Department of Health
National Center for Disease Prevention and Control

Infectious Disease Office
National Malaria Program

Malaria Medium Term Development Plan
2011-2016

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I. Background

A. Profile of the Philippines

The Philippines is an archipelago located in the south-eastern part of Asia. Comprising of 7,107 islands, the country is divided geographically into three major islands, namely: Luzon, Visayas and Mindanao. It is further subdivided into 16 administrative regions and one region autonomous from the national government, 80 provinces, 167 cities and 16 highly urbanized cities. Considered as the 12th most populous country in 2010, it has an estimated population of 94.0 million, with additional 11 million Filipinos living abroad. It is inhabited by multiple ethnic groups and many distinct non-tribal groups scattered nationwide, several of which reside in the remote, hard-to-reach mountainous areas. The Philippines has a tropical climate (usually hot and humid) with 3-cycle season of hot dry season or summer, rainy season and cool dry season. Temperature ranges from 21°C to 32°C and may become much cooler or hotter depending on the season.

As of 2003, the Philippines has a simple functional literacy rate at 93% and 84% functional literacy rate at about the same level for both males and females. In 2008 the national poverty incidence was 26.9% and the average annual family income was registered at Php 147,000. Unemployment as of 2010 was estimated at 7.3%.

The Philippine population growth rate is estimated at 1.84% (2005) with life expectancy of 67 years for male and 72.9 years for females. Death rate is estimated at 5.47 deaths per 1000 population, more than one fourth (25%) of which is attributable to deaths due to cardiovascular diseases. Total health expenditures in 2005 were Php 180.8 billion, which is about 3.3% of the Gross Development Product (GDP), lower than the WHO benchmark of at least 5%. Major sources of health care financing were out-of-pocket expenses, followed by the government. The social health insurance program managed by the Philippine Health Insurance Corporation (PhilHealth) covers 66 million active members served through the different PhilHealth-accredited hospitals and health centers.

B. The Philippine Health Care System

The Philippines has a decentralized health care delivery system managed by the DOH and implemented by the LGUs as mandated in the 1991 Local Government Code. The national health care delivery system is characterized by a network of health facilities at various levels of operations that offer clinical care and public health services with the private sector dominating the market. In 2005, 62.0% of all hospitals were privately owned and 59.0% of total health financing came from private sources[1]. Tertiary level of health care are provided for by medical centers owned and managed by the private sector and those maintained and managed by the Department of Health (DOH) through its Regional Health Offices. The provincial governments also run and operate their own hospitals while the municipal/city governments are mainly responsible for public health service delivery through the Rural Health Units (RHUs) or health centers. At the community level, Barangay Health Stations (BHS) exist manned by a midwife and supported by a network of community volunteer workers. Private clinics also abound and provide various types of clinical and public health care services to their respective clientele.

[1] National Statistical Coordination Board website (2008c).

The delivery of anti-malarial services in particular is a shared responsibility between the national and local government. The national government through the DOH national and regional offices sets the program's policies, standards and guides, provides technical training, augments the logistics requirements of the LGUs for anti-malaria services, establish and operates quality assurance for microscopy, treatment and vector control measures, designs health promotion materials and other approaches, and conduct regular monitoring and evaluation. There is a strong network of public health facilities at the provincial, municipal and barangay levels that provide diagnostic and treatment services in all malaria endemic areas. The same network also allows routine reporting of surveillance data and monitoring of program performance. The Malaria Control Program (MCP) benefits from the Field Health Service Information System (FHSIS) that was instituted way back before the devolution, the Philippine Malaria Information System (PhilMIS) established in 2005 and the Philippine Integrated Surveillance and Response (PIDSR) which began functioning since 2009 in selected LGUs. Regular monitoring and evaluation of MCP performance is also undertaken by the national and regional offices alongside with external assistance projects (e.g. Global Funds and Roll Back Malaria - RBM). The implementation of Global Funds - Rounds 2, 5 and the Rolling Continuing Channel (RCC) has recently received "A1" rating for grant performance with a substantial number of performance indicator targets being met and which exceed expectations.

The access to health care remains a big challenge. Of the Filipinos who sought medical advice or treatment, half (50%) went to public health facilities, 42% went to private health facilities, and almost 7% sought alternative or non-medical care.[2] Financial barrier to health care is shown by the poor utilizing primary health facilities more than hospitals because services in such facilities are largely free. However, since the majority of the population cannot afford the co-payments and balance billing (i.e. remaining payment to be shouldered by patient after PhilHealth payment has been deducted) demanded by both government and private hospitals, government hospitals intended to serve the poor are also being utilized by a large non-poor clientele who cannot afford private facilities. In contrast, those who can afford to pay tend to bypass government hospitals and lower level facilities because of perceived issues of quality.

Physical barriers such as those characterize the geographically isolated depressed areas (GIDAs), compounded by lack or poor transportation and communication facilities, further limit the access of people to health care. These limitations become more real in the access to anti-malarial services where most of the endemic population reside in remote, hard to reach mountainous areas (e.g. Apayao, Kalinga, Palawan, etc.) or isolated coastal/islands ((e.g. Antique, Negros Occidental), and where the high risk population groups reside (e.g. those along the borders, the indigenous peoples, etc.).

In addition, psycho-socio-cultural factors also pose barriers to population's access to health care. In the 2003 National Demographic Health Survey (NDHS), aside from getting money for treatment (67.0%), as one of the most common difficulties experienced by mothers in accessing health services when their children get sick, was a set of psycho-social factors that include (i) lack of information where to go for treatment, (ii) the need to get permission before going to treatment, (iii) apprehension that service provider is not of the same gender and (iv) the absence of alternates to take care of other children when left at home. Almost all mothers (93.7%) in the poorest

[2] National Demographic Health Survey 2008 as cited in Bridging to Future Reforms Health Sector Reform Agenda Monograph No.9 p.11.

quintile mentioned at least one access problem to health care compared to only 59.7% of those in the richest quintile who cited a specific concern. Furthermore, the continuing exodus of health workers abroad limits people's access to essential care. To date, there are still a number of barangays without midwives and health facilities continue to experience fast turnover of health personnel. The DOH-Health Human Resource Development Bureau (HHRDB) Study in 2005 showed that existing number of doctors and midwives positions may have met the country's total projected requirements but this does not guarantee an even access by the population to their services since (a) not all reported available positions are actually filled up; (b) though positions may have been filled-up, some are not used to perform expected health functions; and (c) deployment is inequitable vis-à-vis the number of clients and the geographic spread of their catchment population.

Given these challenges in the Philippine health care system, the DOH is committed to institutionalize strategic reforms in service delivery, governance, financing and regulations. The following are the major measures currently pursued by the DOH:

- promotion and adoption of the inter-local health zone to ensure an integrated health care delivery at the local level

- deployment of doctors to the remote, hard to reach barrios to provide essential care and services including the hiring and deployment of about 1000 nurses

- health financing reforms through the development and expansion of PhilHealth benefit packages for outpatient care (e.g. Outpatient Benefit Package, TB-DOTS Package, Maternity Care Package, Malaria Outpatient Benefit Package, etc.) as well as the universal enrolment of indigents to PhilHealth

- capacitating LGUs to develop Province-Wide Investment Plan (PIPH) for Health as a tool for harmonizing technical and financial assistance to the LGUs

- upgrading health facilities nationwide and augmentation of essential health care commodities (e.g. vaccines, anti0TB drugs, anti-malarial drugs, etc.)

- updating and enhancement of program protocols and standards

- provision of training and other forms of technical assistance to the LGUs

- nationwide implementation of the Philippine Infectious Disease Surveillance and Response system (PIDSR)

- development of approaches for healthy cities and the geographically-Isolated and depressed areas (GIDAs) in the country;

- mobilization of the private sector's participation and contribution to health care delivery system

- establishment of quality assurance system

- strengthening the Foods and Drug Administration (FDA) in performing its regulatory mandates for drugs and medicines, and the licensing of

C. Understanding the Malaria as a Disease

Malaria is a disease caused by one or more species of the protozoan parasite called *Plasmodium* which is usually transmitted through the infective bite of a female *Anopheles* mosquito, and rarely through blood transfusion and sharing of contaminated needles and syringes. As a disease, it can cause irreversible damages and could result to deaths if not promptly detected and properly treated.[3] Malaria is the most common and most persistent mosquito-borne infection in the country. Several species of malaria parasites in the Philippines abound, namely: *P. falciparum*, *P. vivax, P. malariae* and *P. ovale*. In 2007, the presence of one imported (1) P. *ovale* case from Africa, was reported by Negros Oriental. A fifth plasmodium species, *P. knowalesi* was identified in the Province of Palawan in 2006. A survey undertaken by the Research Institute for Tropical Medicine (RITM) in 2010 in the same province showed that 9 mixed cases tested positive for P. *knowlesi* based on Polymerase Chain Reaction (PCR), affirming that the province is a host to all the 5 species. The presence of P. *knowlesi* infection requires further study even outside Palawan. Likewise, Anopheles *litoralis* also abound in the Province of Tawi-Tawi, which has a different biting behavior that must be taken into account for appropriate vector control measures.

Based on the LGU reports with specie-disaggregated data, almost two-thirds (69.4%) to four-fifths (80.0%) of total cases from 2005-2009 were contributed by P. *falciparum.* This however has been slowly decreasing with a corresponding slight increase in P. v*ivax* cases*.* About a fifth (17.4%) to a fourth (23.6%) of total cases from 2005-2009 are accounted for by P. *vivax* malaria and only 1% by P. *malariae.* A small number of cases are also caused by mixed species, which are usually the combination of P. *falciparum* and P. *vivax.*

Malaria infection usually thrives in rural, hilly or mountainous, and hard to reach areas. Disease transmission is perennial and generally higher during the rainy season. High-risk groups consist of upland subsistence farmers, forest workers, indigenous people (IPs) and settlers in frontier areas and migrant agricultural workers. Malaria also significantly affects children under 5 years old due to lack of acquired immunity. In areas with high malaria transmission, most severe malarial cases and deaths occur in infants and young children. Pregnant women are also considered high risk of malaria. In stable transmission areas, malaria-related anemia in the mother and the presence of parasites in the placenta result in low birth weight infants, contributing substantially to deaths among children.

