAC	%
ATLANTIDA	10.241	4.712	46	4.581	45	4.857	47	4.624	45	4.620	45	10.037	4.389	44
COLON	8.839	4.088	46	4.667	53	4.562	52	4.669	53	4.671	53	8.585	4.216	49
COMAYAGUA	13.624	5.093	37	6.277	46	6.384	47	6.228	46	6.630	49	13.155	5.787	44
COPAN	11.533	5.165	45	4.565	40	4.696	41	4.567	40	4.569	40	11.172	4.303	39
CORTES	22.623	4.597	20	10.038	44	9.937	44	10.032	44	10.026	44	21.961	9.126	42
CHOLUTECA	12.944	4.540	35	4.778	37	4.963	38	4.778	37	4.774	37	12.583	4.496	36
EL PARAISO	12.501	4.661	37	5.301	42	5.420	43	5.301	42	5.301	42	12.128	5.153	42
FCO. MORAZAN	7.507	1.400	19	4.140	55	4.320	58	4.140	55	4.139	55	7.448	4.034	54
GRACIAS A DIOS	3.252	1.427	44	1.130	35	1.317	40	1.152	35	1.157	36	3.128	1.386	44
INTIBUCA	8.699	3.051	35	3.372	39	3.386	39	3.372	39	3.371	39	8.357	3.170	38
ISLAS DE LA BAHIA	1.276	759	59	764	60	776	61	764	60	762	60	1.243	718	58
LA PAZ	6.534	2.651	41	2.578	39	2.669	41	2.578	39	2.582	40	6.324	2.391	38
LEMPIRA	11.493	3.351	29	4.191	36	4.304	37	4.191	36	4.191	36	11.030	4.131	37
OCOTEPEQUE	3.923	1.700	43	1.589	41	1.578	40	1.586	40	1.588	40	3.799	1.623	43
OLANCHO	16.120	6.336	39	6.960	43	7.164	44	6.962	43	6.981	43	15.637	6.350	41
SANTA BARBARA	11.819	3.448	29	4.943	42	5.074	43	4.932	42	4.944	42	11.457	4.889	43
VALLE	4.759	2.122	45	2.141	45	2.212	46	2.141	45	2.145	45	4.664	1.784	38
YORO	15.629	6.202	40	7.186	46	7.309	47	7.199	46	7.181	46	15.208	6.855	45
METROPOLITANA MDC	23.755	14.578	61	11.273	47	11.268	47	11.313	48	11.267	47	23.406	10.828	46
METROPOLITANA SPS	15.185	12.534	83	7.786	51	7.955	52	7.769	51	7.778	51	15.074	7.357	49
NATIONAL TOTAL	**222.256**	**92.415**	**42**	**98.260**	**44**	**100.151**	**45**	**98.298**	**44**	**98.677**	**44**	**216.396**	**92.986**	**43**

Figures: EPI/SESAL

Map 1. Pentavalent vaccine coverage in infants by Health Region, Honduras 2015*



*To June
Figures: EPI/SESAL

- In relation to gender and equality-based barriers, the ENDESA National Demography and Health Survey 2011-2014 has evidenced a slight difference (2.2%) in pentavalent3 coverage for the highest and lowest income quintiles (98% and 95.8% respectively). There were no gender-related differences; coverage rates for men (95.5%) and women (95%) were similar for all other vaccines applied to children aged under two years.

- Municipal immunisation coverage figures for the population aged under two years are not homogeneous; in the 2012-2014 period the number of municipalities at risk of coverage rates below 95% for all vaccines was up from the 2010-2012 period. In 2014, 222 municipalities (77%) had not attained over 95% coverage, due mainly to the overestimation of the denominator. These municipalities are located throughout 19 of the

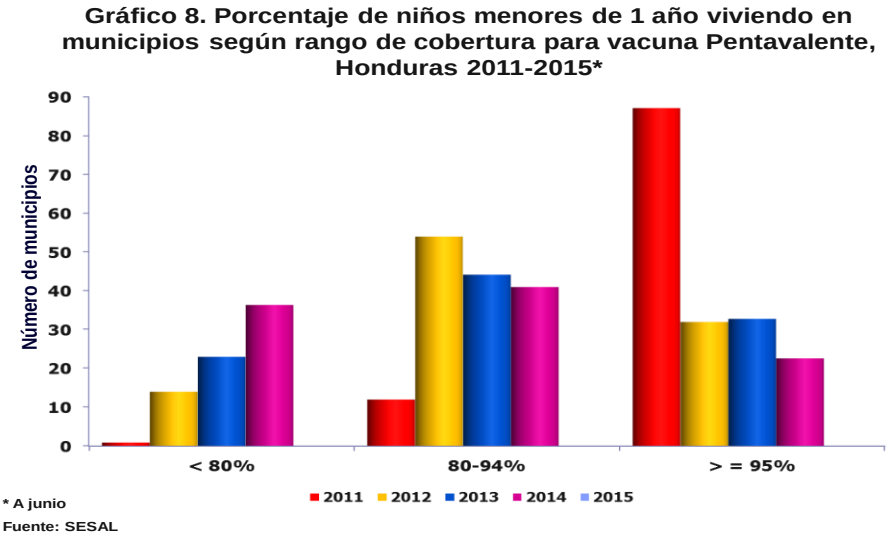
20 health regions and most are rural, reporting fewer than 500 annual births. In June 2015 there was a slight drop in the number at risk for all vaccines (Table 3, Figure 8, Map 2).

Table 3. Number and percentage of municipalities by coverage level for EPI vaccines in children under two, Honduras 2011-2015

Year	SABIN				ROTAVIRUS				PENTAVALENT				PNEUMOCOCCUS				M.M.R.			
	< 95%		> 95%		< 95%		> 95%		< 95%		> 95%		< 95%		> 95%		< 95%		> 95%	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2011	52	17	246	83	58	19	240	81	52	17	246	83	58	19	240	81	47	16	251	84
2012	216	73	82	27	238	80	60	20	214	72	84	28	217	73	81	27	133	45	165	55
2013	216	72	82	28	221	74	77	26	214	72	84	28	214	72	84	28	198	66	100	34
2014	224	75	74	25	226	76	72	24	222	74	76	26	224	75	74	25	198	66	100	34
2015	202	68	96	32	188	63	112	37	201	67	97	33	203	68	95	32	224	75	74	25

* To June
Source: EPI/SESAL

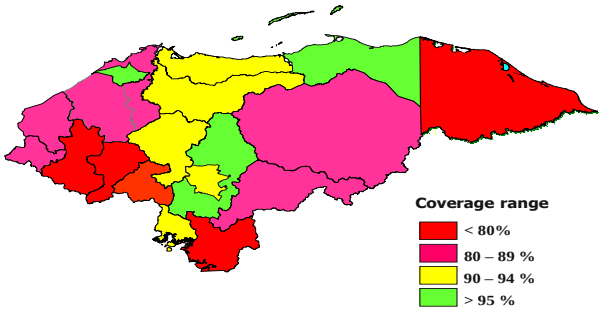
Figure 8. Percentage of infants living in municipalities per coverage range for pentavalent vaccine, Honduras 2011-2015*



(Left margin) Number of municipalities
*To June
Figures: SESAL

- The health regions at most risk, where over 80% of municipalities report below 80% coverage, are Choluteca, Gracias a Dios, Intibucá, Ocotequeque, Olancho, Santa Bárbara and Valle; followed by Copán, Cortés and Lempira, where the figure is 70%.

Map 1. Pentavalent vaccine coverage in infants by Health Region, Honduras 2015*



*To June
Figures: EPI/SESAL

- In 2014, health services, including immunisation services, were provided in 26% of the country's municipalities (78/298) by decentralised administrators (NGOs, trusts, foundations, municipalities, associations of municipalities, etc.); 79% of these municipalities (62/78) reported below 95% pentavalent coverage rates. Given the funding model, it would be expected that 100% of the municipalities administered in this way would be reporting 95% coverage rates. This, however, is not the case, indicating that the problem is not related to service provision, but rather to over-estimation of the under-five population group. Sixty-eight percent of these municipalities were at risk in June 2015 (53-78%), down on the previous year.

- One indicator to measure the efficiency of the EPI and missed immunisation opportunities is the drop-out rate for the sabin, DTP-hep B-Hib, rotavirus, pneumococcal and MMR vaccines. This has remained steady below 5% throughout, except for a spike in MMR in 2010-2011 period, indicating improved vaccination uptake, except in the year the new vaccines were introduced (Table 3). In June 2015 there were negative rates for almost all vaccines, except MMR. These figures are expected to be corrected throughout the year, as the reports from some of the health regions are incomplete (Table 4).

Table 4. Drop-out rate by vaccine type in population under two years, Honduras 2011-2015*

AÑO	SABIN			PENTAVALENTE			ROTAVIRUS			NEUMOCOCO			1 PENTAVALENTE/SRP		
	1era	3era	%	1era	3era	%	1era	2da	%	1era	3eras	%	1 PENT.	UNICA SRP	%
2011	196724	187220	4.831	196995	187271	4.936	193612	186544	3.651				196995	186970	5.089
2012	194188	193820	0.19	194289	194072	0.112	192232	191729	0.262	193857	192087	0.913	194289	191479	1.446
2013	193848	191846	1.033	193947	191691	1.163	192159	191745	0.215	192190	192095	0.049	193947	191482	1.271
2014	190728	188012	1.424	190742	188026	1.424	189531	187915	0.853	190682	187935	1.441	190742	190222	0.273
2015	96725	98260	-1.59	96829	98298	-1.52	96082	100151	-4.23	96688	98677	-2.06	96829	92986	3.969

* A junio

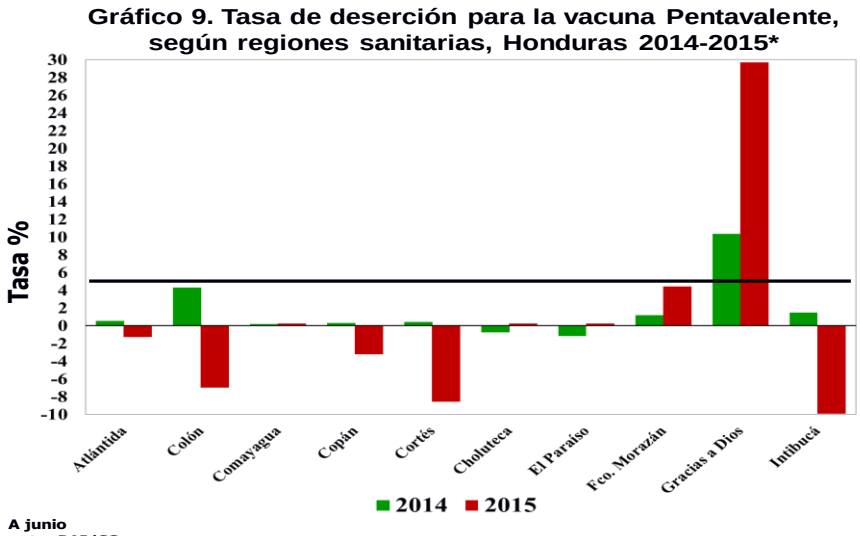
Fuente: PAI/SESAL

YEAR; SABIN; PENTAVALENT; ROTAVIRUS; PNEUMOCOCCAL; PENTAVALENT 1/SRP
1st, 3rd; 1st, 3rd; 1st, 2nd; 1st, 3rd; PENT 1; SINGLE MMR
*To June
Figures: EPI/SESAL

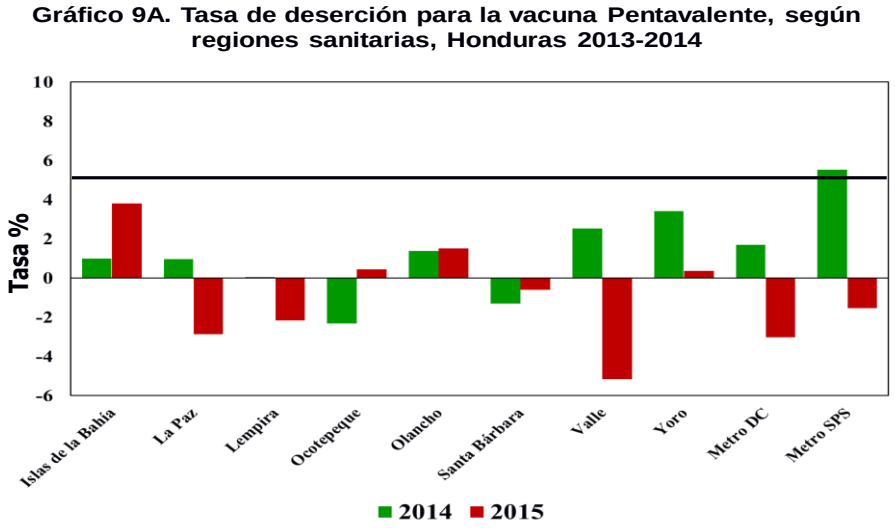
- The Gracias a Dios health region is high risk, with a drop-out rate above 5% for all vaccines. Implementing vaccination interventions is a priority here, with numbers of susceptible cases increasing and intensive clandestine migration.

