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Documenting the Lessons Learnt

from the

Joint Initiative on Maternal Neonatal & Child Health (JIMNCH)

Ayerawaddy Region

Burnet Institute, Myanmar

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ACRONYMS AND ABBREVIATIONS

AMW	Auxiliary midwife
ANC	Antenatal care
AusAID	Australian Agency for International Development
CHW	Community health workers (volunteer health worker)
CI	Confidence intervals (95% confidence)
DALY	Disability Adjusted Life Year
DFID	United Kingdom Department for International Development
DPT	Diphtheria, pertussis, tetanus vaccination
EmOC	Emergency obstetric care
EPI	Expanded Programme on Immunization
FGD	Focus Group Discussion
H2R	Hard-to-reach (geographical)
HMIS	Health Management Information System
IDI	In-depth interview
IOM	International Organization for Migration
JIMNCH	Joint Initiative for Maternal Neonatal and Child Health
MCH	Maternal and child health
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey (by UNICEF)
MNCH	Maternal neonatal and child health
MW	Midwife
NH2R	Not hard-to-reach
NH2R, HS+	Not hard-to-reach, health centre functioning
OR	Odds ratio
PONREPP	Post Nargis Recovery and Emergency Preparedness Plan
PNC	Postnatal care
RS	Rapid Survey (for this Lessons Learned exercise)
SBA	Skilled birth attendant (doctor, nurse or midwife)
TBA	Traditional birth attendant
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organization

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EXECUTIVE SUMMARY

BACKGROUND

The Joint Initiative for Maternal, Neonatal and Child Health (JIMNCH) is a collaborative programme that seeks to increase access to essential maternal and child health services amongst hard-to-reach (H2R) populations in areas that were most affected by Cyclone Nargis. It is an innovative partnership that takes a comprehensive approach to health service delivery at township level, aiming to deliver an essential package of low cost, high impact maternal, newborn and child health (MNCH) interventions through a number of service delivery partners including public health services and NGOs. Commencement was in 2010, initially in in three sites: through Save the Children in Middle Island, Merlin in Laputta (excluding Middle Island) and International Organization for Migration (IOM) in Bogalay Township. The implementation has since expanded to other townships. This Lessons Learned exercise was initiated to provide some assessment of impact and documentation of lessons for future MNCH development in Myanmar.

METHODS FOR THE LESSONS LEARNED EXERCISE

This exercise aimed to address four Areas of Study:

1. Overall impact, to determine the extent to which JIMNCH, so far, has achieved its purpose
2. Impact on hard-to-reach ("H2R") poor and vulnerable populations
3. Indirect impact of partnerships, capacity development ,and lessons for sustainability
4. Costs and value for money

The Lessons Learned was a collaborative exercise, involving a Technical Reference Group of central JIMNCH stakeholders, national technical consultants, a consultant health economist, and a research team from the Burnet Institute. The exercise took place between July 2012 and January 2013. It focused on Bogalay and Laputta townships (including Middle Island as a discrete site) and collected quantitative and qualitative data through:

- Review of JIMNCH reports and other relevant documents;
- Secondary analysis of government HMIS and other implementation reports;
- Interviews with national, regional, and township stakeholders, health staff, volunteers, and community;
- A Rapid Survey of 459 mothers with living children born since 2009 in a purposeful sample of 15 villages, characterized by varying remoteness, supplemented by social mapping of socio-economic status; and
- Group discussions with leaders and men in surveyed villages.

A core component of disseminating early findings and informing the ongoing analysis entailed a Round-table Discussion in January 2013, to review the findings, identify areas for further analysis (now addressed in this report) and agree on the implications for future MNCH development.

FINDINGS

There is evidence for JIMNCH's overall impact in increased access to MNCH services. There is a general trend of increasing access to MNCH services in the Ayeyarwaddy Region displayed in HMIS data, however within this there is clear evidence of a greater increase in coverage in JIMNCH implementation sites in skilled birth attendance (although this still remains at a modest level), in emergency obstetric referral, and in some aspects of immunization and antenatal care. This increase in coverage is credibly an outcome of the significant investment in extra resources for skilled birth attendance (SBA), emergency referral and expanded preventive care; the additional training for BHS and additional deployment of AMW, CHW and other volunteers; specific

investments in emergency referral funds and procedures; and the strengthening of local planning and coordination documented in IP reports. These results represent changes in service coverage rather than health outcomes. There has been insufficient time since JIMNCH's commencement to document changes in mortality and morbidity, and this data is not easily captured in current HMIS at regional or township levels.

In assessing JIMNCH's reach to poor and vulnerable populations, there is good evidence for preventive care and emergency referral (especially for emergency obstetric care) reaching geographically hard-to-reach (H2R) villages and poorer social groups. The uptake of emergency referral in H2R villages is close to international norms for the expected need for emergency obstetric referral in these villages, an impressive achievement in a difficult setting.

There is still a gradient of disadvantage across the villages studied. Distance remains the most critical factor determining access to SBA: more remote villages still have less access to SBA and higher rates of home delivery. Poorer socio-economic groups have less access to services, more so in remote villages, but also in non-remote villages. However in non-remote villages with a functioning health centre, there were no significant differences in access to SBA among different social classes. There was a particular gap in access to emergency referral among the lowest social class in non-remote villages that lacked a health centre, that is: villages not specially targeted as being geographically H2R.

Home deliveries are still a common practice, although are increasingly attended by a MW or AMW, especially in non-remote villages where there is no health centre. Traditional birth attendants continue to play an important role, especially in lower social classes and more remote villages. The choice of TBA as birth attendant appears to decrease when other options are available, but even in villages with the best access 20% of women delivered with a TBA regardless of their social group.

JIMNCH provides key lessons for critical aspects of services aiming to reach poor and vulnerable populations. These include:

- Volunteers (including AMWs) had effective roles in preventive care, childbirth and childhood illness, and need close attention to their support and supervision;
- Optimizing health workforce placement and tasks, especially that of the MW, is potentially powerful and needs continued work;
- Increasingly standardized procedures for emergency referral based on JIMNCH lessons may be useful for other townships and regions;
- Effective emergency referral requires maintaining well-managed local funds, with procedures that minimize up-front costs to the poor; and
- Special efforts are needed to overcome seasonal constraints and to reach migratory populations.

Overall, there is good evidence that JIMNCH helped establish new forums for cooperation and dialogue on MNCH and health systems strengthening at the regional and central level and supported stronger systems for township-level planning and coordination. The heavy investment in capacity development through training reached across levels and disciplines in the health system. It was appreciated especially at peripheral levels, but some informants could have benefited from more structured planning and prioritization. JIMNCH's extended reach of services and most new systems are clearly appropriate and potentially sustainable. Whether they are sustained will depend both on continuing increased funding of health agencies, and also on the degree to which new activities are actively aligned with government systems, and used as models for standardization within regional or national guidelines.

The overall cost-effectiveness of JIMNCH, estimated as USD298 per DALY, is less cost-effective than WHO standards (USD150), however this figure includes the set-up costs of a very short programme, and (due to data

limitations) potential under-estimates the DALYs averted. Additional modelling to account for the extra costs of providing services in hard-to-reach areas, suggests that cost-effectiveness would be closer to global norms (USD165/DALY) if such challenges are taken into account. Costs per DALY averted varied between IPs and varying the details of implementation may achieve some savings. Some stakeholders perceived the programme as expensive, but in fact JIMNCH only incurred an additional spend of USD2.71 per capita per year. This seemed high for Myanmar (68% more than their current health spend), but still represents a small amount compared with most other countries – even those with lower GDP per capita. Community interviews, including those as part of the Rapid Survey, confirm that out-of-pocket payments are a significant barrier to care, particularly for the poor, even when reimbursement is available. Community members continue to perceive cost barriers, both in health service fees and of transport, as the most important barriers to health care access.

Conclusions and Implications for Future MNCH development efforts

The JIMNCH model – central- and township-level cooperation between government, development partners and INGO implementers – has been able to increase coverage of essential MNCH services. These penetrated targeted hard-to-reach areas, including a remarkable level of access to emergency referral. Challenges remain: both in reaching poorer socio-economic groups and in increasing the proportion of women who access facility-based childbirth. These affect remote and non-remote settings, especially where there is no functioning health centre in the village. Cost-effectiveness was somewhat higher than global norms, but was rated as acceptable when the realities of providing services in difficult, hard-to-reach settings were taken into account.