D. Burden of the Malaria Disease Globally and in the Philippines

In 2000, malaria caused about 350-500 M clinical episodes annually and resulted in over 1 M deaths globally.[4] There are 109 endemic malaria-countries worldwide that pose as many as 3.3 billion people at risk to the infection. Two thirds (67%) of the at-risk population are in Asia. Forty seven (47) countries, one of which is the Philippines, have a smaller share of global deaths and cases. Twenty seven (27) countries currently have very low malaria burden level and are in various stages of elimination. The Philippines is considered along with other Asian countries that account for about 4% of malaria cases along with India, Myanmar, Bangladesh and Papua New Guinea[5] In addition to its death toll, malaria also places a heavy burden on the economic well-being of population in endemic countries. As a disease, it has

[3] Malaria Program Manual of Operations, 2010
[4] The Global Malaria Action Plan, Roll Back Malaria Partnership, 2008.
[5] The Philippines Malaria Program Manual of Operations, 2010

perpetuated the continuing cycle of poverty among the people affected and their families.

In the Philippines, although malaria has been delisted from the top 10 leading causes of morbidity in the country beginning 2008[6], it remains a public health problem that continues to threaten the lives of about 12.0 million Filipinos in the 58 malaria endemic provinces. It has also ceased to be listed as one of the top ten leading causes of deaths beginning 1996. As of 2008, there are 23,655 cases and 58 deaths that were reported (2008 MCP Reports). Malaria in the country had a moderate effect on the quality of life of confirmed cases, affected mostly by physical symptoms, followed by functional deficiencies. Least impact of the disease was on the social well-being which confirms that malaria is not a totally stigmatizing disease.

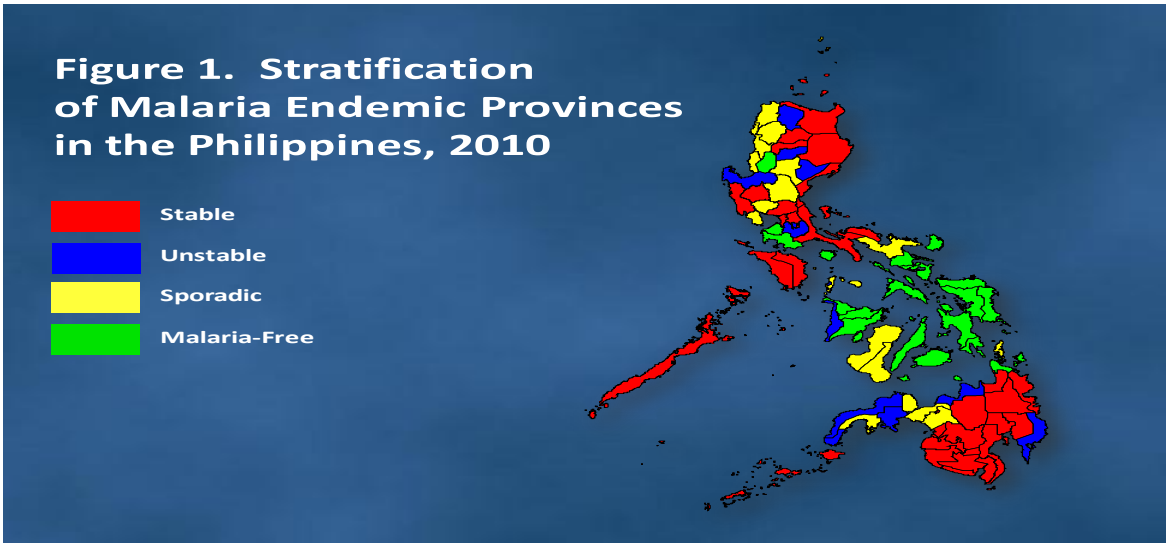
In 2010, the MCP introduced micro-stratification in classifying malaria endemic areas in the country according to the rate of malaria transmission for the purpose of better tracking of malaria cases, prioritization of endemic areas to be assisted and to ensure more focused interventions. Micro-stratification is based on the rate or degree of malaria transmission classified as: (i) stable risk, (ii) unstable risk, (iii) sporadic/epidemic risk; and (iv) malaria-free. Provinces with stable malaria transmission were further sub-classified into high endemic, moderate endemic and low endemic as shown below.

Table 1. Number of Provinces/Cities By Stratum

Stratum	Definition	No. of Province	No. of City
1. Stable Risk	With at least 1 barangay that has a continuous presence of at least one indigenous malaria case in a month for 6 months or more at any time during the past three years	29	8
1.1 high	w/ $\geq$ 1000 aver. malaria cases from 2007-2009	(5)	(2)
1.2 moderate	w/ 100 to <1000 ave. malaria cases from 2007-2009	(18)	(3)
1.3 low	with < 100 ave. malaria cases from 2007-2009	(6)	(3)
2. Unstable Risk	With at least 1 barangay that has a continuous presence of at least one indigenous malaria case in a month for less than 6 months at any time during the past three years	10	1
3. Epidemic Risk or Sporadic risk	With at least 1 barangay that has a presence of at least one indigenous malaria case at any time in the past 5 years	18	2
4. Malaria Free	Absence of indigenous malaria case for 5 past years even in the presence of malaria vector	23	-
Total		80	11

[6] 2008 Annual Accomplishment Report – Field Health Service Information system

As shown below, high malaria-burdened areas are found in Luzon and Mindanao while malaria – free areas are found most in the Visayas regions. As of 2010, there are still a total of 17,141 malaria cases and 22 deaths reported in the country. Please refer to Annex 2 for the classification of the endemic provinces and cities into the different strata



II. Guiding Framework

The formulation of the 2011-2016 Malaria Program Medium-Term Development Plan (MP-MDTP) is geared towards the overall health agenda of the Aquino Administration towards universal access to health care (UHC). Under the DOH Administrative Order No. 2010-0036, the "*Aquino Health Agenda: Achieving Universal Health Care for All Filipinos*" (UHC) is seen as government's continuing effort towards the desired reforms. The agenda is aimed at ensuring the achievement of the health system goals of better health outcomes, sustained health financing and a responsive health system by ensuring that all Filipinos, especially the disadvantaged group in the spirit of solidarity, have equitable access to affordable health care. This shall be attained by pursuing three strategic thrusts: (i) financial risk protection through expansion in NHIP enrolment and benefit delivery; (ii) improved access to quality hospitals and health care facilities; and (iii) attainment of the health-related MDGs.

Guided by the same Health Sector Reform Framework that directed the assessment of the Malaria Control Program (MCP) performance in the past 8 years, the 2011-2016 MP-MDTP is drawn to help meet the abovementioned health sector reform goals. The objectives of the MP-MDTP are aimed along the four (4) pillars of the health sector reforms on service delivery, governance, financing and regulations with the additional pillars identified by the current health administration (health human resource development and management information system) identified as key performance indicators to be achieved over the next 6 years.

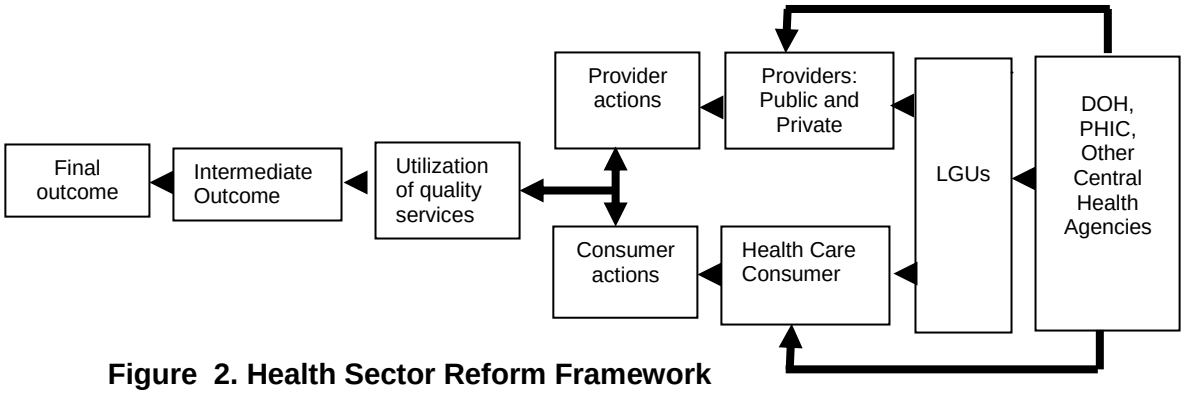


Figure 2. Health Sector Reform Framework

The Malaria Elimination Strategy of the World Health Organization (WHO), particularly for low and moderate endemic countries worldwide, was used as a reference in the design of the 2011-2016 MP-MTDP. Among the WHO recommendations for an effective malaria elimination program include the adoption and implementation of the following measures: (i) detection and treatment of malaria patients, (ii) interruption of local mosquito-borne malaria transmission, (iii) identification and clearing up of residual foci of malaria transmission, (iv) development and implementation of vigilance systems for maintaining the malaria-free status, (v) prevention of the re-establishment of transmission despite continuing importation of parasites, and (vi) collaboration with neighboring endemic areas to reduce malaria transmission. These action points are believed to have been incorporated in the 2011-2016 MP-MDTP.