Figure 9. Pentavalent vaccine drop-out rate by health region, Honduras 2014-2015*

Figure 9A. Pentavalent vaccine drop-out rate by health region, Honduras 2013-2014



· A junio
Fuente: PAI/SS



Fuente: PAI/SS

(Left margin) Rate%
(Bottom) *To June
Figures: EPI/SS

(Left margin) Rate%
(Bottom) *To June
Figures: EPI/SS

- Coverage with the sabin booster at 18 months did not rise above 95% throughout the 2012-2014 period; in June 2015 it was 45%, with a similar trend being observed in 2014 (Table 5).

Table 5. Sabin booster coverage by health region, Honduras, 2014-2015*

HEALTH REGION	SABIN BOOSTER					
	2014			2015		
	TARGET	VAC.	%	TARGET	VAC.	%
ATLANTIDA	10.077	9.087	90	10.037	5.189	52
COLON	8.530	8.464	99	8.585	4.423	52
COMAYAGUA	13.015	11.930	92	13.155	5.990	46
COPAN	11.094	8.857	80	11.172	4.548	41
CORTES	21.866	19.102	87	21.961	9.867	45
CHOLUTECA	12.529	9.236	74	12.583	4.789	38
EL PARAISO	12.054	10.533	87	12.128	5.340	44
FCO. MORAZAN	7.575	8.009	106	7.448	4.176	56
GRACIAS A DIOS	3.080	2.878	93	3.128	1.323	42
INTIBUCA	8.226	6.438	78	8.357	3.066	37
ISLAS DE LA BAHIA	1.241	1.532	123	1.243	755	61
LA PAZ	6.274	5.009	80	6.324	2.584	41
LEMPIRA	10.855	8.215	76	11.030	4.086	37
OCOTEPEQUE	3.767	3.403	90	3.799	1.618	43
OLANCHO	15.536	13.053	84	15.637	6.666	43
SANTA BARBARA	11.380	9.630	85	11.457	5.444	48
VALLE	4.677	4.069	87	4.664	2.078	45
YORO	15.157	14.061	93	15.208	7.387	49
METROPOLITANA MDC	23.631	21.859	93	23.406	10.936	47
METROPOLITANA SPS	15.336	14.366	94	15.074	8.118	54
NATIONAL TOTAL	**215.900**	**189.731**	**88**	**216.396**	**98.383**	**45**

***To June**
Figures: EPI/SESAL

- Application of DTP boosters in the population of children aged 18 months of age and four years of age remained below 95% in the 2012-2014 period; the national rate for the first booster was 88.6% in 2014; in June 2015 the rate was 47% (94% compliance). Coverage for the second booster dose, applied at four years of age, did not rise above 80%, a similar tendency being observed in 2015 (Table 6). In general, 95% coverage is not attained for the two boosters, due partly to overestimation of the denominator, although low uptake of the second booster is another factor.

Table 6. DTP first and second booster coverage in population aged one to four years by health region, 2014-2015*

HEALTH REGION	DTP FIRST BOOSTER						DTP SECOND BOOSTER					
	2014			2015			2014			2015		
	TARGET	VAC.	%	TARGET	VAC.	%	TARGET	VAC.	%	TARGET	VAC.	%
ATLANTIDA	10.077	9.078	90	10.037	5.220	52	10.733	8.022	75	9.987	4.208	42,1
COLON	8.530	8.492	100	8.585	4.416	51	7.809	7.443	95	8.637	3.421	39,6
COMAYAGUA	13.015	12.011	92	13.155	6.198	47	12.034	10.406	86	13.236	5.204	39,3
COPAN	11.094	8.903	80	11.172	4.564	41	9.703	9.083	94	11.263	4.126	36,6
CORTES	21.866	19.222	88	21.961	11.848	54	23.876	16.145	68	21.665	7.947	36,7
CHOLUTECA	12.529	9.373	75	12.583	4.843	38	12.152	8.544	70	12.657	4.846	38,3
EL PARAISO	12.054	10.534	87	12.128	5.340	44	11.454	9.643	84	12.209	4.593	37,6
FCO. MORAZAN	7.575	8.013	106	7.448	4.176	56	7.909	7.575	96	7.471	3.667	49,1
GRACIAS A DIOS	3.080	3.155	102	3.128	1.386	44	2.441	2.170	89	3.150	806	25,6
INTIBUCA	8.226	6.438	78	8.357	3.066	37	6.401	6.065	95	8.424	2.722	32,3
ISLAS DE LA BAHIA	1.241	1.512	122	1.243	751	60	1.335	1.367	102	1.245	653	52,4
LA PAZ	6.274	5.020	80	6.324	2.590	41	5.317	4.662	88	6.379	2.305	36,1
LEMPIRA	10.855	8.215	76	11.030	4.087	37	8.615	7.922	92	11.115	3.963	35,7
OCOTEPEQUE	3.767	3.411	91	3.799	1.620	43	3.562	3.316	93	3.824	1.523	39,8
OLANCHO	15.536	13.054	84	15.637	6.663	43	13.650	11.761	86	15.729	5.940	37,8
SANTA BARBARA	11.380	9.683	85	11.457	5.484	48	10.652	8.654	81	11.550	4.865	42,1
VALLE	4.677	4.091	87	4.664	2.098	45	4.472	3.653	82	4.652	1.707	36,7
YORO	15.157	14.116	93	15.208	7.406	49	14.616	12.590	86	15.284	6.185	40,5
METROPOLITANA MDC	23.631	22.509	95	23.406	11.104	47	30.109	19.768	66	22.830	9.461	41,4
METROPOLITANA SPS	15.336	14.384	94	15.074	8.166	54	18.880	12.018	64	15.106	6.849	45,3
NATIONAL TOTAL	**215.900**	**191.214**	**88,6**	**216.396**	**101.026**	**47**	**215.720**	**170.807**	**79**	**216.413**	**84.991**	**39,3**

***To June**

Figures: EPI/SESAL

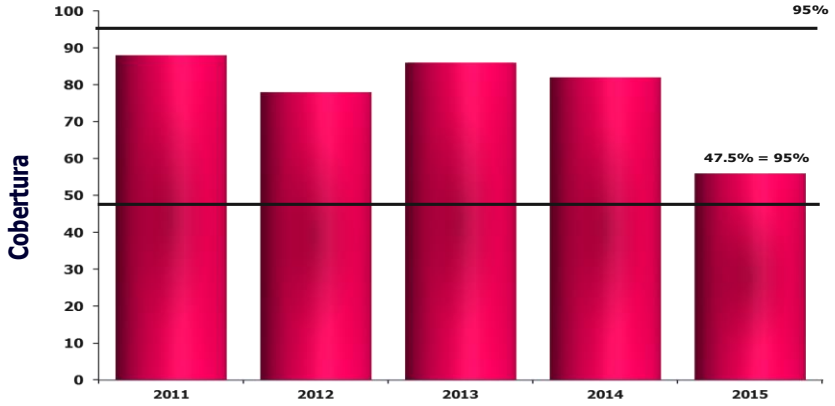
- Dt vaccine:

3. Coverage of the population aged 11 years did not attain 95% in the 2011-2014 period; in 2014, 82% of the target population was vaccinated, a slight increase on 2013; in June 2015 coverage was 56%. If this trend is maintained, the 2014 coverage rate is expected to be surpassed. Owing to low coverage rates, Gracias a Dios, Colón and Yoro are high-risk regions for tetanus (Figure 10, Table 7).

Figure 10. Dt booster coverage in population aged 11 years, Honduras 2011-2015*

Gráfico 10. Cobertura con refuerzo de Td en población de 11 años, Honduras 2011-2015*

Coverage



*To June
Figures: SESAL

4. Vaccination is being maintained throughout 2015 for other risk groups (farmers, soldiers, young people aged 21 and 22).

5. The compliance rate for non-vaccinated pregnant women was above 100% of the established target in the period, owing to this group losing their vaccination booklet.

Table 7. Dt booster coverage in population aged 11 años by health region, Honduras, 2014 - 2015

HEALTH REGION	Dt 11 years					
	2014			2015		
	TARGET	VAC.	%	TARGET	VAC.	%
ATLANTIDA	10.202	6.934	68	10.255	5.965	58
COLON	7.422	5.450	73	7.484	2.805	37
COMAYAGUA	11.438	9.080	79	11.600	5.293	46
COPAN	9.222	7.068	77	9.316	4.384	47
CORTES	22.694	17.815	79	23.184	11.819	51
CHOLUTECA	11.550	8.723	76	11.634	5.825	50
EL PARAISO	10.887	11.526	106	10.999	6.423	58
FCO. MORAZAN	7.517	7.565	101	7.517	4.504	60
GRACIAS A DIOS	2.321	1.484	64	2.362	844	36
INTIBUCA	6.084	6.295	103	6.188	4.327	70
ISLAS DE LA BAHIA	1.269	1.381	109	1.286	623	48
LA PAZ	5.054	4.278	85	5.117	2.714	53
LEMPIRA	8.188	7.581	93	8.313	4.804	58
OCOTEPEQUE	3.386	2.797	83	3.424	1.644	48
OLANCHO	12.974	10.796	83	13.104	6.554	50
SANTA BARBARA	10.125	7.491	74	10.199	5.076	50
VALLE	4.251	3.633	85	4.264	2.031	48
YORO	13.893	10.156	73	13.991	5.744	41
METROPOLITANA MDC	28.618	25.241	88	28.822	24.359	85
METROPOLITANA SPS	17.945	12.364	69	17.983	10.063	56
NATIONAL TOTAL	**205.040**	**167.658**	**82**	**207.042**	**115.801**	**56**

Figures: EPI/SESAL

- Immunisation continues with the hepatitis B vaccine for risk groups; yellow fever vaccine is applied to international travellers going to areas where there is a risk of infection; and Salk and paediatric Dt are given to the population contraindicated for sabin and the pertussis component of the pentavalent vaccine, respectively.

2.1.2 Supplementary immunisation

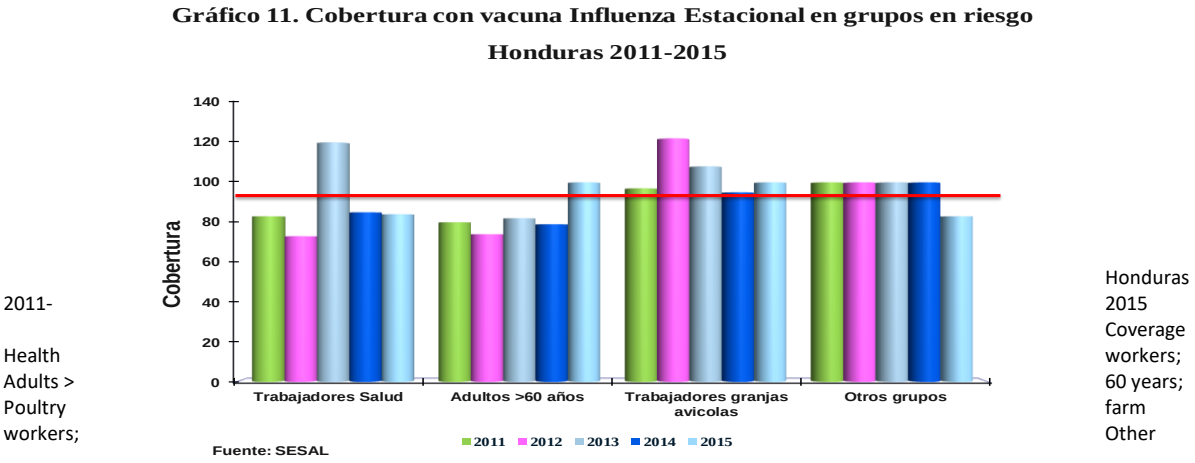
National Vaccination and Deworming Day was held over 11 to 22 May, to identify non-immunised population and drop-outs. This year's day will include the seasonal flu vaccine campaign, while also incorporating health promotion and prevention interventions, such as vitamin A supplements and deworming of pre-school children. National Vaccination Day continued until 11 June, after which up to 20 June it spread to other regions where the target had not been reached.