The stakeholder consensus was that the partnerships for MNCH represented by JIMNCH should continue, expanding the dialogue and coordination now established, with increasing alignment and ownership within government systems. There are considerable gains to be made through further standardization of JIMNCH's detailed procedures into regional health policy and processes, and considering how they can inform national MNCH strategies. These include lessons around:

- Emergency referral procedures, especially for EmOC, including local management of funds;
- Human resources planning and the best balance of outreach by midwives as compared with expansion of rural health centres staffed by midwives;
- Optimal use of volunteer roles by strengthening support and supervision and task shifting to utilise their potential in providing treatment services in MCNH;
- In addition to health promotion roles, TBAs should be included in local health planning;
- Mortality audits, and other quality improvement processes.

Future MNCH cooperative programs will need to pay special attention to:

- Good baseline and subsequent program level population-based surveys, and alignment of HMIS indicators that cover place of childbirth, attendants, type of delivery, and use standard WHO indicators for childhood illness and care-seeking;
- Additional health information strengthening for monitoring purposes;
- Options to reduce out-of-pocket payments and community perceptions of cost barriers to care;
- Increased attention to interventions for nutrition and birth spacing ;
- Broad definitions of 'hard-to-reach' to ensure that poor and vulnerable subgroups have access to services, and that outcomes are monitored with a strong equity focus; and
- Linking procedures for identifying the poor and vulnerable with tailored strategies designed to reach them.

INTRODUCTION

BACKGROUND

The burden of maternal mortality is high in Myanmar with an estimated 316 deaths per 100,000 live births in (UNICEF 2010 The main causes of maternal mortality (postpartum haemorrhage and hypertensive disorders) are preventable through effective and simple interventions such as imparting knowledge on danger signs, having a prepared delivery plan, and family and community support and increased access to emergency obstetric care. Interventions to maternal care during pregnancy, delivery and post-partum period affect to reduce neonatal mortality and morbidity. There are 50 infant deaths per 1000 live births in Myanmar, and the major causes of high mortality include diarrhoea and acute respiratory tract infection. Malnutrition is added to increase morbidity and mortality.

In 2008, Cyclone Nargis struck the Irrawaddy Delta and Yangon Division causing a humanitarian catastrophe that has had long lasting ramifications on Myanmar's people. In excess of 2.4 million people were affected with 130,000 directly related deaths. There were over 40 townships seriously affected across the Irrawaddy Delta and Yangon Division (and 25 less affected townships). This natural disaster severely damaged an already weak health system and exacerbated the persisting problem of low service coverage for maternal and child health. The PONREPP programme was cooperation between government, development partners and NGOs to work for rehabilitation and long-term development, including a health component. The Health PONREPP placed priority on (i) the needs of pregnant women and children under 5 years, (ii) agreement by all partners on a core minimum set of essential services focused on primary and community levels of care; (iii) a common approach by all partners to ensure effective coverage of services, (iv) selection of most affected townships and ranking of these townships according to current needs based on data; (v) ensuring equitable allocation of resources across a geographical area ; (vi) provision of an irreducible core package of services with sequential implementation across townships, based upon need; and (vi) within each township, identification of most hard-to-reach populations through a joint assessment.

ABOUT JIMNCH

The Joint Initiative for Maternal Newborn and Child Health (JIMNCH) is a collaborative programme that seeks to increase access to essential maternal and child health services amongst hard-to-reach populations in areas that were most affected by Cyclone Nargis. It is an innovative partnership that takes a comprehensive approach to health service delivery at township level, building on the successful Health Cluster coordination between partners and with Ministry of Health after Cyclone Nargis at township, division and central level. The donors to the JIMNCH are the governments of Australia, Norway and United Kingdom and JIMINCH is administrated by UNOPS through the Fund Management Office.

It aims to deliver an essential package of low cost, high impact maternal and child health interventions through a number of service delivery partners including public health services and NGOs. There are 6 priority townships working with Merlin (Laputta); Save The Children (Middle Island); IOM (Bogalay, Mawlamyinegyun), Relief International (Dedaye) and Medicins du Monde (Pyapon).

The programme prioritises an integrated township plan and monitoring framework, with a common results framework based on international health indicators. In addition to existing resources from Ministry of Health, UN and NGOs, a pool fund supports eligible actions in the plan based on a service-commissioning rather than project grant-making approach to funding.

The first township programme started in May 2010 and the second in July 2010; three others are in process up to a total of two years in each township to end 2012. The agreed common results framework draws from existing data monitoring systems, such as the Health Management Information System (HMIS) and the monitoring systems of implementing partners (IPs). In addition, baseline population-level information is available for some indicators through a post Cyclone monitoring survey ("periodic review") and a baseline survey conducted by one of the partners. The periodic review provides information across Delta townships but cannot be disaggregated to provide township level information.

Establishing the JIMNCH has been a learning process and partners have expressed their wish to document these lessons. Documenting lessons learned will be important background to future planning for the pending 3 Millennium Development Goal Fund.

METHODS

STUDY OBJECTIVES

The Lessons Learned exercise had four main Areas of Study, each with separate objectives:

Area 1: Overall impact

- To determine the extent to which JIMNCH, so far, has achieved its programme goal, intended outcomes and outputs and contribution to the overall goal; and
- To assess the degree to which results can be attributed to JIMNCH and review the logical links between outputs, outcomes and the overall goal.

Area 2: Impact on hard to reach populations

- To determine whether and how the JIMNCH has reached or 'failed to reach' poor and vulnerable populations (defined as H2R or in other terms) to provide essential maternal and child health care services;
- To determine how well the classification of 'H2R' has enabled JIMNCH to reach poor and vulnerable populations
- To assess the health seeking behaviour of poor and vulnerable populations (defined as H2R populations or in other terms) for MCH services.

Area 3: Indirect impact

- To determine the indirect impact of the programme with regard to stakeholder engagement, partnerships at the township, regional and national levels and unintended consequences.

Area 4: Cost effectiveness and value for money

- To estimate incremental programme costs (and savings) in relation to effects and to make a judgement on value for money.

The formal Round Table Discussion with key stakeholders concluded the process, through sharing a summary of lessons from all four learning areas and discussion on their implications for future implementation and evaluation of MNCH development work.

METHODS AND DATA COLLECTION

The Lessons Learned exercise was a collaborative exercise, involving a Technical Reference Group of central JIMNCH stakeholders (government and development partners), national technical consultants, a consultant health economist, and a research team from the Burnet Institute, who also coordinated the whole exercise. Appendix 4 presents the Terms of Reference for the exercise.

The Lessons Learned methodology included a cross sectional descriptive study using both qualitative and quantitative data collection methods. Quantitative data were collected to determine changes in service coverage and utilisation, health outcomes, and cost of health care. Qualitative data provided the views and perspectives of the community, implementers and government health staff regarding the programmes achievements and constraints

Methodologies differed between levels of the health system and stakeholders:

- Key informant interviews were held at national, regional and township level.
- A desk review of documents was also undertaken at the national level with HMIS data reviewed at the regional level.
- A Rapid Survey, social mapping, focus groups and other community discussions, and in-depth interviews were undertaken in a purposeful sample of villages as described below.

Preparation for data collection was undertaken from July to December 2012 and included finalizing the sampling framework and expected findings, recruiting the data collection teams and training for quantitative and qualitative research methods and social mapping.

Purposeful sampling was undertaken for the Rapid Survey, Social Mapping and Community Interviews – this sampled 5 villages in each of the three study sites, choosing villages that were remote (and thus classified as geographically 'hard-to-reach' H2R), non-remote with no health centre, and non-remote with a functioning health centre. In each village, we attempted to interview all women with a living child aged up to three years, that is: born immediately prior to, and during the period of JIMNCH's operation.

Social mapping was carried out to assign women to a locally designated social class, to allow further analysis. This used a method previously validated in Myanmar and used village leadership's assessments of assets and occupation to allocate families to one of three socio-economic strata. Additional detail of this methodology is noted in Area of Study 2, below. Complete descriptions of the social mapping task is included in Appendix 10, and copies of the interview and survey tools are included in Appendix 3..

Data collection occurred between September and November 2012 across the five townships with data analysis commencing between November and December 2012.

ROUND TABLE DISCUSSION

A Round Table Discussion was held in Nay Pyi Daw between January 23rd and 24th 2013. Draft findings from the first four areas of study were presented to a high-level audience of Government health staff (central MOH, central DOH, township health officials), donor partners, INGO partners and UN agency staff. A full list of participants is at Appendix 1.