In developing the 2011-2016 MP-MDTP, the commitment of the Philippines to the Millennium Development Goals (MDGs), particularly MDG No. 6 (*halting and reversing the trends in malaria morbidity and mortality nationwide)* was also taken into account While the Philippines is most likely to achieve its commitment to the 2015 MDG No. 6, the 2011-2016 MP-MTDP is set to further reduce in significant numbers of malaria cases and deaths in the country especially in provinces and cities that remain highly endemic with the disease and which are still experiencing stable and unstable transmission of the disease as of 2010.

The principles that guided its development are summarized as follows:

- It is evolved from the results and findings of the assessment of the MCP from 2002 to 2009 including contributions and inputs from the national and regional program stakeholders and selected LGU program managers;

- The assessment and the development of the MP-MDTP followed a participatory process with the participation of all concerned stakeholders at the national, regional and local levels;

- Its strategies are aligned with the WHO recommended 4-phased elimination process taking off from the (i) control phase to (ii) pre-elimination phase (iii) towards elimination and (iv) finally to being declared as malaria-free;

- Its interventions and actions encompass the 4 pillars of the health sector reform agenda and highlights the 2 additional pillars under the new administration – management information system and health human resource development;

- The targets are evolved based on previous performance levels as well as peculiarities of each province and city with the impact/outcome indicators following the internationally-acceptable parameters;

- It takes into consideration current foreign assistance, internal resources from DOH, LGUs and non-government development partners including future contributions from the same sources and other external projects of assistance.

Results of the MCP assessment covering the period 2002-2009 provided the basis in setting the goals and targets for the next 6 years. Gaps and issues that were surfaced including the lessons learned from approaches and interventions that were implemented in the past 8 years led to the identification of key strategies and actions to be pursued for wider coverage, better quality of anti-malarial services and more efficient implementation.

The formulation of the 2011-2016 MP-MDTP (beginning with the program assessment) was spearheaded by the Technical Working Group (TWG) composed of representatives from the DOH-Infectious Disease Office (IDO), other national DOH offices such as the Research Institute for Tropical Medicine (RITM), National Center for Health Promotion (NCHP), National Epidemiology Center (NEC), Bureau of Local Health and Development (BLHD) and Health Policy and Plan Development Bureau (HPDPB) including the development partners: WHO, Philippine Shell Foundation Incorporated, (PSFI), ACT-Malaria and University Philippines - College of Public Health (UP-CPH). All Regional Malaria Program Coordinators (RMPCs) and selected LGU reprsentativess also participated in the assessment and planning. The complete names of those who participated in the assessment and planning are listed at the end of this report.

III. Assessment of Malaria Control Program, 2002-2009

The assessment of the MCP covered the period 2002-2009 and made use of the 2005-2010 DOH-National Objectives for Health as the reference benchmarks for the goal, objectives, strategies and targets to be achieved. The assessment made use of a mix of data collection methodologies that included the review of the Field Health Service Information System (FHSIS) data, Philippine Health Statistics and MCP Reports in the analysis or malaria morbidity and mortality rate reduction, the trends and patterns of malaria cases and deaths by individual provinces per category. Secondary data review also covered the results of the external evaluations conducted on the Global Funds and Roll Back Malaria Projects, documentations of annual Program and Project Implementation Reviews, reports of special surveys/studies undertaken and field monitoring reports by selected program components. Series of consultations with national, regional and local stakeholders were conducted for validation and enhancement of the assessment. Results of the joint monitoring and evaluation conducted in selected LGUs were also incorporated in this assessment.

A. Objectives

The MCP assessment aimed to:

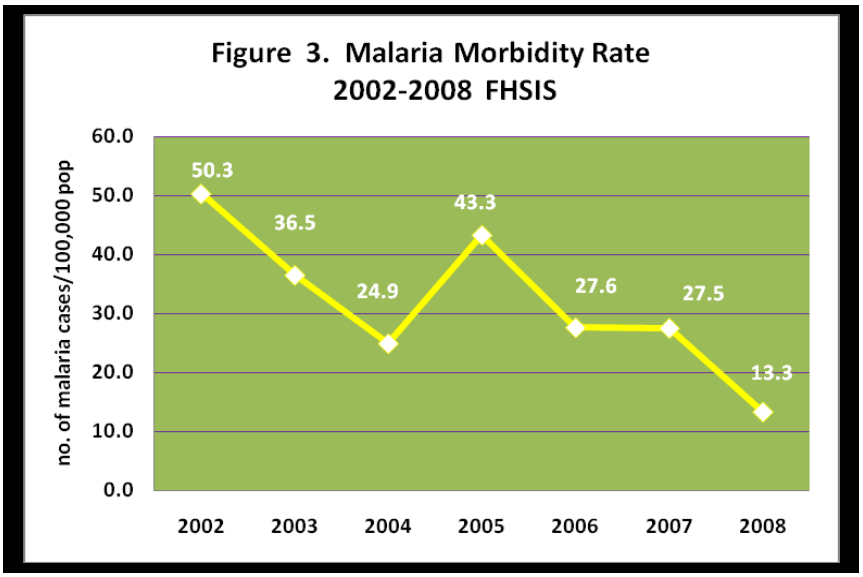
(i) establish the performance of the MCP according to the set goals, objectives and targets for 2005-2010;

(ii) identify the factors that influenced the achievement and non-achievement of desired results; and

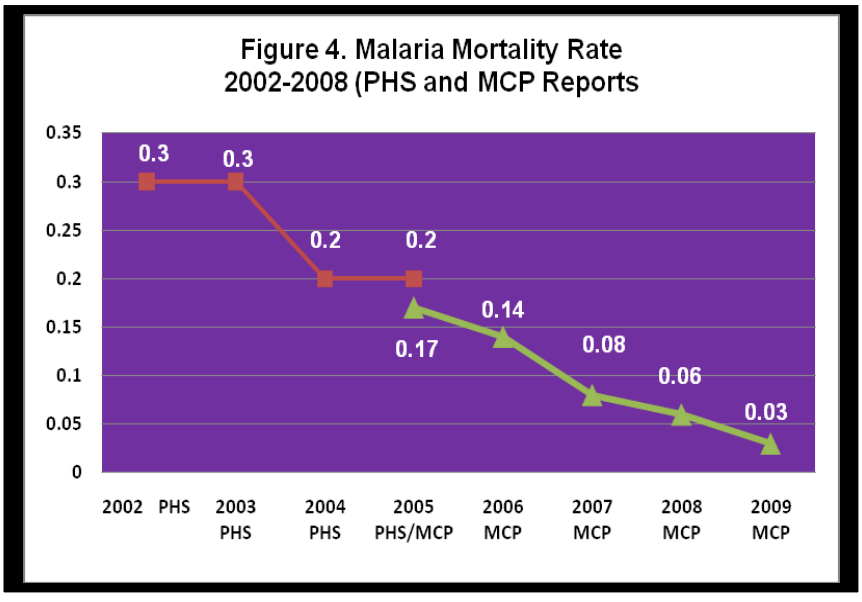
(iii) identify program areas for priority action and enhancement in the next 6 years.

B. Malaria Control Performance, 2002-2008

All the targets laid down by the MCP in the 2005-2010 DOH-NOH were achieved beyond expected levels and at least 1-2 years ahead of the target date. Overall, malaria morbidity rate dropped by almost three fourths (73.6%) from 50.3/100,000 pop in 2002 (FHSIS) to 13.3/100,000 pop in 2008 (FHSIS). A big drop was first noted from 2002 to 2004 but was followed by an upsurge of cases the following year owing to improved detection of cases brought about by the expanded network of diagnostic facilities nationwide. Continuous decline ensued from 2005 to 2008. Based on the MCP Reports, malaria morbidity continues to decrease to 19.2/ 100,000 pop in 2009 and 16.1/100,000 in 2010.



Malaria mortality rate on the other hand declined more markedly by 80% from 0.3/100,000 pop in 2002 (PHS) to 0.06/100,000 pop in 2009 (MCP Reports). Deaths due to malaria started to decrease slightly in 2004. Beginning 2005, a steady decline was noted up to 2009. In the 2010 MCP reports, there were only 22 deaths reported from the remaining 58 endemic provinces.



Each category of endemic provinces demonstrated commendable performances in the past 6-8 years. These include the average reduction of malaria morbidity rate by at least 70% (for Category A provinces) and at least

50% (for Category B and C areas) as well as the reduction of malaria mortality rate by at least 50% for all categories of provinces. In addition, the 13 malaria-free provinces sustained their status and 9 more provinces were declared malaria-free areas as of 2009. These positive results indicate high probability for the country to attain the 2015 Millennium Development Goals (MDG) No.6 of halting and reversing the malaria situation in the country.