Fifty percent of all national schedule vaccines to be applied (493,908/832,710) were applied during National Vaccination Day, and there was great progress in applying DTP, Dt and sabin boosters to the population aged 11 years and pregnant women; over 95% of the population pending immunisation was reached, contributing significantly to the sustained immunisation programme.

According to preliminary figures, coverage of the seasonal flu vaccine was 100% in all target groups (844,2284/842,046), thanks to reduced wastage, and vaccination among other, non-targeted groups.
By risk groups, coverage was 83% for pregnant women, 84% for health workers, 78% for the population aged over 60 years, 100% for poultry farm workers, and 212% for people aged 6 months to 59 years with chronic diseases. These figures are associated with greater demand for vaccination services, particularly among the population group aged over 18 years with chronic diseases.

Coverage in the group aged over 60 years did not rise above 95%, due to overestimation of the population (Figure 11).

Figure 11. Seasonal flu vaccine coverage in risk groups



2011-

Health
Adults >
Poultry
workers;

Honduras
2015
Coverage
workers;
60 years;
farm
Other

groups
Figures: SESAL

For the second year running, National Vaccination Day included deworming of pre-school children aged 2 to 4 years, this year also reaching the population not attending public schools. Poultry farm workers, one of the groups at risk for geohelmintiasis, were also vaccinated. The results of National Vaccination Day were as follows:

- 260,457 children were dewormed (national coverage: 62%), 134,203 girls (51%) and 126,254 boys (48%).
- 67,568 of these children (16%) had been dewormed previously, giving 80% deworming coverage between those dewormed on the day and those already dewormed.

Within the framework of integrated healthcare in childhood, and to combat vitamin A deficiency, supplements were given to the mother and child population, reaching 22,099 of the national target population aged 6 to 11 months (20%), 208,250 of the target aged 1 to four years (24%) and
9,404 (51%) of postpartum women up to 30 days after childbirth.

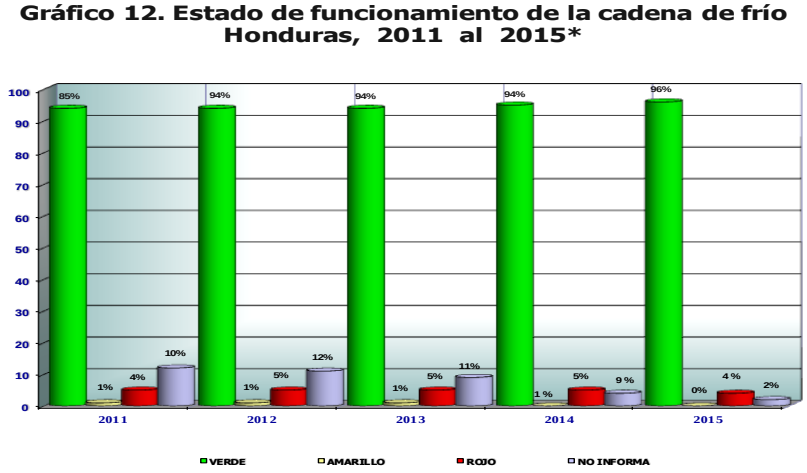
2.2 Cold chain and supply chain

2.2.1 Cold Chain

Over the 2011 to 2014 period, the cold chain has been strengthened considerably, with health establishments being electrified, cold chain equipment being replaced, repairs carried out by technicians and communication lines upgraded.

Figures for 2014 show that the national cold chain greenlight operations rose to 95%; yellow lights dropped to 0% and red lights remained steady at 5%. The number of health establishments not reporting their cold chain status dropped to 4%. At June 2015, 96% of equipment was in operation (green) and 4% was not in operation (red); 2% still fail to report their status (Figure 12).

Figure 12. Cold chain operation status



Honduras, 2011-2015*

GREEN; YELLOW; RED; N/A

* To June
Source EPI/SESAL

- The main causes of red lights are shortages of solar equipment and parts or batteries. Gracias a Dios, Colón, Choluteca, El Paraiso and Yoro are the regions which experience most problems. Solar systems to be used to assist operations have been scheduled for delivery in the third quarter.

- Yellow light functioning dropped to zero in 2014, when approximately 99% of all kerosene and LPG fridges in hard to reach health regions were replaced by solar fridges.

2.2.2 Supply chain

SESAL has put the following logistics in place to ensure the national supply of vaccines and safety boxes:

- National Vaccines Warehouse *(Almacén Nacional de Biológicos - ANB)*
- Regional vaccines warehouses, operating as collection centres
- Municipal warehouses / inter-municipal networks / areas
- Health establishments

The supply chain currently operates as follows:
Vaccine distribution:
The National Vaccines Warehouse distributes the vaccines for the routine programme and supplementary activities via two refrigerated trucks and by air, as follows:
- Quarterly deliveries to eight regional vaccine warehouses, which function as collection centres for 18 health regions.
- Monthly deliveries to two health regions located in Tegucigalpa (Tegucigalpa Central and Francisco Morazán), which do not have a regional vaccines warehouse but share a space with cooling equipment.

The Ocotepeque and Valle regions have warehouses with cold rooms. However, these are not yet in operation due to insufficient electric capacity; the Ocotepeque warehouse is in its test period, and work is being carried out at the Valle warehouse to correct a problem.

The regional warehouses make monthly deliveries to the 178 municipalities/inter-municipal networks/areas (226 in 2014), which in turn make monthly deliveries to the 1627 health establishments providing vaccination services: 444 medical-dental clinics, 1,085 rural health clinics, 73 maternal clinics, 3 national hospitals, 6 regional hospitals and 16 area hospitals.

Most health centres have two fridges, ice-lined and domestic; a freezer and a supply of thermal flasks and cold packs.

The metropolitan regions, covering the two most densely-populated cities (Tegucigalpa and San Pedro Sula) make fortnightly or monthly deliveries to their health establishments, depending on their storage capacity at the time.

Vaccines are distributed to all levels annually for supplementary vaccination activities: Vaccination Week in the Americas, seasonal flu campaign, and additional deliveries for risk groups for yellow fever, IPV, Dt and hepatitis B, or when there have been delays in deliveries from suppliers.

Distribution of syringes and safety boxes:
Regional supplies warehouses receive deliveries of ANMI twice yearly, plus additional deliveries for supplementary activities. Thirteen regional warehouses receive deliveries by land: Atlántida, Colón, Comayagua (delivering to Intibucá), Copán (delivering to Lempira), Ocotepeque, El Paraíso, Choluteca, Valle, Cortés (distributing to San Pedro Sula Metropolitan District), Yoro and Santa Bárbara. The Francisco Morazán region collects syringes and safety boxes from EPI, and Gracias a Dios and Islas de la Bahía receive twice-yearly deliveries by sea and by air, respectively.

Stock management

- VSSM was implemented at the National Vaccines Warehouse in 2010 and progressively extended to 19 of the 20 health regions (all but Gracias a Dios). It is currently in use in 18 health regions.

- The VSSM tool has made it possible to upgrade vaccine and supplies management at regional level and to implement best vaccination practices in general: open-vial policy for WHO-prequalified multi-dose vials, administration routes and techniques, security reserve vaccines, monitoring of expiry dates.

- Web-based Medical Stocks and Supplies Management, or wMSSM, was implemented in four of the 20 health regions in the second half of 2014, with technical and financial support from PAHO/WHO; between 2015 and 2016 it is to be extended to all 20 regions.

2.3 Safe immunisation

Honduras acquires WHO-prequalified vaccines through the PAHO Revolving Fund, guaranteeing the required supply of quality vaccines at affordable prices.
The country acquires 100% of the AD syringes offered by the Revolving Fund, and has regulated safe injection practices at national level - no recapping, disposal in portable syringe destroyers and safety boxes, and final disposal of boxes in safety pits in rural establishments. In this regard, some municipalities have problems eliminating safety boxes, due to shortages of safety pits and incinerators, so a cross-sector approach will be required.

Twelve years after the National Safe Injection Plan was implemented with Gavi support, the main achievements maintained to date include:

- Health services network in the 20 health regions supplied with AD syringes and sharps disposal boxes for vaccination services, in the form of six-monthly deliveries each year, guaranteeing the safe provision of vaccination services for the target population and health workers and ensuring that they are eliminated safely.
- 100% of health regions equipped with and using AD syringes for injectable vaccines.

- 100% of health personnel receiving training in responsible vaccination practices, and following the rule of not recapping syringes; this process is supported with educational material such as leaflets and posters.
- The main achievement in relation to the safe disposal of safety boxes is its standardisation by SESAL. Articles 67, 69 and 71 of the special regulation for the proper handling of dangerous waste, formulated by the Services Development Department (Currently the Secondary-Level Healthcare Department) and published in the La Gaceta official gazette, establishes that health establishments not equipped with physical-chemical elimination systems are to deposit hazardous and sharp waste in safety pits; if this is not a possibility, they may be disposed in pits in local cemeteries or in municipal dumps where the service is available, so that they continue to be buried or burned.
- CESAMO medical-dental establishments continue to use portable syringe destroyers for syringes used in vaccination, to decrease the risk of transmitting disease.

2.4. National Health Promotion Plan, emphasising EPI 2013-2017

The EPI national health promotion emphasises the 2013-2017 plan, which was formulated under the guidance of the National Health Promotion Programme, now the Social Communication Unit, on the basis of existing studies on missed vaccination opportunities, mass vaccination surveys, and others.

This component falls under the scope of said plan, which will roll out in 2016 with approved Gavi-HSS 2015-2016 support. In this context, the Social Communication Unit, subordinate to SESAL, and EPI, have in place a series of initiatives aimed at guaranteeing the understanding and guidance of the implementation process.

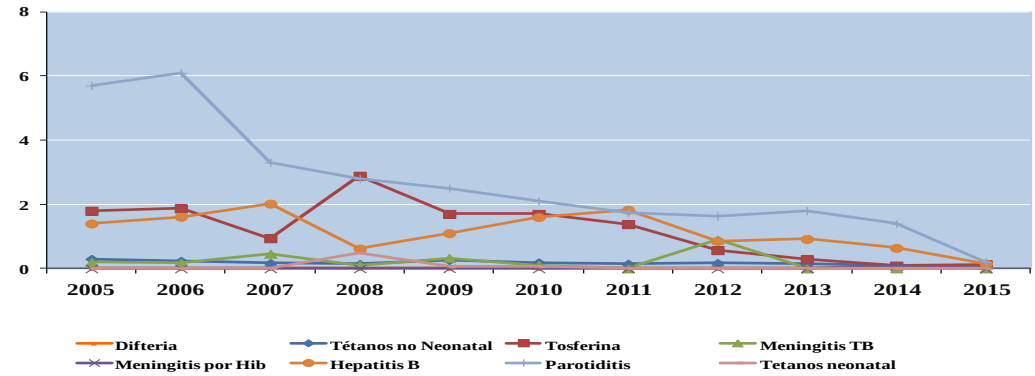
2.5 Status of VPD monitoring

Although vaccination coverage rates have been falling since 2012, coverage of above 90% in the 1991-2100 period has led to a falling trend in VPD incidence and mortality rates. The main achievements can be summarised as follows:

- ✓ 34 years with no recorded cases of diphtheria (most recent case in 1981)
- ✓ 26 years with no recorded cases of poliomyelitis (most recent case in 1989)
- ✓ 18 years with no recorded cases of measles (most recent case in 1997)
- ✓ 14 years with no recorded cases of congenital rubella syndrome (most recent case in 2001)
- ✓ 11 years with no recorded cases of rubella (most recent case in 2004)
- ✓ Significant reduction in neonatal tetanus, meningitis, TB, Hib among children aged under five years and mumps, reduction in rotavirus gastroenteritis and pneumonia and bacterial meningitis in children aged under five years (Figure 13).

Figure 13. VPD incidence rate, Honduras 2005-2015*

Gráfico 13.Tasa de incidencia de enfermedades prevenibles por vacunas, Honduras 2005-2015*



* Hasta la semana 25
Fuente: PAI/SESAL

Diphtheria; Non-neonatal tetanus; Whooping cough; TB meningitis
Hib meningitis; Hepatitis B; Mumps; Neonatal tetanus

*To week 25
Figures: PAI/SESAL

Advances in the national plan for the elimination of measles

Throughout the 2011-2015 epi week 25 period, monitoring of suspect cases of measles and rubella was maintained. In 2015 epidemiological week 25, 171 suspect cases had been reported; 115 of these were reported in municipalities with populations above l00,000.