The purpose of the RTD was to enable these stakeholders to:

- review, validate and challenge the findings;
- suggest areas for deeper analysis; and
- discuss implications for future MNCH development, both within the 3MDG fund and more broadly for national government planning.

The impact evaluation methodology worked well; the purposeful sampling used in the Rapid Survey's allowed us to compare changes in MNCH service access in "hard-to-reach" and non-remote villages. When incorporated with an indigenous social mapping methodology (devised and validated previously in Myanmar), this allowed both confirmation of reported changes in service coverage and investigation into the different influences of geographical remoteness and socio-economic status on access to maternal health care. The qualitative data provoked much discussion and further analysis was conducted to accurately portray the different viewpoints captured.

The Round Table Discussion consensus and views has been used to update some of our qualitative findings, add extra detail where requested and possible, and also forms the basis for this report's final section on Conclusions and Implications.

INFORMED CONSENT & CONFIDENTIALITY

For all data collection methods involving participation of human subjects, oral informed consent was obtained from participants. Investigators administering the interviews and surveys provided information on the purpose of the evaluation and the potential risks and benefits of participation in the language best understood by the subjects. The informed consent process included adequate time for each potential subject to have any questions answered by study staff.

All staff involved in this study received appropriate information on research ethics with an emphasis on the importance of informed consent and confidentiality. Study participants were assured that refusal to participate in the study would in no way affect their access to health and social services available to them in the community. All information collected in the study is only accessible by and to study staff.

LIMITATIONS IN METHODS

This exercise was dependent on the quality of the data sources, such as the HMIS and specific limitations from this are noted where relevant in the text. A full-scale evaluation of impact was limited by the absence of program-specific baseline and follow-up population-based survey data. As noted in the description of our Rapid Survey, purposeful sampling of villages may have biased those towards sites more actively engaged with JIMNCH. These limitations have been considered during analysis and incorporated into the presentation of results and conclusions drawn.

FINDINGS

AREA 1: OVERALL IMPACT

1.1 OVERVIEW

This area of study aims to describe the evidence that JIMNCH, so far, has achieved its programme goal, intended outcomes and outputs; and to review the logical links between JIMNCH inputs and the overall goal.

1.2 ANALYTIC APPROACH TO AREA OF STUDY 1

The JIMNCH programme started implementation in May 2010, with an establishment phase that essentially lasted until the end of 2010. Thus our comparisons of service coverage have taken 2010 as the baseline year. There has been no population-based survey since 2010 (the Post-Nargis Periodic Review IV was in 2010), so administrative data recorded in health management information systems, including reports of Implementing Partners (IPs) has been used to examine service coverage, with comparison of several data sources to improve validity. A planned UNOPS population survey will in the future be able to add a further point of triangulation for such impact assessment.

For the Lessons Learned exercise, the townships of Bogalay and Laputta, and the smaller region of Middle Island, were selected as study sites. Although the administration of Middle Island has now shifted, in the 2011 government Health Management Information System (HMIS) records, the township of Laputta still encompassed Middle Island. Accordingly, our analysis of government HMIS data generally examines trends in these two townships.

To assess the evidence for increased access to essential maternal and child health services, four datasets were analysed:

1. Cross-sectional analysis of JIMNCH achievement reporting, based on logical framework data in annual reports, as of December 2011;
2. Comparison of MCH results between 2010 and 2011 in Bogaly, Laputta, and Middle Island by triangulating Periodic Review IV, government HMIS (collated at the regional level), and JIMNCH IP reports of township-level HMIS data.
3. Comparison of MCH results in Bogalay and Laputta to regional averages for Ayeyarwaddy region, and to matched 'non-JIMNCH' townships, using government HMIS data.
4. Comparison with the Rapid Survey (RS) carried out as part of this Lessons Learned exercise, which included findings on service coverage, noting that the RS sampling was not population-based.

In making these comparisons, absolute estimates of service coverage were examined, but greater weight was placed on examination of *changes* in service coverage over time, in particular to contrast trends for the JIMNCH implementation period (2011 compared with 2010) with other trends over the post-Nargis period, and to contrast trends in JIMNCH townships as compared with non-JIMNCH townships.

1.3 Overall baseline situation for MCH in Ayeyarwaddy Region

Ayeyarwaddy region has a total population of 6,663,000, in 26 townships spread across an area of 35,138 km^2. It is the second most populous state/region in Myanmar even though it is not large in area, reflecting a relatively high population density.[1]

Based on the government's Multiple Indicator Cluster Survey 2009 – 2010 MICS (2010) data shown below, Ayeyarwaddy had the third lowest coverage of skilled birth attendance (SBA). It also had relatively lower coverage with vaccinations and antenatal care, although because absolute proportions are already high (above 90%), trends in these indicators are more difficult to assess.

TABLE 1: Ayeyarwaddy Region compared to other regions, in MICS 2010 survey

Region	SBA	DPT3	Measles	ANC 1+
Kachin	60%	97%	96%	94%
Kayah	65%	95%	95%	91%
Kayin	69%	98%	98%	95%
Chin	39%	91%	92%	76%
Mon	82%	100%	100%	100%
Rahkine	63%	99%	100%	89%
Shan (N)	43%	89%	88%	63%
Shan (E)	95%	98%	98%	99%
Shan (S)	76%	100%	100%	99%
Ayeyarwaddy	54%	97%	98%	90%
Bago (E)	59%	97%	99%	95%
Bago (W)	81%	100%	100%	96%
Magwe	65%	100%	100%	92%
Mandalay	73%	98%	97%	92%
Sagaing	77%	100%	100%	98%
Tanintharyi	92%	100%	100%	98%
Yangon	88%	98%	98%	99%
Quartile 1 (25th percentile) Value	60%	97%	98%	91%

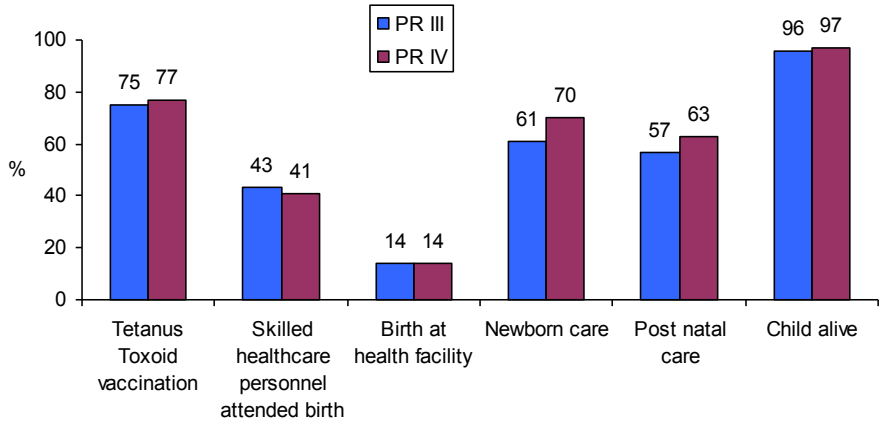
Source: MICS3 Myanmar (2009-2010)

[1] Wikipedia

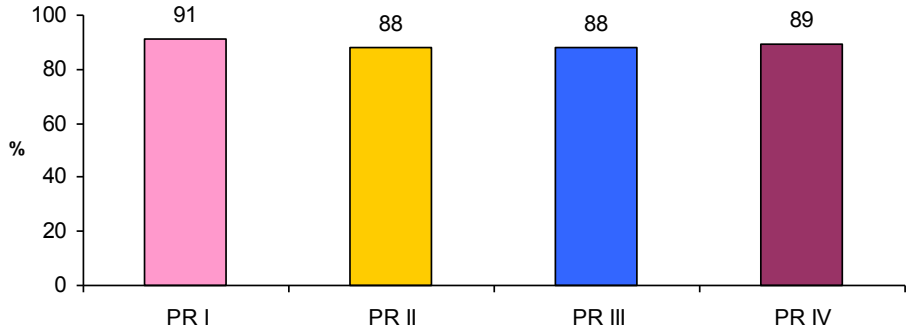
The final Post-Nargis Periodic Review IV reported lower coverage for the MCH indicators among 11 Nargis-affected townships, seven of which are from the Ayeyarwaddy region. The following charts excerpted from Post-Nargis Periodic Reviews illustrate this lower starting point for JIMNCH, and also provide some illustration of broader trends in service coverage over the sequence of the Periodic Reviews.