The following table summarizes the key achievements of the MCP in the past 8 years:

Table 2. Summary of the MCP Achievements Vis-à-Vis NOH Goal and Objectives

2005-2010 NOH Targets	Accomplishment
Goal. *To eliminate malaria as a public health problem in all endemic provinces and maintain malaria-free status of 13 provinces*	• Malaria has been delisted from the top 10 leading causes of diseases and deaths • Malaria has been eliminated in 23 of the 69 endemic provinces
Objectives	
(1) Reduce malaria morbidity by at least 70% in 26 Category A provinces Target: ≤68.3/100,000 pop	Achieved • morbidity reduced by 76.8% and morbidity rate registered at 52.7/100,000 pop (2008, FHSIS)
(*2) Reduce malaria mortality by at least 50% in 26 Category A provinces* Target: ≤ 0.55/100,000 pop	Achieved • mortality reduced by 72.3% and morbidity rate registered at 0.3/100,000 pop (2008, PHS)
(*3) Reduce malaria morbidity in Category B and C provinces by at least 50%* Target: ≤ 8.1/100,000 pop	Achieved • morbidity reduced by 78.2% and morbidity rate registered at 3.5/100,000 pop (2008, FHSIS)
(4) Reduce malaria mortality in Category B and C provinces by at least 50% Target: ≤0.05/100,000 pop	Achieved • mortality reduced by 90.0% and mortality rate registered at .01/100,000 pop (2008 PHS)
(5) Achieve malaria-free status in more provinces Target: 18 provinces	Achieved • sustained malaria-free status of 13 provinces and declared additional 9 new malaria-free provinces as of 2008

Although malaria has been eliminated in 22 provinces, it remains a public health problem in more than two thirds of the provinces. More in-depth analysis of data also showed that individual provinces in each category performed variably. Of the 26 Category A provinces, only less than half (11) were able to achieve the desired reduction targets of at least 70% malaria morbidity rate and at least 50% malaria mortality rate. More than two thirds (15) of the 22 Category B provinces achieved their respective 50% malaria morbidity and mortality reduction targets. The rest of Category A and B provinces posted reductions but were below the expected levels and a few demonstrated increased cases and/or deaths. Best performance though is observed among the Category C provinces where each area was able to reduce their cases by at least 50% and each has sustained zero death over the same period.

Review of malaria case and death patterns of each individual province based on MCP Reports from 2005 to 2009 affirmed the varying levels of performance of each LGU year to year. While several provinces exhibited a declining trend in malaria cases and/or deaths, there were more areas that showed fluctuating values over the 5-year period, some of which ended up with higher number of cases and/or deaths in 2009 than in 2005.

The assessment also highlighted several chartered cities with reported malaria cases, most of which have not been given due attention in the past 6-8 years. While some cases were validated to be results of misreporting (cases were reported in cities where they were treated though they were from other endemic areas), several cities

were confirmed to be malaria-endemic and some also have an increasing number of cases and deaths. These chartered cities have not received any funding assistance from the DOH or external funds (e.g. Global Funds - GF, Roll Back Malaria- RBM) as these were focused only to the provinces. The following table summarizes the patterns in the increase or decrease of malaria cases by individual provinces from 2005 to 2009.

Table 3. Performance of Provinces by Category in Morbidity Reduction and Mortality Reduction Between 2002 and 2008
(Data Sources: 2002 and 2008 FHSIS, 2002 PHS and 2008 MCP Reports)

Malaria Mortality and Morbidity Reduction Patterns from 2002 to 2008	Category A		Category B		Category C	
	No.	%	No.	%	No.	%
Total No. of Provinces	26	100.0	22	100.0	18	100.0
1 - No./% of provinces that met both morbidity and mortality reduction targets with steady decline and/or with sustained zero mortality in 2008	5	19.2	1	4.5	8	44.4
2 - No./% of provinces that met both morbidity and mortality reduction targets but with either mortality or morbidity with fluctuating trends or both	6	23.1	12	54.5	-	-
3 - No./% of provinces which met only the mortality reduction target and with fluctuating trends in either morbidity or mortality or both	6	23.1	1	4.5	8	44.4
4- No./% of provinces which met only the mortality reduction target but with higher morbidity in 2008	5	19.2	5	22.7	-	-
5 - No./% of provinces which met only the morbidity reduction target but with same or higher mortality	2	7.7	1	4.5	2	11.1
6 - No./% of provinces which did not meet the morbidity and mortality reduction target	1	3.8	1	4.5	-	-
7 - No./% of provinces/cities with incomplete data	1	3.8	1	4.5	-	-

C. Efforts Undertaken

Improvement in the MCP performance began in 2004 upon the influx of external assistance (GF and RBM) with corresponding support from DOH, LGUs and other development partners.

C.1 Assessment of MCP Service Delivery

Case Detection and Diagnosis. The significant reduction in malaria morbidity and mortality is attributed to the improved coverage and timeliness of case detection through the expanded network of diagnostic centers established throughout the country in the form of Barangay Malaria Microscopy Centers (BMMCs) and Rapid Diagnostic Test (RDT) sites that cater to clients even in remote, hard to reach areas. New medical technologists were hired while existing health staff were designated as microscopists and trained on relevant microscopy courses. Resources mainly from Global Funds and RBM were poured in to support these microscopy centers with laboratory supplies and microscopes. The establishment of 4 zonal Giemsa Production Centers helped improve the accessibility of LGUs to this laboratory reagent.

Case Management and Treatment. The availability of anti-malaria drugs in most health centers and hospitals facilitated the access by the positive cases to prompt and appropriate management and treatment provided for by trained health care providers. Health care providers in the Barangay Health Stations (BHS) and Rural Health Units (RHUs) were also given training on Basic Malaria Management while several hospital doctors underwent Severe Case Management Training. Results of efficacy studies prompted the updating of the malaria treatment protocol which changed the first line treatment to more effective drugs. However, participation of the private sector in the delivery of anti-malaria services remains minimal and compliance to treatment protocols among hospital doctors despite the training given varied from one hospital to another.

Vector Control. Vector control measures designed to prevent the transmission of the disease were also intensified through the distribution of insecticide-treated nets (ITNs) and provision of insecticide for complementary indoor residual spraying. The ITN coverage significantly improved while IRS were performed in several provinces to complement the use of the ITNs The ITN coverage however was unable to guarantee the desired 100% household coverage and the 1 net to 2 person ratio. A number of issues continue to surround these vector control measures in the area of proper net maintenance and replacement, treatment and retreatment and the non-standard application of IRS. CHD-supervised conduct of IRS and actual distribution of nets helped propel the steady decline of cases in Cagayan, Isabela and Apayao from 2005 to 2009 while the procurement and distribution of long-lasting insecticide nets (LLINs) has helped minimize the issues regarding net treatment/re-treatment.

Clients' Awareness and Behaviour. Health Seeking Behavior Survey results also showed compliance of patients to treatment and improved health seeking behavior as demonstrated by their immediate consult in health facilities upon onset of signs and symptoms. There are still a few segments of the population with misconceptions regarding mode of transmission and preventive measures of malaria. Actual utilization and use of ITN by households is still far from ideal as several families are still bound with their cultural practices and personal preferences and the low practice of proper maintenance of nets. The effectiveness of Urbani kits which target school children, their teachers and parents for more active involvement in malaria prevention has not been formally assessed. Neither has the implementation of the communication for behavioral impact (COMBI) plans in some provinces. Previously conducted Knowledge, Attitude and Practice (KAP) and Bed Net Utilization Surveys (BUS) did not allow comparative measurements of improved awareness and practices as they were invariably designed and implemented.

C.2 Assessment of the MCP Governance

The management and implementation of the MCP has been devolved to the LGUs in 1991 as part of the issuance of the Local Government Code. To date, majority of the provinces have taken the lead in addressing the malaria problem in their respective localities. There are still a number though whose perception of the MCP is still a national DOH program, thus refusing to own and run the program, and continue to depend on the DOH regional health offices to do the job.

Health Facility Staffing and Malaria Field Personnel.. Effective governance of the MCP at the local level is gravely challenged by limited health staff to provide diagnostic services especially in hard to reach areas and the fast turnover of personnel. This is compounded by lack of funds to finance the traveling and transport needs of vector

control teams in the distribution of nets and spraying of houses. There are also limited numbers of available microscopists to serve as validators to ensure quality assurance of microcopy services. Microscopists in the hospitals are also limited, requiring them to handle multiple tasks and limiting their availability for validation. In some LGUs, DOH Reps continue to serve as the Provincial Malaria Program Coordinators while malaria field personnel deployed in different municipalities and barangays are still sustained by the CHDs in terms of their salaries, TEVs and supply requirements.

Micro-stratification. In 2010, the MCP began to institute a micro-stratification tool in all endemic provinces aimed at tracking on a regular basis the rate of malaria transmission not only at the provincial and municipal level but down to each of the endemic barangays. This provided the DOH and the LGUs a more concrete basis in the prioritization and selection of appropriate anti-malaria interventions and measures for each category or stratum of endemic areas. Areas with stable and unstable transmission for example need to intensify early detection and prompt treatment of cases and scale up coverage of vector control measures. Those areas with sporadic/epidemic risk transmission or malaria prone areas on the other hand require pro-active health promotion and functional disease surveillance system to prevent resurgence of cases . Because of this micro-stratification of barangays, it is believed that the LGUs will be able to more efficiently and effectively control the transmission and move each barangay towards the elimination of the disease.

Malaria Management Information System. Improvement in the information management system has been palpable with the establishment of the Philippine Malaria Information System (PhilMIS) and the efforts to mainstream it with the Philippine Integrated Disease Surveillance and Response (PIDSR) and Field Health Service Information System (FHSIS). However, further systems refinement is needed for better data system harmonization and quality of information in terms of accuracy, completeness and timeliness of submission as well as maximizing their use for decision – making and other relevant purposes. Malaria disease surveillance is anchored to the installation and operationalization of PIDSR at the local level. The National Epidemiology Center (NEC) reported (as of 2009) only 13 of 81 provinces with functional Provincial Epidemiology Surveillance Units (PESUs) and functional surveillance units at the municipal level could even be less. The absence of an operational surveillance system particularly in the declared malaria-free provinces exposes them to untoward risk of re-introduction of the infection. Reported outbreaks in several provinces which are already considered low-risk areas also suffered from the absence of functional surveillance and response system in these areas.