The 171 cases reported in 2015 (up to epidemiological week 25) in municipalities with populations above 100,000 were reported in nine of the 12 municipalities (Tegucigalpa CD, San Pedro Sula, Choloma, Villlanueva, Danlí, La Ceiba, Puerto Cortés, El Progreso and Comayagua), with the highest number of cases being reported in Tegucigalpa CD (35), San Pedro Sula (22),Choloma (20), Villanueva (13), Danlí (11), La Ceiba (5), Puerto Cortés (4) El Progreso (4) and Comayagua (1).

Of the 171 suspected cases, 100% were ruled out by the laboratory for measles/rubella: one case (0.5%) was classified as a sporadic case with positive and indeterminate results for measles in the first and second samples. Both samples were sent to the reference laboratory at Gorgas Memorial Institute in Panama, and, as neither the rubella nor the measles antibodies titred positively four times, the National Commission for Special Cases of Measles/Rubella/CRS ruled out measles/rubella. The case in question occurred in Atlántida health region.

None of the suspected cases (171) underwent testing for dengue, as the National Virology Laboratory was stocked out of reagents at the time.

Up to epidemiological week 25 2015, no outbreaks of dengue had been detected through passive (laboratory) dengue monitoring, due to stockout of the reagents used to process the samples; this situation first arose in October 2014. The most recent dengue results were reported by the National Virology Laboratory on 10 October 2015.

Problems persist with regard to compliance with national and international measles/rubella monitoring indicators for 2015 (epidemiological week 25):
- Above 80% compliance was maintained in three of the six established indicators (percentage of units reporting weekly, percentage of viable blood samples taken from suspected cases and percentage of cases ruled out by laboratory);
- Failure to comply with investigation indicators (31%) due to several factors: accountability shortfalls at regional and municipal levels, logistics failures; percentage of samples reaching laboratories $\leq$ five days, and percentage of laboratory results returned in $\leq$ days (34%).
The failure to comply with the percentage of laboratory results returned within four days indicator is owing to the National Virology Laboratory being stocked out of rubella reagents since November 2014 and measles reagents since December 2014. The measles situation was resolved on 8 January 2015 and the rubella situation, caused by customs clearance problems associated with SESAL funding shortfalls, on 23 February 2015.

Up to 2015 epidemiological week 25, no active search for suspected cases of measles/rubella had been conducted in any of the country's 20 health regions.

Elimination of rubella and congenital rubella syndrome

Rubella

In the context of eliminating measles, rubella surveillance integrated with measles surveillance has been strengthened, making it possible to systematise case reporting. Rubella was endemic, with a high rate of under-reporting. During the nineties, an annual average of 146 cases was reported, with an incidence rate of 2.55 cases per 100,000 inhabitants. The most severely-affected group was infants, followed by the group aged one to four years. No cases of rubella have been confirmed since 2005.

Congenital rubella syndrome (CRS)

The systematisation of CRS epidemiological monitoring in 1997 has made it possible to study a total of 257 suspected CRS cases in the 2011-2015 period up to 2015 epidemiological week 25; the principal malformation associated with the syndrome was cataracts/cardiac. No cases have been confirmed since 2002, demonstrating the impact of massive MR immunisation in men and women in 2002-2003.

To improve laboratory diagnosis of cases ruled out for CRS, in 2011 the National Virology Laboratory introduced testing for cytomegalovirus and herpes.

In 2015 (epidemiological week 25), six suspected cases of CRS (100% ruled out) were reported by the following hospitals: HEU, three cases; IHSS, two cases; HRO one case.

The main source of reports of suspected CRS cases was the public sector (SESAL and IHSS), and the six cases originated in five health regions (Comayagua, Cortés, Choluteca, Lempira

and Tegucigalpa CD). In 2015, by age, 32 cases (47%) were recorded in new-borns and 2 in children aged over one month (33%). Epidemiological monitoring of this disease needs to be strengthened, maintaining full records of each case and reflecting negative diagnoses.

Maintaining polio eradication

The most recent case of polio in Honduras was confirmed on 29 May 1989, in the municipality of La Ceiba. In 1994, the National Commission for the Eradication of Polio (CONEPO) certified the eradication of wild poliovirus. Basic strategies aimed at attaining annual vaccination coverage rates 95% in the population aged under five years, national vaccination days and active monitoring of acute flaccid paralysis (AFP) in the population aged under 15 years are being maintained.

- The basic strategy adopted by Honduras to sustain the eradication of polio and to prevent outbursts of the virus in the event of its being imported consists of mass vaccination on national vaccination days, with the aim of disseminating the vaccine in the shortest possible time In the 2011-2014 period, one national immunisation day was held, administering additional doses of the sabin vaccine. The coverage rates obtained were below 95%, associated with overestimation of the population aged under five years; the next immunisation day has been scheduled for 2016.

Acute flaccid paralysis (AFP) monitoring

- Throughout the 2011-2015 period (up to 2015 epidemiological week 25), 271 cases of AFP were analysed nationwide, and the national rate remains above the expected rate of one case per 100,000 aged under 15 years.

- In 2015, up to epidemiological week 25, 39 suspected cases of AFP had been analysed, of which 35 (90%) were ruled out by the laboratory (in five cases other enterovirus were isolated, and 35 cases tested negative), leaving four cases. Because of financing shortfalls, these four were sent to the CARPHA reference laboratory in Trinidad and Tobago in August 2015. Of the 2015 cases, only one was sent to CONEPO for classification. However, the results are still pending, as the neurologists remitted them for immunology testing. Priority was given to cases pending classification since 2014, the health regions being given instructions to have them evaluated by physicians in the regions and to remit only cases that had problems walking. This policy is being implemented due to insufficient funding for the neurological and electromyographic evaluation of these cases.

  In 2015 (epidemiological week 25), four of the 20 health regions are considered at risk due to epidemiological silence in the reporting of suspect cases: Francisco Morazán, Intibucá, Islas de la Bahía and Valle, the last of these silent since 2012.

Compliance with epidemiological monitoring indicators for polio eradication

Within the framework of the polio eradication plan, four AFP monitoring indicators have been established. In this 2011-2015 period, this remained steady at over 80% negative weekly reporting, above the expected one case x 100,000 <15 years, with proper sampling; the

investigate within 48 hours indicator is not met (15%), associated with accountability problems at health region and hospital level, logistics problems and local funding problems.

Advances in the national plan for the control-elimination of neonatal tetanus

In 1990, Honduras committed to eliminating neonatal tetanus, implementing the following basic strategies: a) sustained immunisation of women of childbearing age (WCA) (12-49 years) with two doses of tetanus toxoid (Tt) in identified risk municipalities and other municipalities throughout the country.

Generally, neonatal tetanus has been on the decline. In the 2011-2015 epidemiological week 25 period, six cases were reported, an incidence rate less than 1 x1000 live births.

In 2012, two cases of neonatal tetanus were reported; no cases were reported in 2013 and 2014; in 2015 (epidemiological week 25), two cases had been reported, one in San Pedro Sula, born to a mother aged 15 years with a HGO of G=3, P=1, HV=0. The mother had attended no prenatal checkups and had not been vaccinated. The child had been born at home, attended by a trained traditional midwife, who cut the umbilical cord using scissors. The second case was reported in El Paraiso, Danli, Jamastran, and was born to a woman aged 37 years with a HGO of G=9, P=9, HV=9. The mother had attended only one prenatal checkup, in the final week of her pregnancy, and had not been vaccinated against Dt. She gave birth at home, alone, cutting the umbilical cord with a machete. Both cases showed symptoms 10 days after birth and, of the two cases, one died (San Pedro Sula).

Diseases under control

Diphtheria

No confirmed cases of diphtheria have been reported in the country in 28 years. However, as the disease is re-emerging around the world, particularly in the Americas, culture media and reagents are kept available for its diagnosis. In the 2011-2015 epidemiological week 25 period, basically no suspected cases were reported - one suspected case was reported in Tegucigalpa CD in 2014, but ruled out by the laboratory.

Non-neonatal tetanus (NNT)

In the 2011-2015 (epidemiological week 25) period, 51 suspected cases of non-neonatal tetanus were reported, maintaining a rate below 1 x 100,000 inhabitants. In the same period, 33 deaths were reported, a mortality rate of 0.37%.

Up to 2015 epidemiological week 25, four suspected cases were reported, 100% being confirmed. The highest number was reported in Cortés region - two in San Pedro Sula and one in San Manuel; the other case was reported in Lempira health region.

The most severely-affected age group was 15-49 years, with three cases (75%), followed by over 50 years, with one (25%). 75% of cases were from urban areas (three cases) and one from a rural area (25%).

All four cases were men; by occupation, three farmers and one labourer. Two of the men died (50%). These deaths could have been prevented had 95% immunisation coverage been guaranteed among adolescents aged 11 years, with pentavalent and DTP among children aged under five years and for risk groups.

Pertussis

The national incidence rate of pertussis in 2011 remained above 1 x 100,000 inhabitants; from 2012 and up to 2015 epidemiological week 25, it dropped below 1 x 100,000 inhabitants. At 2015 epidemiological week 25, the incidence rate was 0.12 x 100.000 inhabitants and no deaths had been reported from the disease.

At 2015 epidemiological week 25, 94 suspect cases of pertussis had been reported. 11 confirmed cases were classified in accordance with clinical, epidemiological and laboratory criteria. One of these was confirmed by laboratory analysis and 10 by clinical analysis. Fourteen cases were ruled out and 69 are still pending results.
The laboratory-confirmed case corresponds to an infant aged under two months in the Islas de la Bahía region.

The immunisation status of the confirmed cases shows that four of the infants (36%) were aged under two months and thus not yet old enough for immunisation It is worth pointing out that the immunisation status of the eleven confirmed cases was included in their clinical files and that the only one of the infants who fell ill when he was already aged two months had not yet been vaccinated.

To determine the aetiology of the probable cases, nasopharyngeal swabs were taken from 52 (55%), isolating *Bordetella pertussis* in one case; samples were taken from five of the 10 confirmed cases (45%). With this in mind, it is necessary to take into account difficulties in isolating bacteria, associated with the stage of the disease when samples are taken, techniques, antibiotic use and the prevalence of other respiratory infections which, due to constraints on differential testing, can hinder proper classification.

Incidence rates for the health regions have been calculated. The highest rates were given in Islas de la Bahía (1.8 x 100,000 inhabitants), followed by Valle (0.54 x 100,000), Cortés (0.30) and Tegucigalpa CD (0.24).

Tuberculous Meningitis

The figures for the 2011-2015 epidemiological week 25 period show a rate of less than one case per 100,000 children aged under five years, with no cases being reported in 2011, 2013 or 2015.
In 2012 and 2014, two cases were confirmed in Yoro health region.

Haemophilus influenzae type B meningitis

Since 2000, monitoring of bacterial meningitis is conducted at one national sentinel hospital (Hospital Escuela, Tegucigalpa CD). From 2011, it was extended to three hospitals, incorporating two IHSS hospitals.
There has been a sustained drop in the number of suspected cases in children aged under five years. In the 2011-2015 epidemiological week 25 period, one case was reported in Tegucigalpa CD, a girl aged three years who had received the pentavalent vaccine.

Hepatitis B

Hepatitis B monitoring commenced in 1996. Nationally, there were an average of 108 cases in the 2011-2015 epidemiological week 25 period, with a marked drop in 2012-2013, owing to monitoring failures. The problem is probably greater than shown in this study, as monitoring of the disease is concentrated in hospital services: outpatients, admissions and blood banks.

337 suspected cases were reported in 2015 up to epidemiological week 25 of which 25 were confirmed by laboratory testing as one acute infection and 24 carriers. The highest rates were reported in Tegucigalpa CD (6.32 x 100,000 inhabitants), followed by Comayagua (1.64 x 100,000), Valle (1.65 x 100,000), Olancho (0.36 x 100,000), and Cortés (0.31 x 100,000).

Vaccination strategies were initially implemented for risk groups in 1994 and extended every year since then. In 2000 the infant population began to receive the combined DTP-hep B-Hib (pentavalent) vaccine. As this first cohort is now 14 years of age, this disease is expected to be controlled in the medium term. The situation may be addressed by incorporating massive immunisation of school children and adolescents into the national schedule, bearing in mind that transmission of the disease is predominantly sexual and perinatal.

Mumps

Surveillance of mumps began in 1997, with an incidence rate of 10.82 for every 100,000 inhabitants that year. The incidence of mumps has been dropping since 2002, to a rate of 0.21 x 100,000 inhabitants in 2015 epidemiological week 25.

In 2015 epidemiological week 25, 19 cases had been reported, with 18 cases documented on file. Atlántida health region reported the highest number of cases, followed by Choluteca; only the Francisco Morazón region reported no cases.