FIGURE 1: MATERNAL AND CHILD HEALTH CARE SERVICE TRENDS PRIOR TO JIMNCH

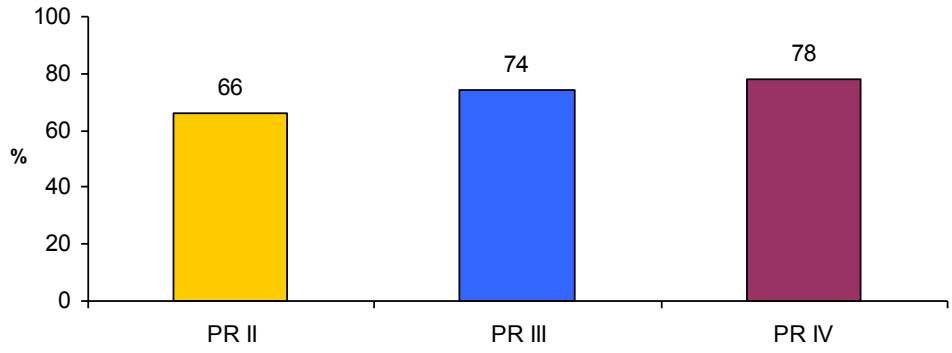
(Source: PR III/2009 and PR IV/2010)



Children aged 6 months to 5 years immunised against measles
(Source: PR I/2008, PR II/2009, PR III/2009 and PR IV/2010)



Children aged 6 months to 5 years immunised against DPT3
(Source: PR II/2009, PR III/2009 and PR IV/2010)



1.4 IMPLEMENTING PARTNER REPORTS OF ACHIEVEMENT AGAINST PROJECT TARGETS, AS AT DECEMBER 2011

Technical reports and annual reports from IPs provide information on achievement against annual targets for service coverage. These targets are set according to population-based projections of expected pregnancies, emergency complications, numbers of children needing vaccination and anticipated childhood illness. Such population-based projections are difficult, especially in Middle Island, which has a large seasonally transient population that is poorly captured in administrative data. Achievement in service coverage was assessed by IP's own analysis of local HMIS data, which are also collated at township and regional level in the government HMIS.

TABLE 2: ACHIEVEMENTS EXTRACTED FROM IP REPORTS, AS OF 2011 DECEMBER

Over Achieved (over 120% of target)	Achieved (100% - 120% of target)	Under-Achieved (Less than 100% of target)
• U5 children with diarrhoea receiving ORS • EMoC and ECC Referral	• DPT, Measles, TT vaccinations • Outpatient per capita per year • ANC (more than one time) • RHCs without stock-outs • Township Coordination Plan • Township Coordination Meetings	• Number of BHS/AMW/CHW trained (91%) • H2R villages with AMWs/CHWs (90%) • Births attended by AMWs (90%) • SBA rate (84%) • RHC supervisory visits (62%)

Source: JIMNCH Logframe (2011) (Aggregated for Bogalay, Laputta, and Middle Island)

These show high levels of achievement of targets for coverage with routine schedulable services (such as vaccination and ANC), service planning and management, and for regular outreach to hard-to-reach (H2R) villages. Targets for improved childbirth care (SBA or birth attended by AMW) were more difficult to achieve. This is common in many MNCH programs, due to the inherent difficulties in changing community preferences for place of childbirth, and the access problems resulting from the unpredictable timing of labour. Given this, it is noteworthy that targets for emergency obstetric referral were achieved or exceeded. This suggests that in some situations where full SBA was not achieved, it was still possible to access services to enable emergency referral if needed. Our other analyses (see below) corroborate this. A separate report by Merlin on this topic also provides additional data to support this interpretation[2].

Some process indicators, including the number of BHS/AMW/CHW trained and RHC supervisory visits, were also under-achieved, although IP reports suggest that in some instances this was more a case of inappropriate target-setting rather than true lapses in coverage.

[2] Addressing Maternal and Child Morbidity and mortality – supporting emergency referrals – evidence from Merlin's programme in Laputta. Merlin, April 2012.

It is important to note that, in the JIMNCH monitoring and evaluation system, the difficulty in accurately estimating numbers of expected pregnancies, and the number that may experience complications needing emergency referral, may also have affected the accuracy of targets in some areas.

The IPs reports of child care services (for example for pneumonia or diarrhoea) show a clear increase in services over the years of evaluation. Unfortunately, a close examination of available HMIS indicators for emergency child health care services, could not find sufficient correlation between indicators, to allow for this analysis across the databases. Community attitudes towards changes in access to child health care are included, with other relevant analyses in Area of Study 2.

1.5 TRENDS IN SKILLED BIRTH ATTENDANCE AND EMERGENCY OBSTETRIC REFERRAL

This analysis focuses on SBA coverage, even though this is difficult to measure, because it is currently at lower levels than other indicators and is a clear challenge to address. In order to examine changes in SBA coverage, a reasonable external reference point as a baseline for JIMNCH areas can be based on the Periodic Review IV survey data (2010), noting that this is an average across all 11 Nargis affected townships. This estimated SBA coverage at 41%. As a baseline, this is closely comparable to the IPs' reported analyses for 2010, using township-level HMIS that estimated SBA coverage at 47% (Laputta), 41% (Bogalay) and 47% (Middle Island).

From either baseline, the IP reports of township-level HMIS for 2011 show a clear increase with SBA coverage estimated at 71% in Middle Island, 52% in Bogalay, and 50% in Laputta. A further point of comparison is provided by this Lessons Learned exercise's Rapid Survey conducted in November 2012, which estimated SBA coverage at 46% in Middle Island, 56% in Bogalay, and 47% in Laputta. The Rapid Survey data gives three year aggregate for SBA[3] since it is based on the interviews with mothers of under three year old child or children. These estimates of follow-up SBA rates, tabulated below, do show an increase over baseline, although the variation in measurement approach means that strict statistical tests of significance cannot be applied.

TABLE 3: TRENDS IN SBA COVERAGE FROM LOCAL DATA SOURCES

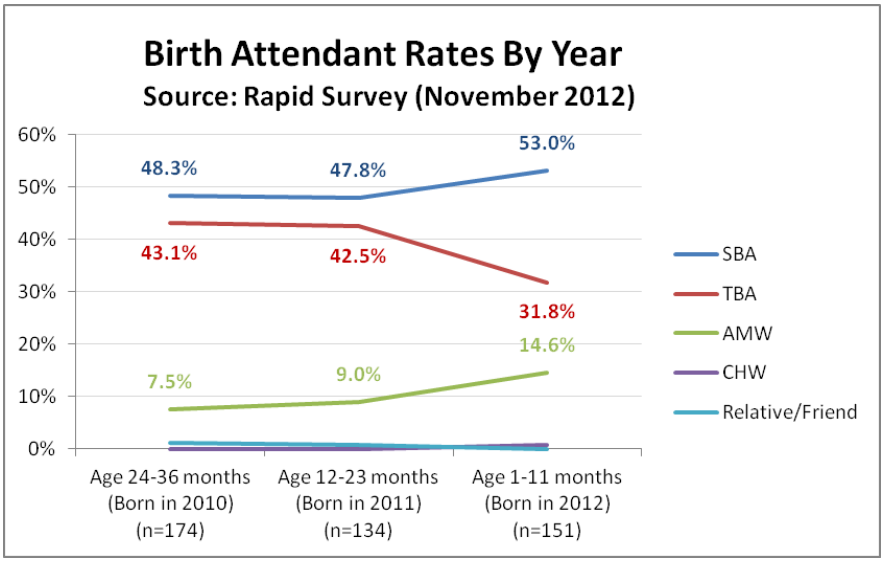
Township	Baseline (2010) Source: PR IV	Follow-up (2011) Source: JIMNCH MIS	Follow-up (2012) Source: Rapid Survey
Middle Island	41%	71%	46%
Bogalay	41%	52%	56%
Laputta	41%	50%	47%

[3] We used WHO definitions of skilled birth attendant: "an accredited health professional – such as a midwife, doctor or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns". Thus TBAs and AMWs were excluded from SBA categories in our analyses.

1.5.1 TRENDS IN SBA AND EMOC REFERRAL SEEN IN RAPID SURVEY DATA

When Rapid Survey data is stratified by the age of the youngest child, a trend to increasing delivery by SBA or AMW4 is seen between 2010 and 2011, with a corresponding decline in delivery by TBA, as shown in the Figures below. Again it is important to note that this is not a sample representative of the townships as a whole, however it does cover all mothers in the 15 villages we visited, and the purposeful sampling of those villages is likely to mean there is a greater representation of mothers from H2R areas.