Malaria Program Planning. The goal, objectives and key strategies of the MCP is reflected in the 2005-2010 NOH. However, there is no comprehensive Strategic Plan prepared that provides the overall direction and guide on the MCP in the last 5 years. On the other hand, local MCP plans do not reflect all the LGUs' efforts against the disease. Only a few have integrated anti-malaria activities into their Province-wide Investment Plan for Health (PIPH). Moreover, MCP activities funded by all sources still have to be seen into one unified plan at each level. No integrated, comprehensive planning for MCP in the past 6-8 years at each level of operations. The planning process has not been maximized to rationalize and synchronize provision and allocation of external funding assistance to the LGUs. In fact, this has led to fragmented management of resources, uncoordinated activities and unsystematic monitoring of program status and performance.

Malaria Logistics Management. Progress in the management of malaria logistics was also observed. The DOH Training on Supply Management continues to be done in the

different regions and provinces with better targeting, forecasting of requirements and distribution according to allocation plan from the regions and provinces. Anti-malaria commodities and equipment (e.g. ITNs/LLINs, microscopes, and other supplies) given to the LGUs are poorly tracked. Current inventories of these commodities are not facility-based, thus making it difficult to assess which facilities still lack them or those that have been over-supplied. There is also no system yet to track stock-outs of anti-malarial drugs on a facility basis. The timeliness also of anti-malarial drug procurement including other logistics and supplies still suffers from delay of about 1.5 years. There are also compounding factors such as the absence of local manufacturers of the needed LLINs or anti-malarial drugs, current packaging or preparation of drugs are not congruent to standard allocation or treatment dose to be given per patient. Thus the anti-malarial drugs procurement remains to be done through the United Nations (UN) system, which takes a while to process.

Malaria Program and Project Coordination. MCP Coordination of program and project-related activities benefitted from the establishment of program management committees at the local level and in selected regions (e.g. CHD 11 and CHD-CARAGA). The Global Fund Country Coordinating Mechanism (CCM) and the Technical Working Group (TWG) at the national level, though originally created to manage the GF Project only has been expanded to include other projects of external assistance and all other program concerns. There are certain areas though which need to be improved in regard to coordination between project initiatives and the MCP as a whole. Project reporting needs to be enhanced by putting into the loop the RMPCs and the IDO. Full participation of the local health offices in planning for interventions, implementing them and monitoring the results of their efforts is yet to be fully harnessed.

Multi-Stakeholders Involvement. Involvement of multi-sectoral stakeholders is most felt at the national level with the participation of NGOs, development partners in the management committees and technical working groups. The Philippine Movement Against Malaria (PhilMAM), composed mainly of private stakeholders has also been formally organized and registered in the Security Exchange Commission (SEC). It has to be guided however with a more purposive agenda to pursue. Some Centers for Health Development (CHDs) have also embarked into mobilizing private companies and non-government organizations (NGOs) in several support activities for the Malaria Program. Involvement of other sectors at the LGU level is mostly felt during border operations, outbreak response and management, vector control activities and to some extent, in the management and treatment of cases.

C.3 Assessment of MCP Financing

External Funding Assistance for MCP. The influx of external resources beginning 2003 allowed the DOH and the LGUs to scale up of anti-malaria prevention and control measures that resulted to expanded coverage of microscopy and RDT diagnostic services, case management and treatment, ITN/LLIN distribution and complementary IRS. As such, these measures redounded to significant reduction in malaria cases and deaths in most of the provinces. Since 2002, the MCP has been a beneficiary of RBM assistance in 14 provinces up to 2007, while another 19 provinces are covered from 2008 to 2011. GF assistance came in 2003 and covered mainly the 26 Category A provinces, and later expanded to serve selected Category B provinces. The MCP benefited greatly from the GF and RBM assistance, but this made MCP financing largely dependent on external sources. At the same time, since these external funds (GF and RBM) were mainly focused to highly endemic areas, the other lower malaria-prevalent areas suffered from lack of resources and due assistance .

Influx of External Funds

Figure 5. Morbidity Rate 2000-2008, PhilMIS

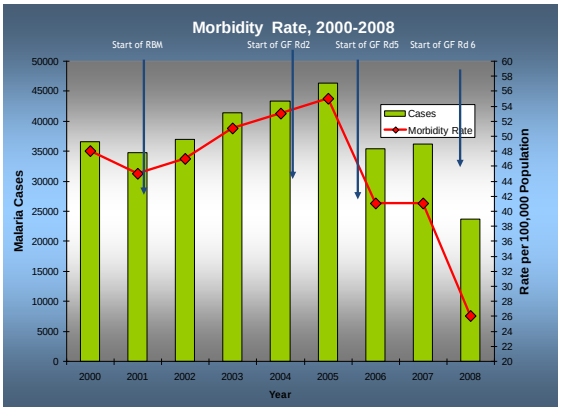
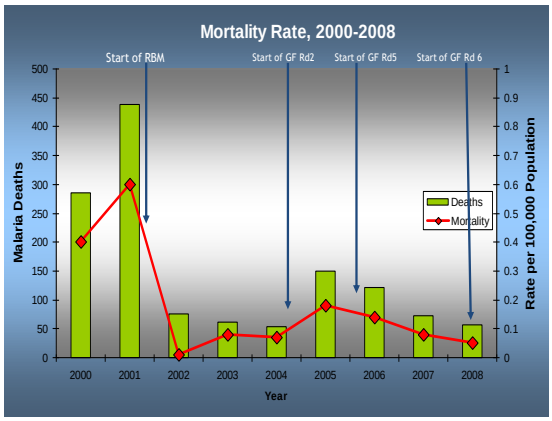


Figure 6. Mortality Rate 2000-2008, PhilMIS



National Government Financing for MCP. The DOH only began to enjoy increased government funding in the amount of Php 169.0 M for its malaria disease-free elimination zone initiatives in 2008 in contrast to only Php 3.0 - 4.0 M it received per annum in the previous years. Hence, government assistance for Category B, C and D provinces only began in 2009 with augmentation as well from the RBM and GF. On the other hand, there is also a very low uptake of PhilHealth Benefit Packages among local facilities. PhilHealth reimbursement under its In-Patient Benefit Package was minimal with only Php 3.9 M for 1,158 total claims as of 2009 compared to total number of hospitalized cases in the same period. Moreover, the Malaria Outpatient Benefit Package launched in 2008 only generated 50 health units accredited nationwide, half of which are in Category B and C areas where cases are just few.

Local Government Budget Support for MCP. LGUs' counterpart funding for MCP is generally nil, although there are some areas which included malaria prevention and control activities in their local budget. As borne out by copies of the LGUs' Province-Wide Investment Plans (PIPH), only a few have integrated local anti-malaria efforts with insecticide procurement and house spraying as the main effort.

Private Sector Contributions. MCP also received support from development partners, NGOs (e.g. Red Cross, Kilusang Laban sa Malaria) or private companies (e.g. Maranatha Foundation) or locally-based corporations, especially those with development projects in known endemic areas. Amounts from these sources are quite difficult to establish considering that most are given direct to the LGUs in the form of technical assistance or in kind. A Bed Net Revolving Fund, a three-tiered subsidy scheme intended to raise funds for the procurement of more nets and insecticides was established in 2004. The scheme however was cancelled by DOH in agreement with the GF's provisions disallowing the use of the grant assistance for income-earning purposes.

C.4 Assessment of MCP Regulations

Regulatory measures in support to MCP encompass (i) the establishment of Quality Assurance System (QAS) for microscopy services, (ii) regular conduct of bioassay test to establish the efficacy of ITNs/LLINs; and (iii) monitoring compliance of anti-malarial drugs and insecticides procurement with DOH technical specifications and FDA requirements.

Quality Assurance of Diagnostic Services. Quality assurance (QA) of diagnostic services is in place. Most malaria endemic areas have malaria microscopy centers with at least 1 trained medical technologists or a designated microscopist. Most diagnostic facilities are conducive for microscopy work, equipped with functional microscopes and laboratory supplies. Almost all microscopy centers that were established have been looped into the 3 level microscopy validation process and benefits from regular visits from their designated validators. In general, there is a good ratio of validator to microscopists. Most microscopists were found compliant with the QAS protocols and to the corresponding validation schemes identified for each. Microscopists' performance in accuracy, sensitivity and specificity has generally improved including the quality of smearing and staining. However, several QA for malaria microscopy issues continue to confront these facilities such as the fast turnover of trained microscopists, limited number and multi-tasked validators that prevent them from performing regular validation visits, breakdown of equipment, limited EQA slides and lack of forms. The development of QA for RDTs is a continuing exercise, and to date, no specific RDT brand has been endorsed for full application in the remote areas.

Quality Assurance of Anti-Malaria Treatment. Quality of anti-malarial drugs is assured through the procurement of only DOH-Food and Drug Administration (FDA)-registered products and testing of the delivered products. There is also a continuous efficacy tests done in designated sentinel sites which provides the basis for upgrading treatment protocols. The quality of anti-malarial treatment though is compromised with the presence of non-FDA registered products at the local market and the continued use of former first line drugs by several facilities. Results of the Facility Based Survey conducted in 2009 on Treatment Compliance[7] in selected GF sites showed that treatment protocols are not completely followed. Only half (50.9%) of cases were treated according to the 2002 Treatment Guideline while only 3 (18%) of the 16 severe cases that were diagnosed were treated according to DOH treatment protocol. Compliance to treatment also varied from one hospital to another. The continuous presence of previous first line drugs in the local market tend to compromise the recommended treatment protocol set by DOH. There are also anecdotal reports of anti-malarial drugs mislabeling or repacking in several municipalities.