Sentinel surveillance of other vaccine-preventable diseases

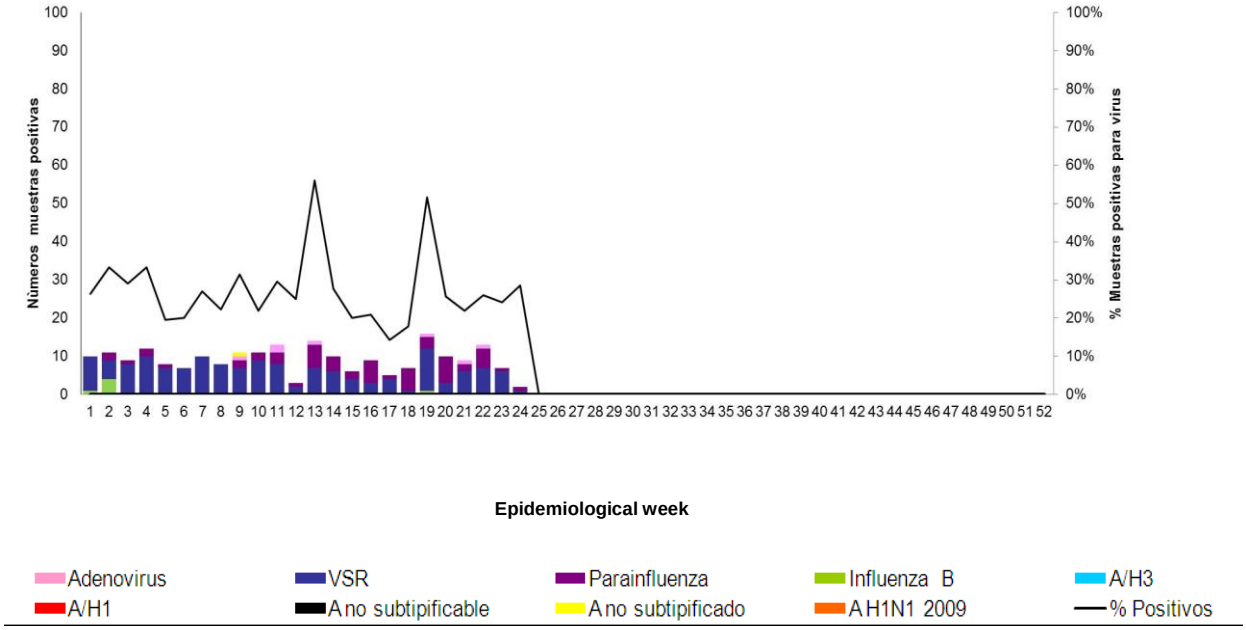
The surveillance strategy is for the Health Monitoring Service to incorporate new and underused vaccines into the sentinel sites for other VPDs, with the support of EPI: seasonal flu, rotavirus gastroenteritis and bacterial pneumonia in children aged under five years.

Sentinel surveillance of seasonal flu

In 2015 up to epidemiological week 25, a total of 833 samples were received nationally for testing for seasonal flu and other respiratory viruses, 221 of which (26.5%) tested positive for

respiratory viruses. The 221 positive results were: seasonal flu, 7 (influenza A,1; and B,6); respiratory syncytial virus (RSV), 149; parainfluenza, 58; and adenovirus, 7 (Figure 14).

Figure 14. Distribution of samples referred to National Virology Laboratory, Monitoring of seasonal flu and other respiratory viruses, Honduras 2015, epidemiological weeks 1 to 25



Source: Seasonal flu monitoring database

Number positive samples
% positive samples per virus
Adenovirus; VSR; Parainfluenza; Influenza B; A/H3
A/H1; A no subtype; A no subtype; AH1N1 2009; % positive

Rotavirus diarrhoea

The rotavirus gastroenteritis monitoring system was implemented in Honduras in 2005, in sentinel sites located in six hospitals, and was extended to two new sites in 2011; other pathogens, such as bacteria and parasites, are also diagnosed concurrently.

In the 2011-2015 epidemiological week 25 period, an average of 2753 suspected cases were reported each year and an average of 1,503 samples were processed annually.

In the January-June 2015 period, a total of 15,304 children were hospitalised for all pathologies; of these, 2107 (14%) were admitted for diarrhoea. 1,200 (57%) met the criteria for rotavirus. Stool samples were collected and studied from 612 cases, spelling out 51% in surveillance efficiency. Of these samples, 155 tested positive for rotavirus (25%) (Table 8 and Figure 15).

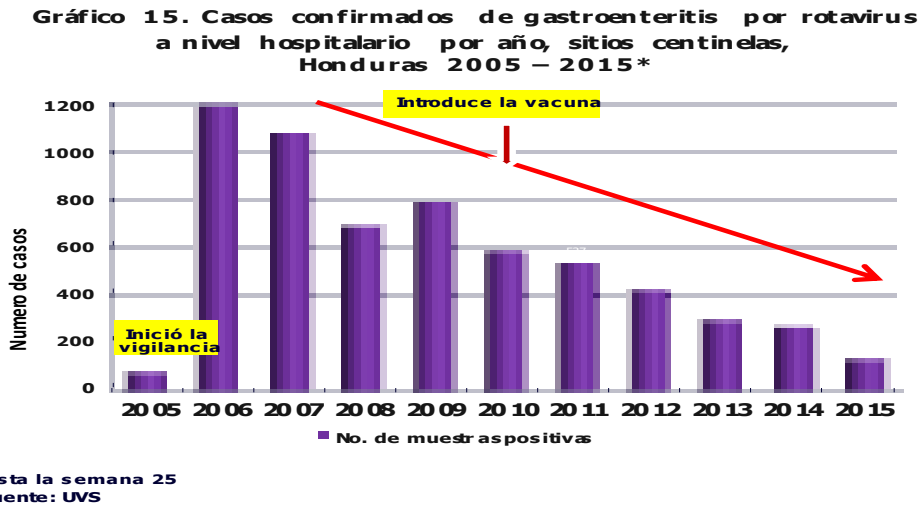
This goes to show that in 7% of children aged under five years admitted for diarrhoea, the cause is rotavirus. The highest number of cases occur in February and March, peaking in March, but the highest positivity is observed in February and May.

Table 8. Monitoring of rotavirus gastroenteritis, Honduras 2011-2015

Year	No. of suspect cases	No. of samples taken	No. of positive samples
2011	3213	2200	537
2012	2973	1777	422
2013	3305	1425	294
2014	3078	1502	267
2015	1200	612	155
Total	**13769**	**7516**	**1675**

Source: Gastroenteritis Surveillance System/UVS

Figure 15. Confirmed cases of rotavirus gastroenteritis in hospitals per year, sentinel sites, Honduras 2005-2015*



Vaccine introduction
Number of cases
Start of monitoring
No. positive samples
*To week 25
Figures: Health Monitoring Unit

The most severely-affected age group was 12 to 23 months, accounting for 59% of cases, followed by the infant cohort (49%). 59% of positive cases had been vaccinated, 6% had not, and information was not available for the remaining 34%.

Since monitoring began, samples have been sent to Atlanta CDC for genotyping and the strains existing before and after the introduction process have been identified.
In 2014, no samples were remitted to CDC Atlanta, as the logistics were not in place to send them. A total of 60 positive samples were remitted to the CDC in 2015, although the results for rotavirus-positive stool samples have not yet been returned.

Sentinel surveillance of meningitis and bacterial pneumonia

Since 1999, Hospital Escuela had served as the sole sentinel site for bacterial pneumonia and meningitis monitoring. It was joined in 2011 by new sentinel sites at IHSS Tegucigalpa and IHSS San Pedro Sula.

Bacterial meningitis

In 2014 epidemiological week 53, 19 suspected cases of meningitis had been reported. Full epidemiology sheets was filled out for all of them and CSF samples were taken from 16, 100%

being classified as probable; one case tested positive for Hib. One death was reported, in Hospital Mario Catarino Rivas, giving a mortality rate of 5.2%.

In 2015, bacterial meningitis sentinel monitoring at Hospital Escuela and the IHSS hospitals in Tegucigalpa and San Pedro Sula reported 46 suspect cases of meningitis. Epidemiology sheets were filled out for 33 of these cases, and their CSF samples were taken; 19 tested probable and eight were confirmed - two for *Streptococcus pneumoniae*, and one for other bacteria. One of the two confirmed cases was a child aged 16 months from the Olancho region, who had received the full pneumococcal schedule; this child died. The other was an infant aged under two months from Tegucigalpa CD, too young to have been vaccinated. Given the vaccine's high efficacy rate, the case of the immunised child would need to be analysed.

Bacterial pneumonia

Sentinel surveillance for bacterial pneumonia commenced in 2000 in one national hospital, Hospital Escuela, and was maintained throughout the 2007-2012 period.

In 2014, a total of 851 suspect cases of bacterial pneumonia had been reported. Of these 73% (622 cases) had been x-rayed, with epidemiological forms filled up; 519 were classified as probable. Of these, samples were taken from 171 for blood work. Pleural fluid was taken from one case. 27 cases were confirmed, two testing positive for *Streptococcus pneumoniae*, one for Hib and the rest for other bacteria.
41 deaths were reported, (7.8% mortality); infants aged under 12 months were the most severely-affected group.

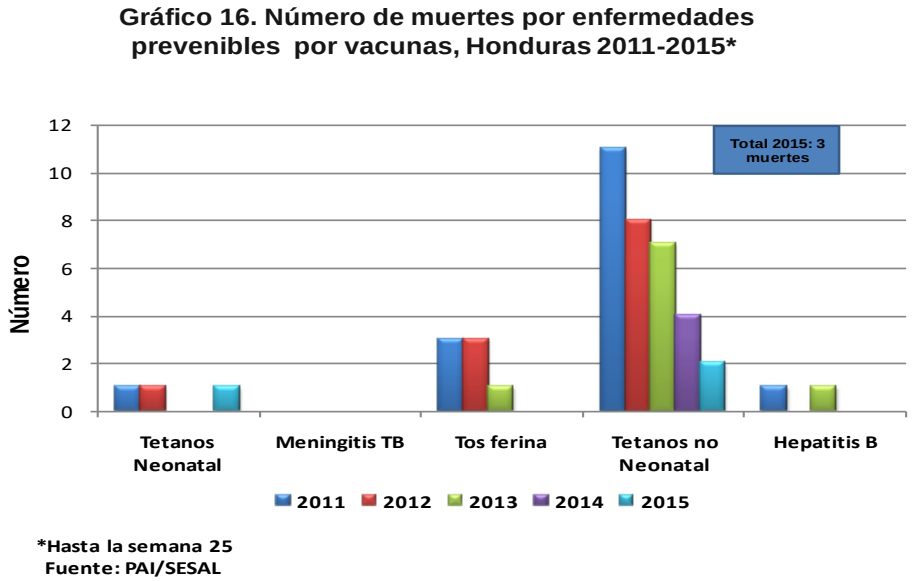
In 2015 epidemiological week 25, a total of 707 suspect cases of bacterial pneumonia had been reported. Of these 61% (430 cases) had been x-rayed and their epidemiological forms were filled up. 366 cases tested probable. Of these, samples were taken from 91 for blood work; no pleural fluid samples were taken. No cases of meningitis (Hib or Streptococcal) were confirmed.
Twelve bacteria were isolated, the pathogen being specified in no case, but reported as other bacteria.
26 deaths were reported (among probable and confirmed cases). The most severely-affected group was infants (61.5%), followed by the group aged 24 to 59 years (27%).

VPD mortality

The impact of immunisation activities has been significant, contributing to the decrease in infant mortality. Three decades ago, VPDs were one of the leading causes of infant mortality (measles and pertussis, among others).

In 2015 epidemiological week 25, two deaths from VPD had been reported, one neonatal tetanus and one non-neonatal tetanus (Figure 16).

Figure 16. VPD mortality, Honduras 2011-2015*



(margin) Number
(bottom) Neonatal tetanus; TB meningitis; Whooping cough; Non-neonatal tetanus; Hepatitis B
*To week 25
Source: EPI/SESAL

2.6 Monitoring Adverse Events Following Immunisation

Monitoring of adverse events following Immunisation (AEFI) began in 2000.

In the 2011-2015 epidemiological week 25 period, 308 AEFIs were studied. 234 were classified as programme errors, 42 as severe vaccine-related events, 30 as severe events coinciding with the vaccine, and 2 as non-conclusive events. Thirteen deaths were reported in the period. The related vaccine in the greater number of AEFIs was MMR (167 cases), followed by DTP-hep B-Hib (pentavalent) (47). The rates fall within the expected range.