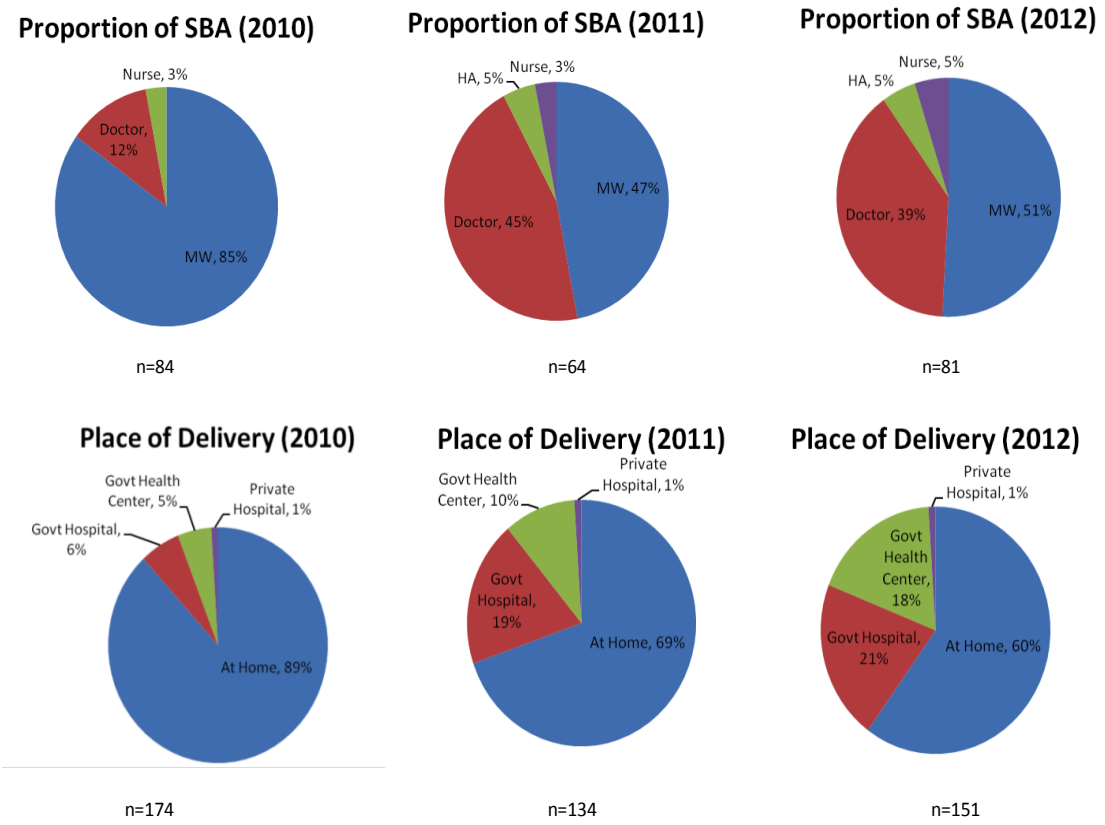
FIGURE 2: TRENDS IN RAPID SURVEY ESTIMATES OF BIRTH ATTENDANTS



The Rapid Survey data also show an increase in proportion of doctors among SBAs and an increase in facility based deliveries at government health centres or government hospital in 2011.

[4] The Auxiliary Midwife (AMW) has been introduced in JIMNCH and other sites in Myanmar to extend pregnancy and childbirth care services to difficult areas. This cadre is intended to provide routine care, up to conduct of a normal delivery, but is not a SBA. The AMW impact is discussed further in Area of Study 2.

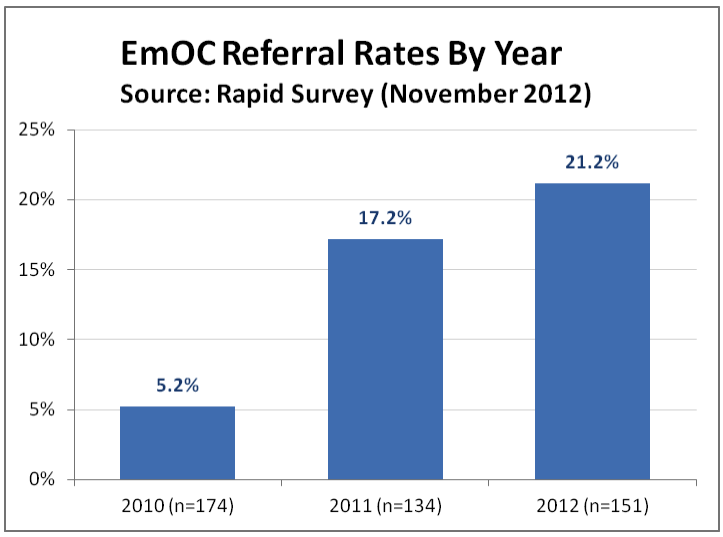
FIGURE 3: TRENDS IN CADRE OF SBA AND PLACE OF DELIVERY, RECORDED IN RAPID SURVEY



Source: Rapid Survey (2012)

This increase is likely to be due to an increase in emergency obstetric care (EmOC) referrals seen 2011, as well as an increase in functioning rural health centres. The EmOC referral rate continues to increase in 2012, contributing to the overall SBA coverage increase seen in the Rapid Survey.

FIGURE 4: TRENDS IN EMOC REFERRAL RATES, RECORDED IN RAPID SURVEY

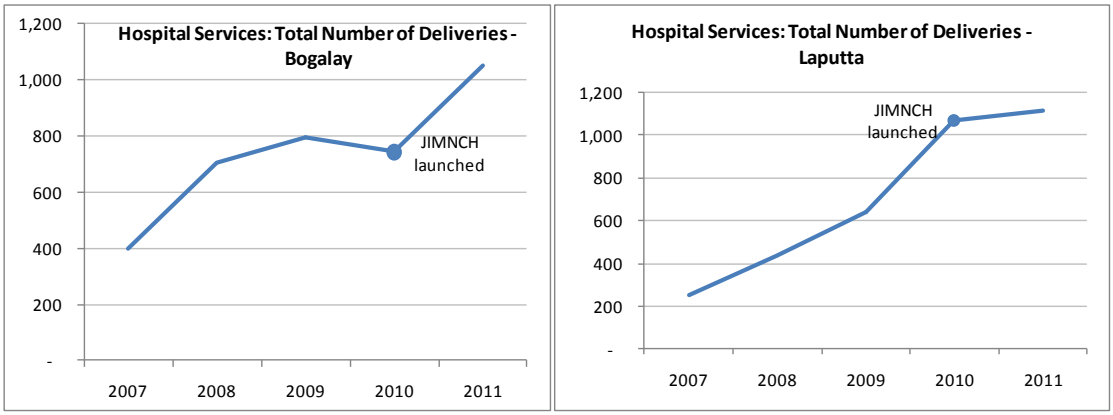


1.5.2 TRENDS IN SBA AND EMOC REFERRAL SEEN IN REGIONAL HMIS DATA

Additional triangulation against the government regional HMIS records is made difficult because the regional dataset does not collate SBA-relevant indicators in a way that is comparable to the SBA coverage estimates in the Periodic Reviews, the IPs township HMIS reports or our Rapid Survey.

What the government HMIS trends (see Annex and Figures below) do show is a general increase across the region, as well as for Bogalay and Laputta, in health staff attending deliveries, hospital deliveries and EmOC referral rates. The number of deliveries in hospitals increased from 743 to 1,051in Bogalay and from 1,072 to 1,112 in Laputta, between 2010 and 2011. The relative increase from 2010 to 2011 for Bogalay and Laputta is similar or slightly greater than the increase in the regional average (see Figures below).