Quality Assurance of Vector Control Measures. Quality assurance of vector control activities includes the bioassay tests being performed but only in a few areas and not even as regularly as desired. There are limited reports to assess if susceptibility tests are regularly undertaken. The durability of LLINs still needs to be confirmed through an operations research. Likewise, the guide for the proper disposal of expired insecticide-treated nets has to be developed still. The procurement of insecticide at the local level is also becoming a concern especially if these are not the FDA-registered and WHO Pesticide Evaluation Scheme (WHOPES) recommended products. Efforts must be exerted to promote local procurement of these recommended items.

[7] Facility Based Survey on Compliance to 2002 Malaria Treatment Protocol in Five Provinces Covered by Global Fund Round 5 Malaria Component

D. Summary of Achievements and Gaps

The following summarizes the accomplishments and gaps identified in the management and implementation of key strategies of the MCP at various levels of operations.

Table 4. Summary of MCP Strategy Achievements and Outstanding Gaps/Issues

Strategies	Accomplishment	Gaps/Issues
Strategy 1. *Promote early diagnosis, prompt management and treatment and referral of malaria cases*	• diagnostic service outlets increased with expanded coverage even in remote areas through BMMCs and RDT sites • zonal Giemsa Solution production center established • treatment protocols upgraded • anti-malarial drugs made available in most health facilities	• diagnostic centers operations difficult to sustain • poor compliance to treatment protocols despite training • stock-out of anti-malarial drugs in some facilities • participation of private facilities/ practitioners still low • follow-up smears not common
Strategy 2. *Promote effective and regular use of ITN and IRS as needed*	• ITN ownership quite high • population sleeping under ITN ranged from 48% (2006) to 91.2% (2009) • Under 5 year old sleeping under ITN ranged from 54%(2006), to 95.6% (2009) • ITN prioritized for < 5 y. o. • LLINs introduced in 2009, thus reducing the effort for treatment/re-treatment • complementary IRS undertaken in several areas	• only few provinces met at least 80% ITN population coverage • 1 net to 2 persons ratio not met • no clear mechanism to sustain LLINs after the closure of external funds • ITN treatment/re-treatment not standard • IRS application, timing and training varies from one LGU to another
Strategy 3. *Increasing demand for anti-malarial services*	• majority are aware of malaria as a problem, with correct idea of cause, transmission mode, prevention; prefer consultation at health center; and with high treatment compliance	• few have misconceptions re mode of transmission, preventive measures • adherence to ITN/LLIN maintenance protocols far from desired • KAP studies undertaken not comparable

Strategies	Accomplishment	Gaps/Challenges
Strategy 4. *Plan and implement malaria control measures with specific target population groups*	• goals, targets and strategies outlined in 2005-2010 NOH • micro-stratification by rate of transmission down to barangay level have started • package of intervention for pregnant women available, and malaria drug preparation for under five children available • KAP surveys covered IPs • IEC materials adapted for IPs • border operations conducted in several areas • national policies and guides developed (e.g. MOP, treatment protocols and some LGUs passed local ordinances	• absence of MCP comprehensive strategic plan in past 5 years, • link of national-regional-local MCP plans not clearly defined; • GOP-RB-GF funded activities not integrated into one plan at all levels; integration of local MCP plans to PIPH very low • intervention package and approaches for other high risk groups (e.g. military, rebel groups, etc.) not defined • stratification still to be completed and to be applied correctly in some regions • border operations difficult to sustain • results of study on IPs did not translate to specific guide and intervention package for the group • pregnancy kit for pregnant women needs to be reviewed in terms of allocation and distribution vis-à-vis regular distribution
Strategy 5. *Mobilize local government and community resources for malaria case surveillance in areas where malaria has been eliminated*	• PIDSR functional in all CHDs and 22 provinces • most malaria-free provinces continue to submit report in spite of zero indigenous cases • some Category B provinces • key M and E indicators exist and clearly defined with data collection schemes in place • logistics management improved with the standardization of DOH supply forms and provision of training on the same	• many LGUs still w/out functional surveillance units • private health facilities' participation in surveillance nil • some malaria - free provinces fail to submit regular reports • no mapping of breeding sites • guidelines/criteria on how malaria-free provinces are to be assessed and declared needs to be standardized • lab referral system not in place in most malaria-free provinces • no preparation made to reorient tasks of diagnostic center staff • society at regional and local level not yet fully harnessed • procurement of anti-malarial drugs, ITNs, supplies have not been timely – with about 1.5 years delay • timely collection and submission as well as purposive use and dissemination, PhilMIS, FHSIS and PIDSR stand further refinements and strengthening • no overall MCP M and E Framework and Guide; measurements of some key outputs/process not in place

Strategies	Accomplishment	Gaps/Challenges
Strategy 7. *MCP Financing*	• presence of external funds (GF and RBM) gave impetus to significant reduction of malaria morbidity and mortality • DOH MCP budget increased from Php 3.0 M to Php 150.0 M • PhilHealth MCP Outpatient Benefit Package launched • some locally-based NGOs, corporations and other development partners give contributions to the MCP	• MCP highly dependent on external funding • LGU financing for MCP nil or lacking in several LGUs • external and DOH funds continue to finance consumables and operating costs at local level • very low and slow uptake of PhilHealth benefit packages, particularly the Outpatient Benefit Package for Malaria • some salient components of the MCP not given priority funding (e.g. research/studies, monitoring and evaluation, etc.) • local financing scheme on the revolving fund for ITN procurement/ re/treatment discontinued
Strategy 8. *Regulating MCP operations*	• Quality Assurance for microscopy in place in several regions/LGUs • validators are available for QAS in almost all areas and mostly follow recommended validation scheme • Technical Efficacy Tests of anti-malarial drugs continued to be done • all anti-malarial drugs procured by DOH/GF Project follow technical specifications of DOH • some regions/LGUs continue bioassay and susceptibility tests for efficacy of ITNs • all DOH/GF/RBM procurement of anti-malarial drugs follow DOH recommended specifications • all DOH/GF/RBM procurement of insecticides are part of the WHOOPES recommended list	• QAS operations hampered due to limited supplies • not enough validators in some provinces • difficulty in collecting reports on results of validation • lack of mechanism to track the capacity, adequacy and functionality of diagnostic centers in terms of equipment. logistics, space, etc. reflects lapses in the QAS • no established QA for RDTs • treatment compliance not adhered to by some hospital practitioners • presence of non-DOH recommended drugs in local stores and reported mislabeling, repackaging of anti-malarial drugs in the field compromised recommended treatment protocols • QAS for vector control not regularly undertaken by LGUs • presence of locally procured insecticides not following FDA and WHOPES recommended list may have compromised quality of vector control activities • only a few LGUs conducting bioassay tests • application of IRS varied from one area to another

E. Conclusion and Recommendations

E.1 Strategies That Worked Well

- *Strategy on the promotion of early diagnosis, prompt management and treatment and referral of malaria cases* have largely contributed to the improved MCP performance in the past 8 years as it entailed the expansion of microscopy centers and RDT sites nationwide, continuous availability of anti-malaria drugs to endemic areas, training of health staff, update of the Malaria Diagnosis and Management Policy and Guide and the operationalization of the QAS for microscopy services and anti-malarial drugs;

- *Strategy on the promotion of the effective and regular use of ITNs including universal coverage* has provided increased protection to families from the infection. The introduction of the LLINs has been seen to be a breakthrough in enhancing vector control measures at the community level;

- *Strategy in mobilizing resources from external resources for anti-malaria interventions* implementation at the local level especially among the highly endemic provinces in the country was a major input that curbed the rise of malaria cases and deaths in the country. Without these external funds (GF and RBM), the country would not have reached the reduced levels of malaria morbidity and mortality;

- *Strategy to stratify endemic areas by rate of transmission down to the barangay level* provided a sound basis for better targeting and prioritization of assistance. It has also led to tailor-fit package of interventions appropriate for each stratified area;

- *Strategy 3 on increasing the demand for anti-malarial services* helped raise the awareness of community members about malaria transmission and prevention and their compliance of clients to treatment protocols and the use of ITNs/LLINs as protective measures.

E.2 Intervention/Measures That Need Enhancement

Critical issues and bottlenecks that remain to hamper universal access to quality anti-malarial services and slowing down the country's achievement of its vision of malaria-free Philippines include the following:

- Lack of ownership by several LGUs of MCP implementation and management in their respective localities (e.g. continuous use by LGUs of GF and DOH funds for MCP operational expenses like lab supplies, TEVs, non-hiring/deployment of local personnel to replace DOH staff, non inclusion of anti-malaria activities in their PIPH, etc.);

- Inefficiency in the design and implementation of some known effective interventions and measures (e.g. distribution of nets, conduct of IRS, non-compliance to treatment protocols, etc.) slowed down the progress in controlling the disease

- Poor targeting of LGUs for assistance (e.g. non-coverage of highly endemic chartered cities, delayed coverage of Category B, C and D provinces, etc.) and special population groups to be assisted (e.g. IPs, military, development project areas, etc.)