2.7 Principal strengths and constraints identified

2.7.1 Strengths

- The agreement for supply of vaccines, syringes, safety boxes and cold chain elements and equipment between SESAL-PAHO is maintained, guaranteeing national supplies.
- National funding is allocated to mobilise personnel during National Vaccination Day.
- Vaccination and VPD monitoring indicators have been incorporated into results-based management agreements with regions and hospitals.
- Central technical-administrative control, EPI links in certain highly-compromised regions.

- The ICC is generating support to mobilise external resources from external partners and civil society.
- The Honduran Immunisation Board (CCNI) is supporting the technical decision-making process.

2.7.2 Constraints

Vaccination coverage figures for the 2012-2014 period and six-monthly EPI evaluation meetings with health meetings and partners and throughout the supervision process across all levels in 2014, identify several reasons why above 95% coverage rates were not attained. These include:

- Reorganisation of the central level in process. Changes have been established to strengthen oversight functions, taking specialised human resources into account. Accordingly, the concept of "programmes" is not applicable in the current institutional set-up. In this regard, the situation of the EPI in regard to location, position in the hierarchy and operations has not yet been defined. This situation has included the EPI from the outreach processes corresponding to the changes at central and regional level, leading to gaps in the understanding at the process between different levels when identifying lines of action in several of the components encompassed under the new system (e.g. cold chain operations through the Integrated Health Services Network, or RISS). This has led to ambiguity and a certain confusion at all levels of the system regarding their functions and competences.
- The EPI is currently subordinate to the General Standards Office, operating under the established organisational model. Nevertheless, this office is not allocated funds from the national budget to ensure that certain essential EPI running costs are covered. The EPI continues to operate at central level, where it operates the National Vaccines Warehouse and ensures the distribution of vaccines and supplies along the chain. Only funding for fuel and recruiting backup human resources is guaranteed.
- Organisational layout at regional level. In 2013 the regional EPI coordinator was relocated and given new functions, most in the RISS department. However, some remain linked to the EPI. As yet, the competences of certain regional offices which, under their new roles, should be assuming EPI-related functions in regard to planning, scheduling, cold chain, supplies chain, training, monitoring, supervision, evaluation and others, have not yet been developed.
- Overestimation of the population denominator for infants and children aged one to four years. Administrative figures for the DTP-hep B-Hib vaccine of give 87% coverage rates, while the ENDESA National Demography and Health Survey 2011-2014 gives 95%.
- Decrease in target population uptake. The sustained reduction in population uptake is due to a reduction in routine field activities, caused by security problems affecting vaccination personnel in city neighbourhoods, suburbs, villages and farms, added to insufficient transport logistics and fuel shortages.
- Health staff from 7 of the 20 regions (Colón, Comayagua, Copán, Ocotepeque, Islas de la Bahía and partially Francisco Morazán, Gracias a Dios and Intibucá) are not receiving training in updated EPI standards. This gap is expected to be overcome in 2015 4T, with Gavi-HSS support.
- Funding shortages for the implementation of the routine programme systematic and sustained communication strategy, as funding is available only for informing and educating the population during immunisation days and campaigns.
- Health establishments closed for prolonged periods of time due to shortages of human resources ("hiring ban"), holidays, incapacity, etc.

- Insufficient permanent immunisation staff at health units, as new vaccines have been incorporated into the schedule and service delivery has not been strengthened with more human resources on the local front.
- Non-existence of a management accountability process.
- Failure to systematise immunisation data quality control at municipal level. Most regions conduct information control under the umbrella of supervision. However, the process needs to be routinely systematised under the guidance of the Information Management Unit at national level.
- Insufficient supervision of the local level by the municipal level, due to financing, transport, fuel and staffing problems..
- Failure to monitor compliance with the agreements signed with decentralised and centralised management, particularly in relation to the cold chain and information system.
- Health analysis units operating below optimal levels in most health regions, contributing to the monthly analysis of vaccination coverage and proposed random interventions. This gap is expected to be overcome over 2015-2016, with Gavi-HSS support.
- Vaccination service timetables coincide with the working hours of parents and minders, limiting access to the working population.
- Insufficient funding, transport and fuel for cold chain maintenance and supervision activities in the health regions. This gap is expected to be overcome over 2015-2016, with Gavi-HSS support.
- Insufficient parts for repair cold chain equipment, particularly batteries and accessories for solar equipment, due to funding shortfalls.
- Delay in SESAL allocations to PAHO/WHO for procurement of cold chain equipment not received on schedule.

Cold Chain

- Non-existence of an accountability process for cold chain technicians in some health regions for cold chain management.
- Insufficient funding, transport and fuel for cold chain maintenance and supervision activities in the health regions.
- Failure by the health regions to demand that the decentralised models supply equipment, parts and cold chain maintenance as covered under the agreement.
- Non-existence of a cold chain manager to maintain and repair equipment in the Islas de la Bahía, Santa Bárbara and Tegucigalpa CD health regions.
- Insufficient parts for cold chain equipment repair, particularly batteries and accessories for solar equipment, due to national funding shortfalls.
- Problems with the DULAS SOLAR (2012) and SUNFROST (over 10 years in use) solar fridges, due to leaks in the cooling system, mainly in the Gracias a Dios, Choluteca, Yoro and Colón regions.
- Insufficient replacements for obsolete cooling equipment. This gap is expected to be overcome in 2016, with Gavi-HSS support.
- Theft of solar panels and other solar cooling components.
- A number of health establishments still do not report on their cold chain situation. This may be due to communication difficulties, not understanding the importance of informing, failure by the level above them to demand paperwork, health establishments being closed due to insufficient resources, staff holidays. Nevertheless, in 2014 the number of these establishments dropped by 50%.
- Cold chain equipment bought late as transfers from the Ministry of Finance (SEFIN 2012-2014) do not reach health regions on schedule.

Supply chain:

- Insufficient national funding to ensure timely customs clearance of vaccines, syringes, safety boxes and cold chain equipment.
- Insufficient national funding to ensure that vaccines, syringes, safety boxes and supplies are distributed from central level to regional vaccines and supplies warehouses.

VPD monitoring

- Situation analysis units operating below optimal levels in most health regions. This leads to failures in conducting monthly analyses of VPD monitoring and making the corresponding decisions. This gap is expected to be overcome over 2015-2016, with Gavi-HSS support.
- ✓ Inconsistencies between cases reported to the EPI and entered in the TRANS national information system.
- ✓ Investigation standards not followed in relation to timely reporting, case management, completing epidemiology sheets, taking and sending samples, case monitoring and sending feedback to other levels of the service network, linked with insufficient training and updating of permanent and new staff, upper levels failing to demand and render accounts, insufficient logistics and funding in place to mobilise resources to disease sites or to remit samples.
- ✓ Insufficient monitoring and systematisation of private medical sector participation in EPI immunisation and surveillance activities.
- ✓ Insufficient systematisation of the active search for VPD cases.
- ✓ Insufficient funding to send AFP and MR samples to international reference laboratories in the final two months of the year, linked to the shut-down of PAHO/WHO operations, meaning that support is not continued. This situation needs to be jointly analysed to identify an administrative solution, in order to better comply with laboratory indicators.

2. 8 Principal interventions implemented

The principle obstacles and interventions are as follows:

- EPI target population denominators: this problem became apparent when population figures were overestimated in 2012, generating actions and allocating resources for the search for population. These interventions included:
  - SESAL and the Information Management Area to advocate before the Honduran Statistics Institute to make 2013 population and housing figures available.
- Vaccine and cold chain management: problems in this area are linked with customs clearance and the reorganisation of SESAL. Corrective measures include:
  - Raising the problem with the political authorities, through the General Office for Standardisation, with the Health Consultation Board (CONCOSE) identifying national funding to prioritise customs clearance of vaccines; this will require SESAL identifying an administrative mechanism to ensure sustainable funding.
  - Coordination between the National Drugs and Supplies warehouse and EPI to ensure syringes and safety boxes are transferred according to their scheduled six-monthly distribution.
- Management of human resources and service delivery: there is a shortage of vaccination staff locally to ensure vaccination services are delivered in clinics and in the field. This

situation has been discussed at six-monthly EPI analysis sessions; the measures proposed include:

  - In the context of the new national health model, aimed at ensuring integral and continuous healthcare, based on renewed primary care, identifying and eliminating all barriers to access; focussing more on the demands and needs of the population than on supply; including the creation and maintenance of healthy environments with citizen participation - up to March 2015, 355 Family Health Teams had been set up in 19 of the 20 health regions (Gracias a Dios being the exception). The teams are made up of a physician, a licensed nurse, a nurse's aide and a health promoter, and their main function is to attend to the health of population groups assigned to them, through promotion and prevention, including vaccination, cures, rehabilitation and monitoring. (SESAL, Operative guidelines for family health teams, 2015).
  - These teams will receive training in EPI standards in 2015, with Gavi-HSS support.

- Generating demand and communication: it will be necessary to develop and implement a sustained national communication strategy, helping to get children's parents and/or guardians to demand vaccination services at health establishments or vaccination posts, strengthening the institutional structure at all levels, and improving funding. Corrective measures include:
  - EPI 2013-2017 has a national health promotion plan.
  - With Gavi-HSS funding, this is expected to be implemented in 2015, contributing to overcoming this gap.

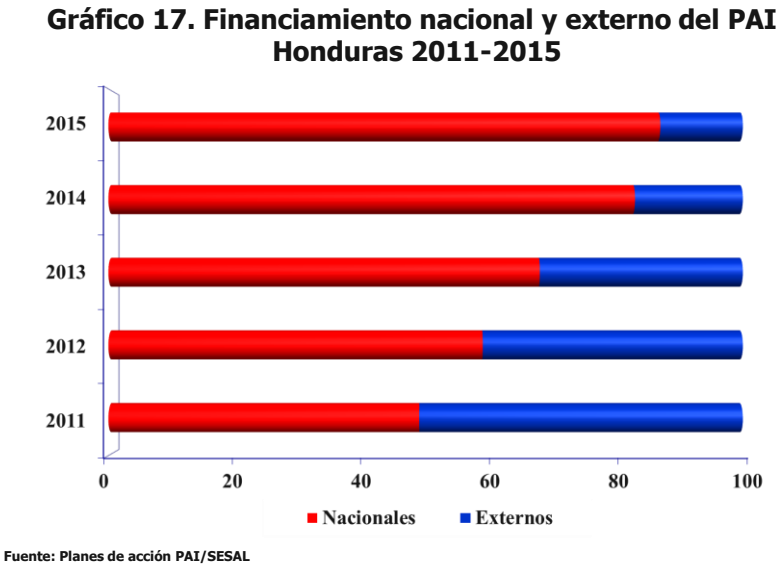
III. Financial Analysis

- In 1988, the first five-year EPI strategic plan by components was formulated as an instrument for managing and negotiating national and foreign funding.
- From 1988 to 2011, the EPI received financial support from diverse agencies and organisations, including PAHO/WHO, UNICEF, USAID, AECID, Rotary International, SIDA, Plan International, the Church of Jesus Christ of the Latter-day Saints (LDS), Gavi and friendly governments such as Japan and Finland. Agencies have given support during some periods, except for PAHO/WHO (technical and financial support).
- From 1988 to 2008, the Government supplied 90% of funds for EPI operations. The rest has come from external cooperation. During this period, the government shouldered 100% of the financing for the acquisition of vaccines (except for the 1988-1991 period, when Rotary International donated the sabin vaccine).
- For the 2006-2008 period, 93% of the total cost of the EPI, on average, was covered by national funds, and the remaining 7% by external funds.
- Starting in 2009, external funding increased, varying from 25% to 51% in 2011, conditioned by the Gavi Alliance co-financing the rotavirus and pneumococcal vaccines, the H1N1 influenza vaccine donation by the WHO in 2010, donations of pneumococcal polysaccharide vaccines by Project HOPE and HPV vaccines by CMMB and the support offered to the programme by the Pan-American Health Organization (PAHO) for interventions in municipalities at risk in the 2010-2011 period.
- EPI funding is based on a multi-year plan formulated every five years, the current plan being for the 2011-2015 period. The same goes for the formulation of annual action plans, which are discussed and negotiated with the members of the ICC, who have been

supporting the programme for over three decades, and new cooperation partners. The EPI multi-year plan for the 2016-2020 period will be formulated in the fourth quarter of 2015.

- In the 2011-2015 period, the national contribution has tended to increase, to above 80% in 2015 (Figure 17).