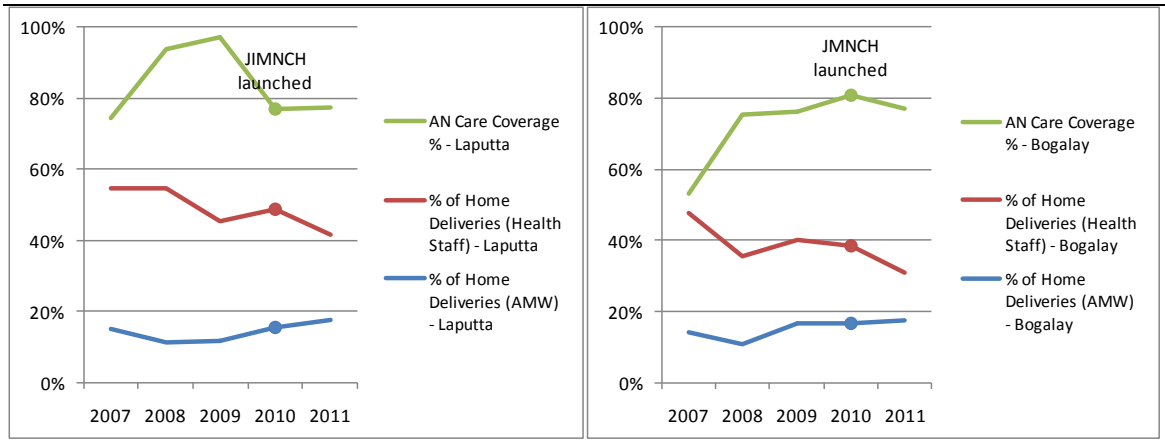
FIGURE 5: REGIONAL HMIS CHANGES IN TOTAL NUMBERS OF HOSPITAL DELIVERIES, FOR BOGALY AND BOGALAY AND LAPUTTA



Source: HMIS

The rise in referral and hospital delivery are accompanied by a clear fall in home delivery by health staff, declining from 49% to 42% in Laputta and 38% to 31% in Bogalay between 2010 and 2011. Home delivery by AMW remained unchanged in Bogalay at 17% and slightly increased from 16% to 18% in Laputta.

FIGURE 6: REGIONAL HMIS CHANGES IN ANC AND ATTENDED HOME DELIVERIES, FOR BOGALAY AND LAPUTTA

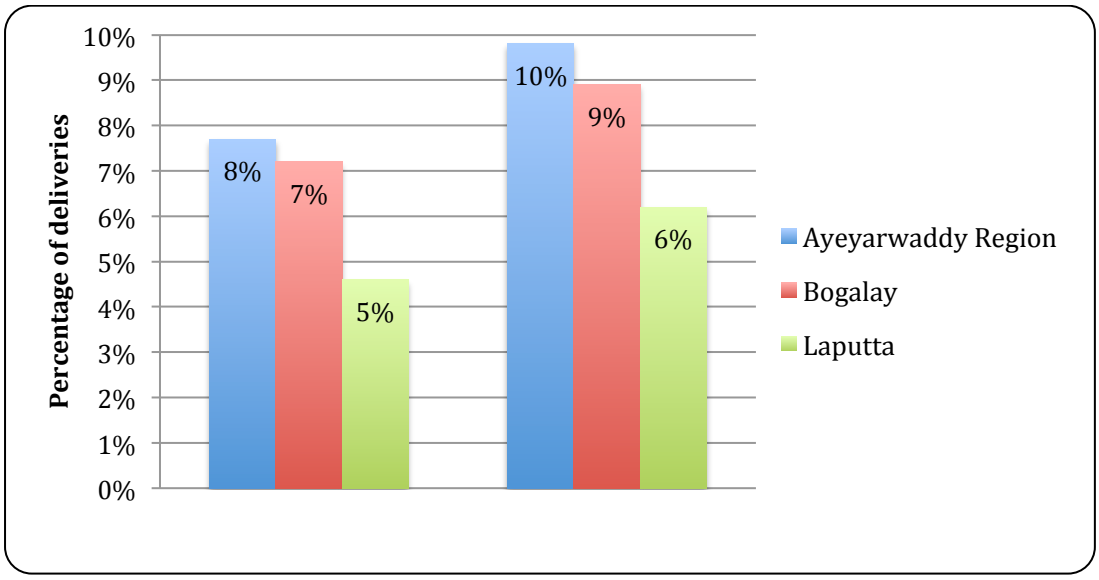


Source: HMIS

These analyses of the HMIS support the suggestion from Rapid Survey analyses, that there has been an increase in SBA in JIMNCH areas, contributed to by greater deployment of trained health staff in homes and health centres.

As in the Rapid Survey, the regional HMIS data also suggest that an increase in EmOC referral was an important contributor to the increase in SBA. The government HMIS estimate emergency referral rates increased from 7.2% of pregnancies to 8.9% in Bogalay, and from 4.6% to 6.2% in Laputta, between 2010 and 2011.

FIGURE 7: REGIONAL HMIS CHANGES IN EMOC REFERRAL, REGIONAL AVERAGE, BOGALAY AND LAPUTTA

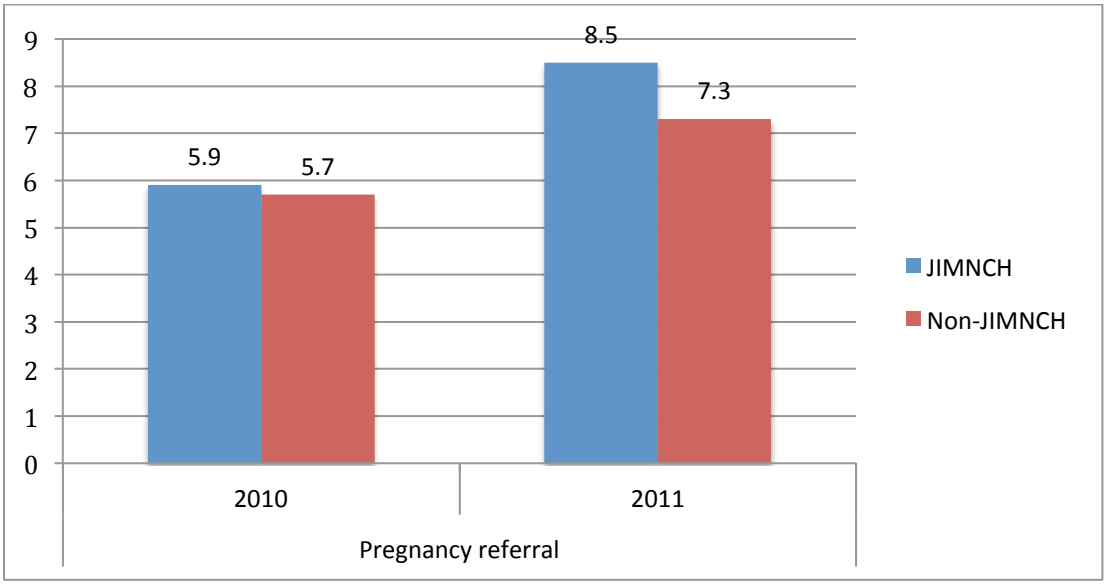


Source: HMIS

Additional statistical analysis was also carried on the regional HMIS database to contrast trends in three JIMNCH townships (Bogalay, Laputta and Dedaye) with comparable, Nargis-affected non-JIMNCH townships[5]. This township-by-township comparison has included Dedaye township as a JIMNCH township because services there commenced in mid-2011, with a relatively rapid scale-up, likely to influence the HMIS records of service coverage. Annex 1.2 displays the changes in coverage rates, with confidence intervals, for individual townships and an average, weighted by numbers of expected pregnancies in each township to compare JIMNCH with non-JIMNCH areas. The Figure below displays this difference in trend.

[5] Kyaiklat, Mawlamyine Gyun, Ngaputaw, and Pyapon

FIGURE 8: WEIGHTED AVERAGE CHANGES IN HOSPITAL REFERRAL RATES, JIMNCH AND NON-JIMNCH TOWNSHIPS, FOR 2010 AND 2011 (CHANGE IN % OF PREGNANCIES WITH A HOSPITAL REFERRAL)



Source: HMIS, secondary analysis of seven townships

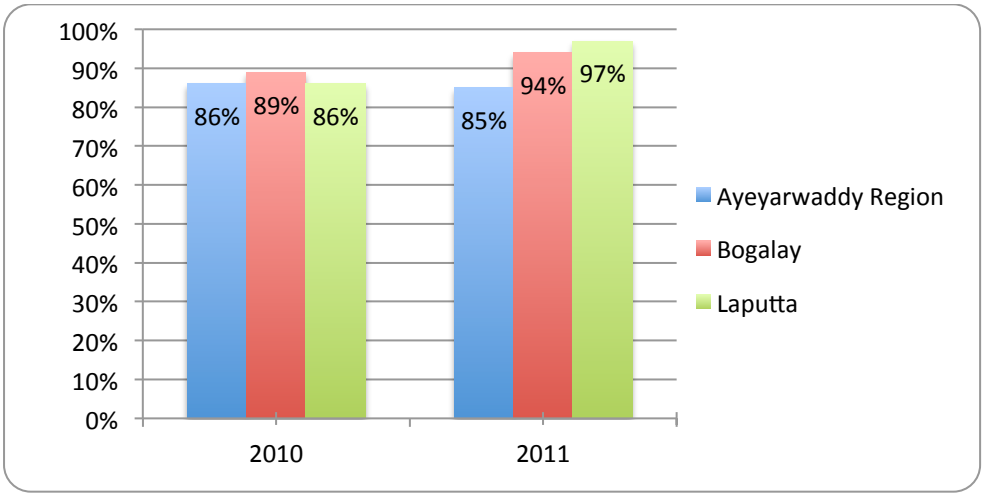
Although the trend is for a greater increase in referrals among JIMNCH as compared with non-JIMNCH townships, further statistical testing using a weighted generalised linear model (also described in Annex 2.2), does not show a statistically significant difference. The implication is that emergency referrals in JIMNCH townships are trending at least in line with, and possibly in advance of, those for other townships. This corroborates the increase in EmOC referral seen in other datasets.