- Delayed establishment of functional management support systems (e.g. PIDSR)

- Clearer and written policies and guidelines are needed: assessment of malaria-free areas, establishment of malaria-disease free zones, conduct of border operations, approaches and package of interventions for pregnant women, and other high risk groups such as IPs, the military and other mobile population

- Weak foundation for sustainability of program efforts and outcomes: high dependency on external funds, LGUs inability to incorporate malaria needs in the PIPH, passive recruitment and deployment of LGUs' own staff for anti-malaria program and activities

- Dearth of personnel to manage/coordinate and implement MCP at all levels of operations limit the actions towards malaria elimination

E.3 Recommendations

In view of the above, the following are recommended to be pursued in the next 6 years:

Service Delivery

(1) Focus attention and intensify assistance to the following provinces/areas regardless of current category:

a. those with higher morbidity and/or mortality reported in 2008 than in 2002
   - a.1 with higher morbidity in 2008 compared to 2002 – *Zamboanga Del Sur, Zambales, Quezon, Basilan, Bukidnon, Davao Del Norte, Aurora, South Cotabato, Bataan, Zamboanga Del Norte and Rizal Province*
   - a.2 with higher mortality in 2008 compared to 2002 – *Sulu*
   - a.3 with higher morbidity and mortality in 2008 compared to 2002 – *Tarlac*

b. those with fluctuating trends in malaria cases and deaths from 2005-2008
   - b.1 with fluctuating cases from 2005 to 2008 – *Palawan, Tawi-tawi, Sulu, Zambales, Kalinga, Agusan del Sur, Quezon, Davao Oriental, Mountain Province, Bukidnon, Davao Del Norte, Compostella Valley, Basilan and Zamboanga Sibugay*
   - b.2 with fluctuating deaths from 2005 to 2008 – *Palawan, Sulu, Tawi-tawi, Cagayan, Kalinga, Occidental Mindoro, Zambales, Isabela, Zamboanga Sibugay, Misamis Oriental, Davao Del Norte, Davao Oriental and Apayao*

c. those with still considerably high number of malaria cases and deaths – *Palawan, Occidental Mindoro, Zambales, Tawi-tawi, Sulu, Cagayan, Rizal, Davao Del Norte*

d. those that are slow in reducing mortality and morbidity or those unable to achieve the desired reduction targets – *Palawan, La Union, Pampanga and Antique*

e. chartered cities with considerably high morbidity cases – *General Santos city, Cotabato city, Zamboanga city, Cebu city*

(2) Design and establish an MCP package of interventions and approaches responsive to needs of identified high risk groups: MCP in the military, MCP in areas hosting active industrial activities, MCP among displaced populations, etc.

(3) Continue/sustain operations of the diagnostic and management/treatment service outlets for early diagnosis and prompt treatment in areas with stable and unstable

transmission: sustain BMMC and RDT site operations, train more private practitioners, provide drugs/supplies to private health facilities, fast track efficacy study and QA of RDT;

(4) Scale up and sustain coverage of vector control interventions specifically on LLIN coverage to meet 1 net : 2 persons ratio or 1 net:<2 persons ratio and replacement strategies for expired LLINs;

(5) Strengthen health promotion to improve knowledge, health seeking behavior and practices of targeted clients and to generate support from concerned stakeholders.

Governance

(6) Step up actions in supervision and monitoring of compliance by health facilities, practitioners, or local health offices to MCP policy, guides and protocols to ensure quality malaria diagnostic and treatment services, maintenance of ITNs specifically LLINs and appropriate application of IRS, etc.

(7) Establish sustainable support system for malaria-free areas to prevent re-introduction of infection: surveillance system, malaria personnel transition plan, health promotion. Establish sustainable support system of successful border operations inter/intra-provincial and municipal levels

(8) Fine tune the design and strengthen the operationalization of management support systems: planning, MIS, M and E, logistics management, multi-sectoral collaboration, program-project management coordination.

(9) Pursue stratification of areas down to barangay level, reclassify categorization of provinces accordingly and adopt the 4-phase malaria elimination process.

(10) Develop an operational malaria elimination strategy focusing on identification and elimination of foci of infections through both passive and active methods of case detection combined with targeted vector control.

Financing

(11) Build up internal funding to sustain MCP operations for eventual end of external assistance by advocating for national and local government budget increases for the malaria program and step up step up facility accreditation to MCP Outpatient Benefit Package

(12) Institute guidelines for a more rationale use of external funds and establish a reasonable cost-sharing mechanism between the national and local government in support to MCP.

Regulations

(13) Strengthen QAS for microscopy services and use of RDT

(14) Institute supervision guide in each facility to ensure compliance to treatment protocol.

(15) Continue the conduct of entomological studies for efficacy of nets, and monitoring local procurement of malarial drugs and insecticides and other operations research to establish quality of vector control measures

Please refer to Annex 1 for the more detailed assessment of the Malaria Control Program from 2002 to 2009.

IV. Policy Direction: Transitioning from Malaria Control to Elimination

The Malaria Program in the Philippines started as an eradication program more than 50 years ago, and was later redirected as a control program following the global trend that happened concurrently in other countries. Beginning this first half of the decade, the MCP is taking in a new thrust - a shift from the control approach which has directed its efforts in the past 15 years to the elimination of the disease. The move to eliminate malaria in the country came to fore way back in 2007 as the DOH launched the disease-elimination zone initiative – an approach borne out of the Fourmula One (F1) Strategy adopted by the DOH to guide the implementation of reforms in the health sector. The F1 Strategy aimed that malaria-free zones be established nationwide to attain a malaria-free Philippines in the near future. In support to such initiative, a separate budget line item in the amount of Php 169.0 million was earmarked for the establishment of malaria disease free-elimination zones throughout the country.

The transition from control to elimination will be patterned after the Malaria Elimination Strategy recommended by the WHO for low and moderate endemic countries worldwide. The 2011-20016 MP-MDTP adopts the WHO four-phased process of eliminating the disease as described below.

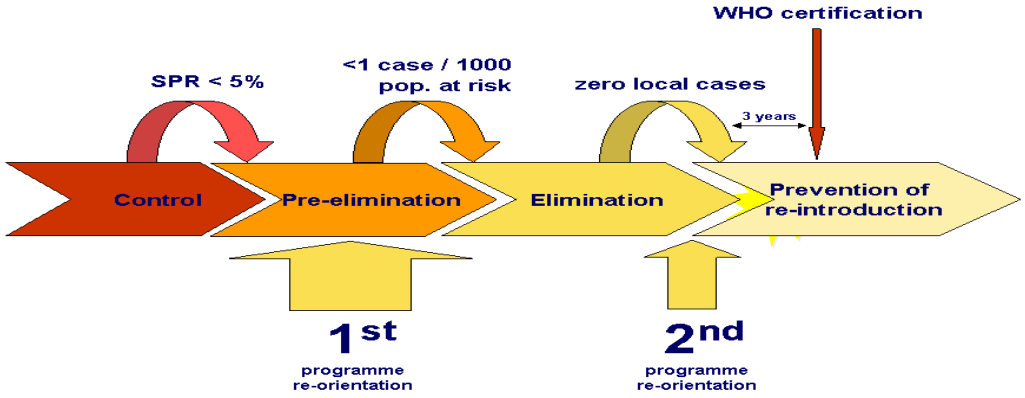


Figure 6. From Malaria Control to Elimination

Source: World Health Organization

The WHO Malaria Elimination Strategy necessitates the adoption and implementation of the following program of actions: (i) detection and treatment of malaria patients, (ii) interruption of local mosquito-borne malaria transmission, (iii) identification and clearing up of residual foci of malaria transmission, (iv) development and implementation of vigilance systems for maintaining the malaria-free status, (v) prevention of the re-establishment of transmission despite continuing importation of parasites, and (vi) collaboration with neighboring endemic areas/countries to reduce malaria transmission. It is recognized that that the transition from control to elimination status as shown in the above framework is a long process, requiring a two-timed reorientation of the Malaria Program. The first reorientation is the transition from control approach to pre-elimination phase, and once the country reaches the elimination stage, the program has to be reoriented the second time towards preventing the re-introduction of the infection or sustaining the malaria-free status with each individual LGUs taking their own pace depending on their particular situation and needs.

Given the recommendations of the WHO in its Elimination Strategy, it is believed that the Philippines is now ready to move to that direction given the following developments.

(1) The WHO has established a slide positivity rate (SPR)[8] of <5% as a milestone indicating that a country is ready to move from control to elimination. An incidence of <1/1,000 marks the point at which a country is ready to shift from pre-elimination to elimination.[9] In Philippines, the SPR is just above the WHO threshold at 5.4% in 2009. The annual malaria incidence in the country as of 2010 is also low, both at the country level at (1.66/1,000) and at the provincial level.[10] Therefore, by these initial criteria, Philippines is positioned to pursue elimination.

(2) Several other factors support the Philippines move toward elimination. First, the available evidence suggests that elimination is technically feasible. The implementation of successful prevention, treatment and surveillance measures in the country has dramatically reduced the burden of disease and has already declared 23 malaria-free provinces as of 2010. Of the same period, 10 provinces are classified under pre-elimination stage and another 18 are already at the elimination phase.

(3) Improving socioeconomic conditions is also known to facilitate malaria elimination. The thrust of the current administration on poverty alleviation through creation of more job opportunities and intensification of its fight towards graft and corruption are some reassuring measures for better economy in the coming years. It is hoped that the improvement of the Philippine economy will pave the way for better access of the population, most especially the poor to health care, particularly, anti- malaria services.

(4) The country's vulnerability (importation risk) is manageable while its receptivity to the infection (outbreak risk in chartered cities bordering highly endemic provinces for example) is concentrated only in some areas (e.g. Zambales, Mindoro Occidental, Davao, etc.), Outside of Palawan, Sulu, Tawi-tawi, Sarangani island of Davao, the importation risk is small, with imported cases coming mostly from Africa, Myanmar and Papua New Guinea.