Figure 17. National and international EPI Honduras 2011-2015

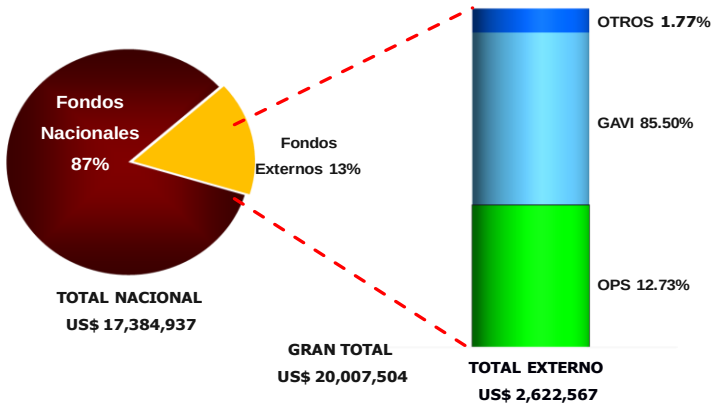


National; External
Figures: EPI/SESAL action plans

- According to Gavi policy, Honduras graduates in 2015, after which funding will cease. Accordingly, national co-financing has increased by 20% since each year, until national funding should cover 100% by 2016. Up to 2014, the country has met the budget increase in vaccines; in 2015 there were scheduling delays.
- SESAL is strongly committed to guaranteeing universal access to vaccines, free of charge, and funds 100% of the traditional vaccines included on the routine schedule and over 90% of the running costs of the immunisation programme.
- In 2015, national funding was made available for vaccines, syringes and safety boxes for traditional vaccines, co-funding for the rotavirus and pneumococcal vaccines, travel expenses associated with National Immunisation Days, acquisition of cold chain equipment, parts and fuel and the operating expenses of EPI headquarters. The budget allocation for vaccines has increased by 38% over 2014, for the HPV vaccine roll-out (Graph 18).

Figure 18. EPI funding by source, Honduras 2015

Gráfico 18. Financiamiento del PAI, según Fuente, Honduras 2015



*Otros:IJSUD,CDC
Fuente: PAISS

National funds 87%; External funds 13%; OTHER 1.77%; GAVI 85.50%; PAHO 12.73%
TOTAL US$ 17,384,937; TOTAL EXTERNAL us$ 2,622,567; GRAND TOTAL us$ 20,007,504

*Others; LDS; CDC
Source: PAIS S

- Figures for components for the 2016-2020 period show that, on average, the vaccines and supplies component accounts for the highest percentage of the annual budget, followed by operating costs and cold chain; other components remain steady (Table 9)

Table 9. Consolidated EPI 2016-2020 multi-year plan by component; Honduras 2015

Cuadro 9. Consolidado Plan Multianual del PAI 2016- 2020 por componentes, Honduras 2015

	COMPONENTE	2016	2017	2018	2019	2020	TOTAL
1.-	PRIORIDAD POLITICA Y BASES LEGALES	20,900	1,400	1,400	1,400	1,400	**26,500**
2.-	PLANIFICACION Y COORDINACION	43,736	36,600	37,000	36,400	35,800	**189,536**
3.-	BIOLOGICOS E INSUMOS	17095,405	17202,176	17202,176	17202,176	17202,176	**85904,109**
4.-	CADENA DE FRIO	3303,941	618,082	618,082	618,082	693,082	**5851,269**
5.-	CAPACITACION	651,338	224,500	69,500	54,500	69,500	**1069,338**
6.-	MOVILIZACION SOCIAL	495,654	22,500	12,500	22,500	12,500	**565,654**
7.-	GASTOS OPERATIVOS	3831,103	2863,788	2964,088	2964,487	2965,173	**15588,639**
8.-	SUPERVISION Y MONITOREO	394,541	239,480	239,480	239,480	239,400	**1352,381**
9.-	VIGILANCIA EPIDEMIOLOGICA	70,016.0	62,700.0	62,700.0	63,700.0	63,700.0	**322,816**
10.-	SISTEMA DE INFORMACION	167,228	146,228	146,228	136,228	136,228	**732,140**
11.-	INVESTIGACION	49,100	7,100	7,100	7,100	7,100	**77,500**
12.-	EVALUACION	256,270	98,000	98,000	98,000	98,000	**648,270**
	T O T A L	**26379,233**	**21522,554**	**21458,254**	**21444,053**	**21524,059**	**112328,153**

Tasa de cambio de $21.96 por $ 1.00

(References)
COMPONENT
1. POLITICAL PRIORITY AND LEGAL BASES;
2. PLANNING AND COORDINATION;
3. VACCINES AND SUPPLIES;
4. COLD CHAIN; 5. TRAINING;
6. SOCIAL MOBILISATION;
7. RUNNING COSTS;
8. MONITORING AND SUPERVISION;
9. EPIDEMIOLOGICAL MONITORING;
10. INFORMATION SYSTEM;
11. INVESTIGATION;
12. EVALUATION
Exchange rate HNL 21,96 XUS$1.00

- The prospect of financial sustainability for EPI operations in the short and medium term is through national financing, including the rotavirus and pneumococcal conjugate vaccines at special prices for Gavi implementing countries. This burden will gradually increase to 100% by 2016. The strategies in process consist of enforcing the Honduran Vaccines Act, approved by Decree 288-2013 on 14 January 13 2014; the regulations for its implementation will be formulated in 2015. This act incorporates certain EPI priority components. Another line of action is permanent advocacy before the Ministry for Finance.

IV. Objectives, targets, vaccination calendar and EPI strategies

Objective

General Objective

Reduced VPD morbidity and mortality in the general population through immunisation, particularly among the group aged under five years; sustained final phase polio eradication certification; sustained elimination of measles, rubella, congenital rubella syndrome and neonatal tetanus; control of severe forms of infant tuberculosis, whooping cough, diphtheria, mumps, hepatitis B, Hib invasive diseases, rotavirus diarrhoea, pneumococcal invasive

diseases (meningitis, pneumonia and septicaemia, among others), seasonal flue, HPV and emerging diseases.

Specific Objectives

1. To promote immunisation services efficiently, effectively and cordially, and to foster effective demand for immunisation services among the target population, in the context of EPI health promotion process.
2. To provide the service networks in the 20 health regions with vaccines, syringes, materials, safety boxes, office supplies and equipment for immunisation and epidemiological monitoring activities and safe injection practices.
3. To maintain effective vaccine management at all levels of the vaccine and supply chain.
4. To maintain greenlight operation in over 95% of cold chain equipment at all integrated health service network levels in the 20 health regions, in order to guarantee the safe storage and preservation of vaccines to EPI standards.
5. To attain homogeneous vaccination rates of at least 95% with all vaccines on the national calendar.
6. To guarantee the safe administration of injectable vaccines to the EPI target population, implementing bio-safety standards to protect health workers, the population and the environment.
7. To extend the SINOVA nominal vaccination system around the country.
8. To maintain active monitors of VPDs in the process of eradication, elimination and control, through efficient and timely response, in compliance with international monitoring indicators and EPI epidemiological monitoring standards.
9. To maintain systematic EPI monitoring, supervision and evaluation of all components on all levels, to ensure that targets and objectives are met.

Immunisation schedule, Honduras 2016

Vacuna	Edad de aplicación						
	Recién nacido	2 meses	4 meses	6 meses	12 meses	18 meses	4 años
Niños							
BCG [1]	**Dosis única**						
Hepatitis B pediátrica [2]	**Dosis única**						
Polio inactivada (VPI)		**1era dosis**					
Polio oral (Sabin) [3]			**2da dosis**	**3era dosis**		**Refuerzo**	
DPT-HepB-Hib (Pentavalente)		**1era dosis**	**2da dosis**	**3era dosis**			
Rotavirus [4]		**1era dosis**	**2da dosis**				
Neumococo conjugada		**1era dosis**	**2da dosis**	**3era dosis**			
SRP [5]					**Dosis única**		
DPT						**1er Refuerzo**	**2do Refuerzo**
Adolescentes y adultos							
Hepatitis B	Primer contacto: 1era dosis Un mes despues de 1era dosis: 2da dosis 6 meses despues de 2da dosis: 3era dosis						
VPH	**Niñas de 11 años** 2 dosis: Primer contacto: 1era dosis; seis meses despues 2da dosis						
Td (Toxoide tetánico difterico)	**11 años:** Refuerzo, y luego 1 dosis cada 10 años **Embarazadas no vacunadas:** 1er contacto: 1era dosis Un mes despues de 1era dosis: 2da dosis **Completar esquema de 5 dosis despues del embarazo** 3era dosis: 6 meses despues de la 2da dosis 4ta dosis: 1 año despues de la 3era dosis 5ta dosis: 1 años despues de la 4ta dosis **Grupos en riesgo:** Primer contacto: 1era dosis Un mes despues de 1era dosis: 2da dosis 6 meses despues de 2da dosis: 3era dosis Cada 10 años: refuerzo						
Grupos en riesgo							
DT pediátrica [6]	**2da dosis: 4 meses** **3era dosis: 6 meses** **Refuerzo: 18 meses** **Refuerzo: 4 años**						
Polio inyectable (Salk)	**1era dosis: 2 meses** **2da dosis: 4 meses** **3era dosis: 6 meses**						
SR (Sarampión y Rubéola)	**Una dosis a mayores de 5 años de edad no vacunados.**						
Fiebre Amarilla	**Dosis única mayores de 1 año de edad (viajeros a zonas en riesgo de transmisión)**						
Influenza [7]	**Enfermos crónicos de 6 meses a 59 años: Dosis anual en población de 6 meses a 8 años y aplicar 2da dosis con intervalo de 1 mes después de la primera** **Trabajadores de la salud, trabajadores de granjas avícolas, embarazadas y adultos mayores de 60 años dosis única anual**						

1.- BCG: administrar a recién nacidos con peso mayor o igual a 2,500 grs.

2.-Hepatitis B pediatrica: Administrar a recién nacidos no patológicos independiente del peso al nacer

3.- Polio Oral (Sabin): También se aplica cada 4 años en jornadas nacionales a población de 2 meses a 4 años, 11 meses, 29 días de edad independientemente de su estado vacunal.

4.-Rotavirus: Primera dosis aplicar entre 2 y 3 1/2 meses de edad y segunda dosis entre 4 y 8 meses.

5.- SRP: También se aplica cada 4 años en campañas de seguimiento a población de 1 a 4 años, 11 meses, 29 dias de edad.

6.-DT pediátrica: aplicarla a niños con reacción adversa severa al componente Pertussis de la vacuna combinada DPT-HepB-Hib.

7.-Influenza: administrar 2 dosis separadas por un intervalo de 4 semanas a niños de 6 meses a 8 años, quienes estan recibiendo la vacuna por primera vez y quienes previamente fueron vacunados aplicar una dosis.

*** A partir del 1 de octubre de 2015 se sustituirá la primera dosis de Polio oral por Vacuna de Poliovirus Inactivado (VPI)**

Targets

1. Homogeneous coverage of at least 95% of the target population for all vaccines on the national schedule in all municipalities throughout the country.
2. Sustained certification of eradication of the outburst of wild poliovirus in the country, within the context of the integral strategic plan for polio eradication, final phase 2013-2018.
3. Sustained elimination of endemic measles transmission.
4. Sustained elimination of rubella and congenital rubella syndrome.
5. Sustained control-elimination of neonatal tetanus.
6. Control of pertussis, diphtheria, severe forms of infant tuberculosis, mumps, hepatitis B, Hib invasive diseases (meningitis, pneumonia, epiglottitis, cellulitis), rotavirus diarrhoea, invasive pneumococcal disease (meningitis, pneumonia and septicaemia, among others), seasonal flu and HPV.
7. Roll-out of new and underused vaccines, analysing technical-political, programming and feasibility aspects.

Strategies

The following strategies have been defined in order to attain targets and objectives:

- Sustained horizontal immunisation activities at all SESAL and IHSS public sector health establishments, by means of a permanent, free supply off vaccination services, in clinics and in the field.
- Massive immunisation on national vaccination day, to identify non-immunised population, paying special attention to densely-populated urban areas and population at risk of below 95% coverage, applying southern hemisphere season flu vaccines to risk groups, applying and oral polio vaccine and MMR every four years, and incorporating health promotion and activities such as vitamin A supplements and deworming of the pre-school population.
- Family health teams to delivery integral family health services, including vaccination, on a risk-classification basis.
- Proper monitoring of diseases targeted by immunisation in the public and private sectors, allowing for all suspected cases of VPDs to be detected, reported, investigated and documented and the corresponding control measures to be implemented.
- EPI health promotion, including information, education and communication; social participation and inter-institutional and inter-sector coordination; reorientation of health services and health-oriented public policy.