1.6 TRENDS IN SCHEDULABLE SERVICES: ANTENATAL CARE AND IMMUNIZATION

For antenatal care (ANC) coverage, the government HMIS estimates show slightly lower levels than those reported in the IP township HMIS reports (see Annex 1.1, and Figure 6 above), without a clear increasing trend. This may be due to variation in the estimation of the denominator of pregnant women between township-level HMIS estimates managed by the IPs and those collated by the government at regional level. However, as overall rates are already at relatively high levels, this does not represent any serious challenge of the IP achievement reports.

An alternative indicator of ANC is the coverage with two doses of tetanus toxoid vaccine (TT2). This is given during antenatal visits and so can act as a proxy for two ANC visits. Trends in coverage from the regional HMIS are displayed in the Figure below.

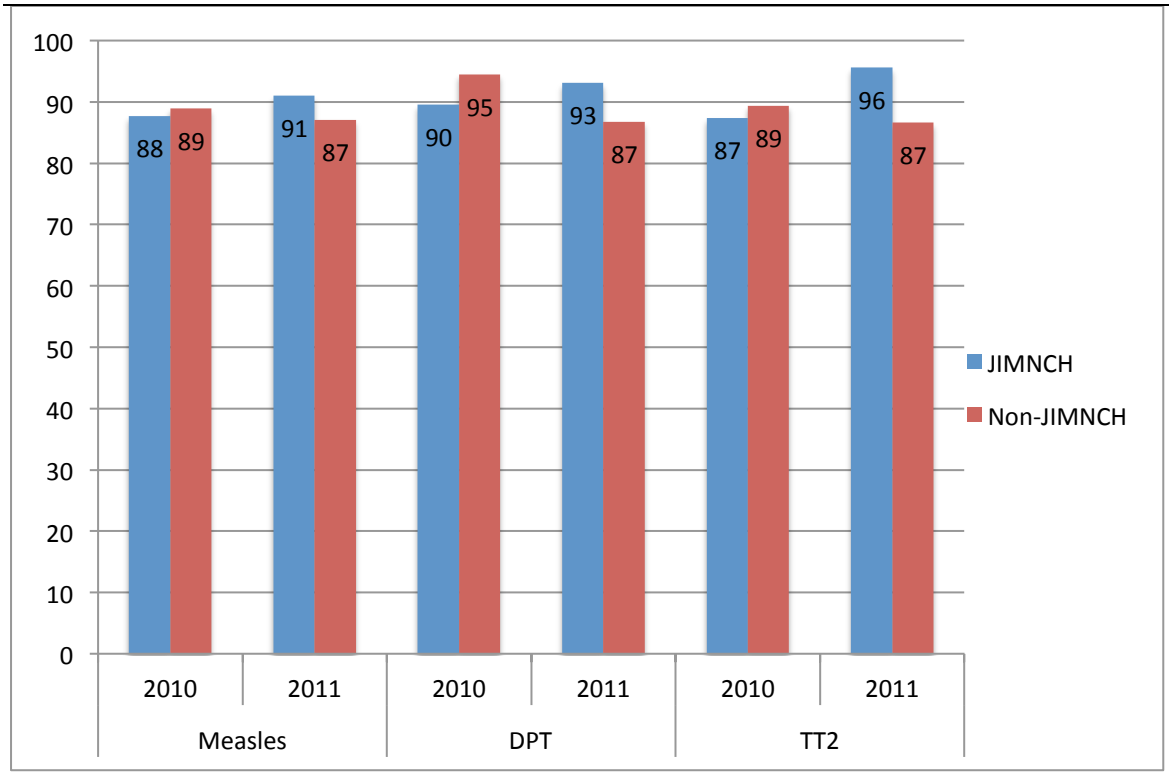
FIGURE 9: CHANGES IN REGIONAL HMIS COVERAGE FOR TT2 VACCINATION



Source: HMIS

This suggests that this aspect of ANC is increasing more rapidly in Bogalay and Laputta than the static regional average. As for emergency referral (and detailed in Annex 1.2), additional statistical analysis was also carried on the regional HMIS database to contrast trends in three JIMNCH townships with comparable, Nargis-affected non-JIMNCH townships. The Figure below displays this difference in trend, also suggesting that the JIMNCH townships have a greater increase in coverage. Further statistical testing using a weighted generalised linear model (also described in Annex 1.2) suggests that the difference in trend is statistically significant.

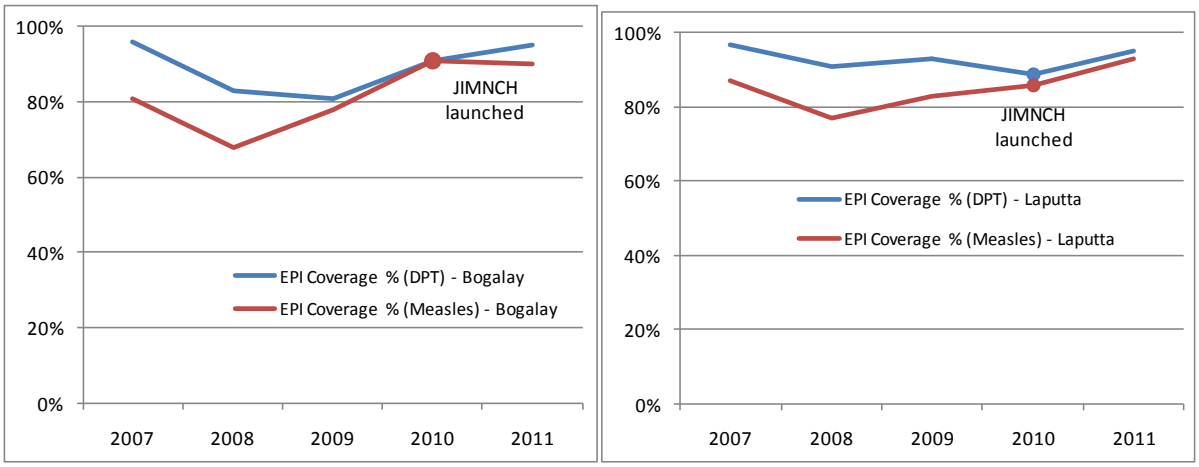
FIGURE 10: WEIGHTED AVERAGE CHANGES IN IMMUNIZATION COVERAGE (% TARGET POPULATION), JIMNCH AND NON-JIMNCH TOWNSHIPS, FOR 2010 AND 2011



Source: Secondary analysis of HMIS

Review of government HMIS also largely confirms the IP reports of achievement in immunisation. There is a general increase seen in immunization rates for both three doses of diphtheria/pertussis/tetanus (DPT3) and measles in Laputta, while in Bogalay DPT3 coverage increased but measles vaccination was static. All are recorded as being at relatively high levels, and match regional averages (see Annex 1.1).

FIGURE 11: REGIONAL HMIS CHANGES IN DPT AND MEASLES VACCINATION COVERAGE, FOR BOGALAY AND LAPUTTA

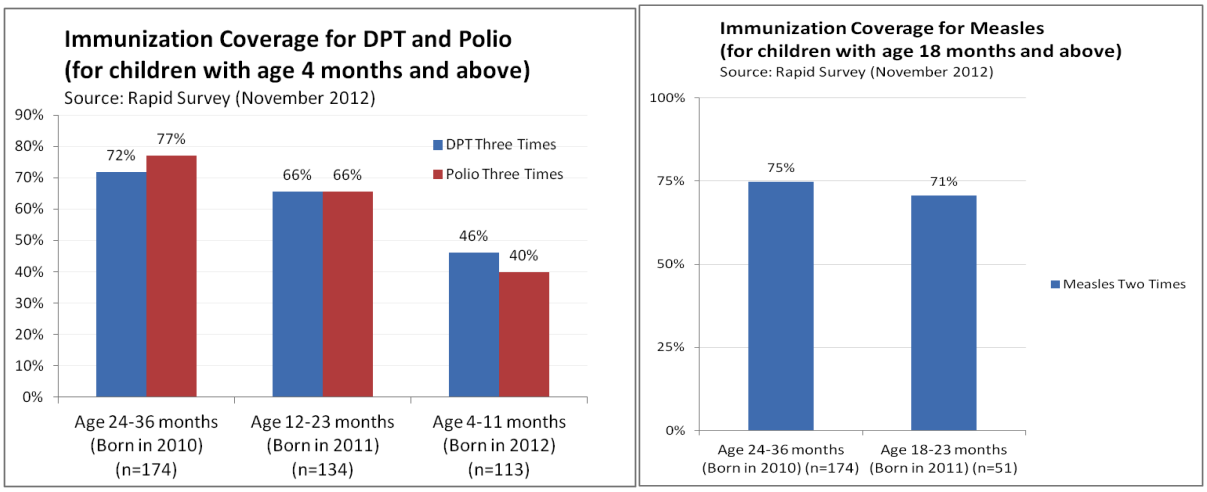


Source: HMIS

JIMNCH townships are compared to non-JIMNCH using additional statistical analysis of vaccination coverage, displayed in Figure 9 above (and detailed in Annex 1.2). Our weighted generalised linear model suggests that there is a statistically significant greater likelihood of JIMNCH townships having an increasing trend in DPT3 coverage, but for measles, the increase in JIMNCH townships is similar to that for non-JIMNCH townships.

When we attempted triangulation of this trend, Rapid Survey data did not correlate well with the HMIS trends. As seen in the Figure below, the yearly trend for vaccination coverage showed a marked decline. It is note that the Rapid Survey includes a higher proportion of H2R villages, so this may represent more difficult access. Qualitative information from health staff provided during the survey also suggests that immunizations outreach visit are often deferred during the rainy season due to unsafe weather, with an average delay in vaccination of approximately four months. The low coverage rates in 2012 as shown by rapid survey is likely to be the effect of these overdue vaccinations that have not yet been given, but which are later recorded in the HMIS.

FIGURE 12: TRENDS IN VACCINATION COVERAGE, RECORDED IN RAPID SURVEY



Source: Rapid Survey

Overall this suggests that JIMNCH has seen an increase in overall immunization coverage, more so for TT2 and DPT3 than for measles. However in the H2R areas, it is likely that many vaccines are being given later than the optimal schedule, and coverage may be lower than regional data estimates.

1.7 CONCLUSIONS FOR AREA OF STUDY 1

There is a general trend of increasing access to MNCH services in the Ayeyarwaddy Region displayed in HMIS data. There is clear evidence of a greater increase in coverage in JIMNCH in skilled birth attendants, although this still remains at a modest level, in emergency obstetric referral, and in some aspects of immunization and antenatal care.

It is reasonable to attribute these to JIMNCH-funded work, given that the various IPs have a major role in MCH service provision, in the absence of other supports. This increase in coverage is credibly an outcome of the significant investment in mobilisation of extra resources for SBA, emergency referral and expanded preventive care; the additional training for BHS and additional deployment of AMW, CHW and other volunteers; and the strengthening of local planning and coordination documented in IP reports.

The results found for Areas of Study 1 represent changes in service coverage rather than health outcomes. There has been insufficient time since JIMNCH's commencement to expect to be able to document changes in mortality and morbidity, and this data is not easily captured in current HMIS at regional or township levels.

As noted in the overall Lessons Learned conclusions, for future initiatives, such as those under the 3MDG Fund, specific data collection activities, including population-based baseline and endline surveys, as well as greater harmonization between project monitoring indicators and those in the HMIS, are recommended to better document impact on population health outcomes.

ANNEX 1.1: HMIS DATA FOR AYEYARWADDY REGION, BOGALAY AND LAPUTTA, 2007-2011

	2007	2008	2009	2010	2011
Ayeyarwaddy Region					
% of Home Deliveries (AMW)	13%	13%	13%	13%	13%
% of Home Deliveries (Health Staff)	45%	50%	49%	51%	51%
AN Care Coverage %	63%	70%	72%	75%	72%
EPI Coverage % (DPT)	83%	92%	82%	92%	86%
EPI Coverage % (Measles)	76%	86%	76%	89%	85%
Hospital Services: Total Number of Abortions	3,400	3,335	3,224	3,655	4,145
Hospital Services: Total Number of Deliveries	13,319	14,324	15,363	17,985	20,566
Hospital Services: Total Number of Out-patients	167,078	266,467	196,541	221,356	232,196
Hospital Services: Total Number of In-patients	100,944	109,640	110,246	130,004	133,464
Low Birth Weight %	2%	2%	2%	1%	2%
Rate of Referral %	5%	5%	6%	8%	10%
Underweight children % (<1 Yr)	6%	6%	4%	5%	4%
Bogalay					
% of Home Deliveries (AMW)	14%	11%	17%	17%	17%
% of Home Deliveries (Health Staff)	48%	36%	40%	38%	31%
AN Care Coverage %	53%	76%	76%	81%	77%
EPI Coverage % (DPT)	96%	83%	81%	91%	95%
EPI Coverage % (Measles)	81%	68%	78%	91%	90%
Hospital Services: Total Number of Abortions	86	167	118	143	161
Hospital Services: Total Number of Deliveries	397	703	794	743	1,051
Hospital Services: Total Number of Out-patients	1,838	33,857	9,190	7,018	8,659
Hospital Services: Total Number of In-patients	2,463	5,418	4,220	4,720	5,718
Low Birth Weight %	0%	0%	1%	1%	1%
Rate of Referral %	2%	3%	4%	7%	9%
Underweight children % (<1 Yr)	3%	3%	5%	4%	2%

	2007	2008	2009	2010	2011
Laputta					
% of Home Deliveries (AMW)	15%	11%	12%	16%	18%
% of Home Deliveries (Health Staff)	55%	55%	45%	49%	42%
AN Care Coverage %	75%	94%	97%	77%	78%
EPI Coverage % (DPT)	97%	91%	93%	89%	95%
EPI Coverage % (Measles)	87%	77%	83%	86%	93%
Hospital Services: Total Number of Abortions	74	133	81	276	253
Hospital Services: Total Number of Deliveries	250	437	642	1,072	1,112
Hospital Services: Total Number of Out-patients	1,817	16,355	6,702	18,033	12,226
Hospital Services: Total Number of In-patients	2,746	3,398	3,131	7,121	6,798
Low Birth Weight %	0%	1%	1%	1%	1%
Rate of Referral %	2%	2%	4%	5%	6%
Underweight children % (<1 Yr)	5%	15%	3%	4%	2%

ANNEX 1.2: ADDITIONAL STATISTICAL ANALYSIS OF SEVEN TOWNSHIPS IN REGIONAL HMIS DATA

Additional statistical analysis was carried on the regional HMIS database to contrast trends in three JIMNCH townships (Bogalay, Laputta and Dedaye) with four comparable, Nargis-affected non-JIMNCH townships (Kyaiklat, Mawlamyine Gyun, Ngaputaw, and Pyapon). This township-by-township comparison has included Dedaye township as a JIMNCH township because services there commenced in mid-2011, with a relatively rapid scale-up, likely to influence the HMIS records of service coverage.

Two analyses were undertaken,

- firstly to assess changes between 2010 and 2011 with confidence intervals and population-weighted averages; and
- secondly to develop a statistical model to contrast trends between JIMNCH and non-JIMNCH townships.

ANALYSIS I

Independent sample tests of proportions were undertaken to test the statistical significance of changes in EPI coverage and hospital referral between 2010 and 2011 and provide confidence intervals around these estimates. Also, weighted estimates for EPI coverage (under-one population) and hospital referral (estimated number of pregnant women) were produced by township type and year. The results of these analyses are shown in Table 1. As the Table shows, given the relatively large populations most of the changes in EPI coverage and hospital referral for townships were statistically significant. Those significant at the 5% level are highlighted in the table. Focusing on the weighted pooled estimates of EPI coverage, there is some evidence to suggest that increases in coverage between 2010 and 2011 were more likely in JIMNCH townships compared with non-JIMNCH townships.