V. Action lines (by component), 2016-2020

The principal lines of action for the period have been defined, based on analysing the national status of the EPI, and its achievements, constraints and gaps.

Political Priority and Basic Legal Principles

- Immunisation to be discussed at regular meetings between SESAL (CONCOSE) and regional leaders, and accounts relating to vaccination coverage and other components to be demanded and rendered.
- The Vaccines Act to be implemented, to guarantee the annual national budget allocation and implementation of the agreement between SESAL and PAHO for funding for EPI vaccines, syringes and cold chain equipment.
- Regulation for the implementation of the Honduran Vaccinations Act to be formulated in 2016.
- Vaccinations Act and its regulation to be disseminated among key agents at national level.
- Monitoring of compliance with regional and sub-regional EPI-related agreements (RESSCAD, COMISSCA, TAG, etc.).
- Agreements to be established with health personnel training schools for sustained vaccination of undergraduate students as per the national calendar for risk groups.

Planning and Coordination

Planning

- Annual action plan to be formulated on the basis of the programme situation and the 2016-2020 multi-year plan at national, regional and financial management level.
- Contingency plan for vaccine storage and transport at all levels to be updated.
- Plan for switch from tOPV to bOPV vaccine to be formulated for the 20 health regions.
- Plans for introduction of new and underused vaccines to be introduced by each health region, based on national planning.
- National and regional plans, training manuals, supervision plans and workshops and campaigns to be formulated.
- National plan for containing wild poliovirus type 2 to be formulated, along with others required for the final stage of polio eradication.
- EPI standards to be updated, with particular emphasis on new vaccines and effective vaccine management.
- EPI target population to be estimated by locality, health establishment, municipality, RISS and regions, based on national guidelines and the Honduran Statistics Institute 2013 population census.
- Vaccines and supplies to be scheduled on all levels, based on standards and scheduled workshops and campaigns.
- Use of vaccine, syringe and supplies scheduling and control notebook to be monitored.

Coordination

- Regional Integration Team to be set up to deal with the EPI, documenting actions.

- EPI to be coordinated at all levels: across and beyond institutions, private sector and health personnel training schools, to ensure EPI content is maintained updated.
- National EPI support committees/commissions to be put into operation: ICC, CCNI, CONEPO, certification of measles/rubella/CRS; inter-sector committee to certify switch, and Gavi-HSS team.
- Coordination with municipal corporations to be strengthened through AMHON in support of priority EPI activities in municipal development plans, with emphasis on municipalities at risk and health units with decentralised health models.
- Coordination with key departments and agents (regional, district and higher levels of the education section to introduce the HPV vaccine at all levels).

Biological Products and Supplies

- Vaccines, syringes and safety boxes to be acquired through the PAHO Revolving Fund at national level and distributed via EPI, National Drugs and Supplies Warehouse, and the Logistics, Drugs, Supplies, Infrastructure and Equipment Unit (ULMIIE).
- Customs clearance of vaccines within 24 hours.
- EPI information system to be provided with office supplies at national level (vaccination cards, LINVI integrated monitoring list for children, coverage graphs), cold chain (forms for temperature control and VPD and AEFI monitoring (files).
- Virology and bacteriology laboratories to be strengthened with supplies of reagents, materials and laboratory supplies.

Cold Chain

- National/regional/Integrated Health Services Network cold chain maintenance plans to be implemented.
- Operations at north-western vaccines warehouse to be strengthened with human, material and financial resources.
- Cold chain inventory to be updated at all levels.
- Equipment, spare parts and fuel for cold chain operation procured on all levels.
- Continuous temperature recording equipment for fridges, freezing indicators for vaccine transport, temperature monitoring and recording device for refrigerated vehicles, fire extinguishers, voltage regulators, metal containers to store fuel for emergency generators, and air conditioning units to be acquired.
- Temperature monitoring equipment currently in use in national and regional warehouses to be replaced with more modern equipment.
- Cold room temperature mapping to be completed.
- Domestic-type fridges to be gradually replaced by ice-lined fridges.
- Refrigerated vehicles to be acquired for the Cortés national warehouse and four collection centres (Atlántida, Copán, Comayagua and Choluteca), plus five vehicles for cold chain maintenance (Gavi-HSS grant).
- Operation of regional vaccine warehouses and cold chain workshops to be strengthened (Gavi-HSS grant).
- Storage capacity to be outfitted and upgraded at the National Vaccines Warehouse, installing two new cold rooms to increase storage capacity from 73,300 litres to 113,300 litres (an extra 40,000 litres).
- Storage capacity to be outfitted and upgraded at regional level, installing five new cold rooms in five regional warehouses to increase storage capacity from 115,700 litres to 190,700 litres (an extra 75,000 litres).
- Cold chain equipment to be procured for municipal/networks/areas level, upgrading storage capacity from 125,800 litres to 44,175 litres (an extra 18,375 litres).
- Cold chain equipment to be procured for the local level, upgrading storage capacity from 49,610 litres to 58,985 litres (an extra 9,375 litres).
- Cold chain workshops to be refitted in health regions who have not yet done so, and cold chain to be strengthened with tools, equipment (new cold chambers, kerosene fridges

replaced with electric and/or solar fridges, freezers), thermos flasks, thermometers and ice packs.
- National cold chain alert system to be reviewed.

Training

- New personnel to receive training in EPI standards.
- National vaccination day guidelines, deworming and follow up campaigns for measles (2016) and polio (2017).
- Cold chain technicians and regional warehouse managers to receive training in updated EPI standards (Gavi-HSS grant).
- Guidelines for application of HPV vaccine.
- Nominal vaccination system for regional, municipal and local teams in the rest of the health regions.
- Family health teams and vaccination regulations incorporated into national health model (Gavi-HSS grant).
- Strategic health communication for social communication personnel in the health regions (Gavi-HSS grant).
- PAHO EPI analysis model as part of the framework of Analysis Unit (UDA) operation (Gavi-HSS grant).
- VSSM and wMSSM for vaccine management and regional logistical unit staff (Gavi-HSS grant).
- Nationwide outreach meetings with strategic allies to raise awareness of the HPV vaccination plan.
- Training at national level and all levels in the 20 health regions, IHSS, training schools for health resources, and decentralised managers, in guidelines for the introduction of new and underused vaccines.
- Key materials to be designed, produced and distributed: manual of technical-operational guidelines, information and educational material for regular programme, supplementary activities, introduction of new and underused vaccines, switch, etc.
- Maintenance of Training of the EPI central and regional technical teams through scientific meetings, self-study modules, workshops and other training modalities.

Communication and social mobilisation

- National health promotion plan to be implemented as part of EPI 2013-2017 (Gavi-HSS grant).
- Promotional campaign for the sustained immunisation programme to be designed (Gavi-HSS grant).
- Technical meetings of the EPI National Committee For Health Promotion to be held to review and implement the national communication and social mobilisation strategy for the routine vaccination programme, introduction of new vaccines and supplementary activities.
- Key agents, political leaders, public opinion leaders and strategic allies to receive training in awareness at central, regional and local level, to defend and support the introduction of new vaccines.

- Community Health Units at central and regional level to receive equipment (Gavi-HSS grant)
- Alliances to be established with the media in support of the sustained programme, the dissemination of educational messages and other communication and information activities.
- Newsletter to be formulated and distributed among key agents - governors, mayors, co-operators, etc.
- Use of the virtual health library website (www.bvs.hn) to be promoted for consultations regarding the EPI on all levels.
- National and regional launch of vaccination days, annual campaigns and new vaccine introduction processes.
- Successful experiences with EPI to be shared.

Operating Expenses

- Guaranteeing EPI operations on the national scale with regard to the salaries of permanent staff, infrastructure maintenance, cold chain equipment, transport logistics, communication, customs clearance and distribution of vaccines, syringes, sharps boxes and cold chain equipment.
- Holding annual national immunisation and deworming days to identify vulnerable populations, incorporating the seasonal flu vaccine into Vaccination Week in the Americas, including other health promotion and disease prevention activities.
- 6th CRS follow-up campaign in population aged one to four years (October 2016).
- Holding vaccination days every four years with an additional dose of oral polio vaccine 2017.
- Introducing new vaccines (HPV April 2016) and underused vaccines (MMR for population aged four years from 2017 on).
- Conducting vaccination operations in municipalities at risk to identify susceptible populations for all vaccines. ~~(second semester, Gavi-HSS grant)~~.
- Conducting special Dt vaccination operations in the population aged 11 years, pregnant women, non-vaccinated WCA, and risk groups, to maintain control-elimination of neonatal tetanus.
- Vaccination of adolescents in schools against hepatitis B.
- Installing equipment and signage in vaccination rooms in priority health establishments (Gavi-HSS grant).
- Continuing to upgrade and remodel vaccination spaces, fitting them with basic furnishings, acquiring and installing needle destroyers and digging and safety pits.
- Conducting two vaccination operations on captive population in regional schools, following a census conducted previously, applying one dose of the Dt vaccine and the first and second doses of the HPV vaccine.
- Maintaining the characterisation and prioritisation of interventions in municipalities and regions at risk of below 85% coverage in the 20 health regions, and recovering local vaccination strategies with community leaders, identifying and monitoring susceptible population aged under two years.

Supervision and Monitoring

- EPI supervision guide to be updated, to include effective vaccine management.
- All components of the EPI, including National Vaccination Days, the nominal immunisation system (SINOVA) and the introduction of new vaccines (PAHO/WHO, Gavi-HSS) to be supervised, following national, regional and municipal plans.
- Monthly monitoring and analysis of tracking indicators (immunisation coverage, drop-outs, cold chain) and weekly monitoring of AFP, MMR and CRS monitoring indicators at regional and central levels.
- Rapid Coverage Monitoring (RCM) conducted in risk regions under the routine programme and integrated into supervision of immunisation days and campaigns.
- International Rapid Coverage Monitoring of selected health regions, after the measles follow-up campaign.
- EPI monitoring of all components to be followed from central levels.
- EPI to supervise all components of the routine programme, supplementary activities and the introduction of new and underused vaccines at regional, municipal and local level.
- Quarterly monitoring of the EPI annual action plan, tracker indicators.

Epidemiological and laboratory monitoring

- Active monitoring of VPDs in the process of control, elimination and eradication to be strengthened at out-patient and hospital level (training, supervision and operation).
- Sentinel hospital monitoring of rotavirus gastroenteritis, meningitis, bacterial pneumonia in children under five and flu to be strengthened (PAHO/WHO funding).
- AFP and MR notification network to be expanded in the private sector (including military hospitals).
- Active institutional search for VPDs to be systematised at municipal level.
- Laboratory diagnoses of VPDs to be strengthened at central and regional levels.
- AEFI monitoring to be strengthened at national public and private sector level, allowing their detection, uptake and timely investigation (standards updated, database, etc.).
- ESAVI crisis plans for all levels to be updated.
- Use of maps and diagrams to be fostered by national and regional analysis units, to monitor disease incidence and vaccination coverage.
- National EPI epidemiological monitoring sheets to be formulated, edited and printed.

Information System

- Vaccine information system (SIVAC) and SINOVA operations to be monitored, to enhance data quality at all levels.
- National and international quality audits of vaccination data quality in selected regions (2016).
- SINOVA to be extended to other regions countrywide (2016, eight regions; 2017, six regions).
- Equipment and stationary for SINOVA phase two operations to be supplied for one year (Gavi-HSS grant).
- Web-based medical supplies management (wMSSM) systems to be implemented at regional warehouse level, as defined by ULMIIE (Gavi-HSS grant).
- IT equipment for SINOVA at regional level and densely-populated urban areas.

Investigation

- Database of scientific and operational research profiles of interest for immunisation purposes to be updated.
- Operative EPI-related research to be promoted, in coordination with undergraduate and postgraduate health training schools and other disciplines (user satisfaction, KAP, EPI costing in the Honduran Social Security Institute (IHSS), etc.).
- National research to be conducted on missed vaccination opportunities (Gavi-HSS grant) and categorisation of whooping cough cases (CDC-COMISCA funding) and Honduras to participate in multi-site international study on safe vaccination (WHO funding).
- Temperature monitoring studies to be conducted on the four levels of the vaccine supply chain.

Evaluation

- All components of EPI to be evaluated every six months at central level and health regions, including regional health assessment.
- Annual evaluation of the effectiveness of the seasonal flu vaccine.
- Evaluation of SINOVA operations and MSSM and wMSSM (Gavi-HSS grant).

V. Activity plan by component and annual financing

The following are the expected results, activities, yearly financing over 2016-2020, breakdown of costs, and identified and agreed sources of financing for each component of the programme.