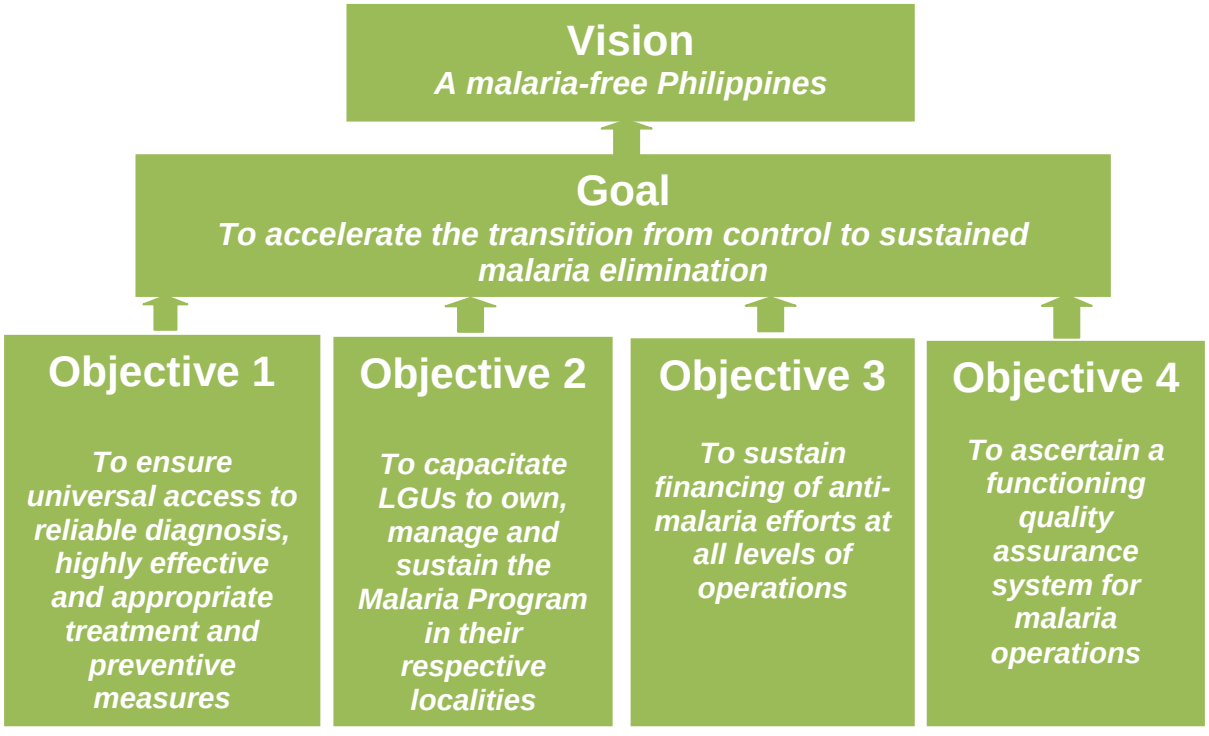
(5) The country is also ready to come up with special programs to develop and target this population. Philippines' receptivity among 23 malaria-free provinces is very low. Receptivity is often represented by entomological inoculation rate (EIR), a measure of transmission intensity. With the support of the Global Fund, NGOs and RBM, malaria at the inter-border areas has been addressed. The Philippines will continue to develop and strengthen strategies to address these border areas. It is also prepared to address mobile populations and other high-risk population groups that could hinder the elimination of the infection;

[8] SPR is defined as the lab test (blood smear or RDT) positive rate in patients with fever
[9] WHO, Malaria Elimination: A field manual for low and moderate endemic countries, 2007
[10] In 2009, the highest incidence in any province was 31.42/1,000 (Zambales Province). Average incidence of 29 provinces with highest incidence was 3.1/1,000.

V. The 2011-2016 Malaria Program Strategic Plan

A. An Overview of the Vision. Goal and Objectives

This 2011-2016 MP-MTDP is the embodiment of the new policy direction of the Malaria Program from control to elimination and the continuity of efforts towards the achievement of the desired vision of a Malaria-free Philippines. Its goal over the next 6 years is to accelerate the transition from control to sustained elimination of the disease through the attainment of four (4) objectives crafted along the four (4) pillars of reforms on malaria service delivery, malaria program governance, financing and regulations. Its objectives are aimed at providing universal access to anti-malarial services in order to accelerate the reduction of malaria cases and deaths and to cut down the transmission of the infection in areas where it stays stable and unstable and where the number of cases still remains high. At the same time, the MP-MDTP seeks to afford equal attention and vigilance to areas which are already declared malaria-free to sustain their status and prevent the reintroduction of the disease. It also zeroes-in to improving the health seeking behavior of clients and increase demand for anti-malarial services, especially among special population groups at high risk to the infection. Likewise, efforts will be exerted to strengthen the capacity of the LGUs in managing and implementing anti-malaria services towards the elimination of the disease in their respective localities, building the national and local governments' capability in mobilizing and managing resources in order to sustain malaria operations at various levels and to strengthen the quality assurance systems for microscopy, treatment and vector control measures.



The MP-MDTP also consists of 10 key strategies and 24 key performance indicators to be achieved in the next 6 years. Please refer to Annex 3 for the details of the 2011-2016 MP MDTP Vision, Goal, Objectives and Strategies

Vision

A Malaria – Free Philippines

The 2011-2016 MP-MTDP is geared to achieving the vision of a *Malaria-Free Philippines*. While the 2005-2010 NOH originally stipulated a vision of a malaria-free country by 2020, results of stratification undertaken by each LGU down to the barangay level in 2010 showed that certain provinces like Palawan, Tawi-Tawi, Sulu, Zambales and Mindoro Occidental remain to have barangays with stable transmission and a considerably high number of cases (> 1000 cases). These are the same LGUs confronted with political instability and hosts to large segments of high-risk populations (e.g. IPs, displaced communities resulting from armed conflict, development projects, natural disasters, GIDAs, etc.) which are difficult to reach. These results indicate that said provinces are unlikely able to zero their indigenous case over the next 6 years in time to qualify as malaria-free by 2020 (following the malaria-free area criteria of the absence of an indigenous case in previous 5 years). Moreover, the DOH beginning 2012 also aims to establish malaria-elimination disease zones (MDEZ) that require individual contiguous malaria-endemic areas to link up and jointly work to eliminate malaria from their common zones. Provinces and cities in each zone, though they may have been declared malaria-free on individual basis, will be further validated using serologic testing before their zone is declared malaria-eliminated. With this new approach and the use of a more objective parameter (serologic testing to cover both symptomatic and asymptomatic cases), the vision may not be achieved by 2020. In conformity as well with the standard statement of vision of other DOH programs, the year 2020 is dropped from the vision statement, giving leeway for DOH to set a more realistic timeline of meeting its vision in the coming years.

Goal

To accelerate the transition from control to sustained malaria elimination

The attainment of a malaria-free country is a tall order for the Philippine government as it demands rapid acceleration in the reduction of malaria cases in every endemic locality in the country until it reaches the elimination level of less than 1 malaria case/1,000 population nationwide. In addition to the rapid reduction of malaria cases, the vision requires equal vigilance in its efforts to sustain the status of those localities that have already been declared malaria-free and prevent the resurgence of the disease or infection at all time. The goal therefore is to accelerate the transition of the different provinces and cities from the control stage to the elimination phase, and to sustain the malaria free status of already malaria-free declared provinces and zones.

The attainment of the abovementioned goal necessitates the achievement of four-pronged objectives following the 4 pillars of the health sector reform.

Objective 1

To ensure universal access to reliable diagnosis, highly effective and appropriate treatment and preventive measures

It is recognized that significant reduction of malaria cases can only happen if the population at risk and those who are already affected have ready access to anti-malarial services. As such, the MP-MDTP aims to ensure universal access to reliable diagnosis, highly effective and appropriate treatment and vector control measures to all individuals at risk, particularly those who reside in stable and unstable transmission areas, most specially those along borders and hard to reach areas. Ensuring universal access to appropriate anti-malarial services is also equally important to clients residing in areas with sporadic transmission as well in malaria-prone and malaria-free provinces and cities to prevent the resurgence of the disease. These services though would consist more of health promotion, disease surveillance and continuation of other vector control measures.

Objective 2

To capacitate LGUs to own, manage and sustain the Malaria Program in their respective localities

The elimination of malaria demands that the LGUs must take the primary ownership of implementing the Malaria Program in their respective localities with high-level of commitment and adequate capacity to deliver the abovementioned services. The MP-MDTP desires to see provinces and cities take the lead in eliminating malaria in their respective localities with the corresponding support of DOH at the national and regional levels, as well as assistance from the development partners and other concerned stakeholders. Elimination of malaria demands good governance at various levels of administration with emphasis to collaborative effort between the national and local government, the private and the public sector, the malaria service providers and the community as a whole. It also aims to put in place functional management support systems: integrated malaria program planning, management information system, malaria logistics management and organizational staff support and supervision.

Objective 3

To sustain financing of anti-malaria efforts at all levels of operations

Scaling up the implementation of intervention measures and expanding the coverage of anti-malaria services in every locality is only possible with adequate financing and rational allocation and use of resources. Mobilizing resources through various schemes from concerned partners is imperative. This however must be accompanied with the rational and optimal use of the available resources and ensure that only effective interventions are funded while unnecessary wastage of resources in cash and in kind are minimized. The third objective recognizes that financing is critical in sustaining the life-support for the continuous delivery of these effective anti-malaria interventions which are essential to reduce and cut the transmission and prevent the re-introduction of the infection.

Objective 4
To ascertain a functioning quality assurance system for malaria operations

The fourth objective aims to ensure that all malaria services delivered nationwide are of good quality. Regulatory measures such as quality assurance systems for diagnosis, management and treatment and vector control interventions will be strengthened. Part of this objective is the monitoring of deviations or non-compliance at the local level from the recommended policies and guidelines issued by the DOH.

B. Impact Indicators and Targets

The 2011-2016 MP-MDTP identified three (3) national and internationally-aligned indicators to measure impact at a national average: (i) reduction in malaria morbidity rate, (ii) reduction in malaria mortality rate and (iii) reduction in Annual Parasitic Incidence (API). In addition, reduction in API will also be measured in each endemic province or city per stratum. The movements of provinces and cities across the 4 elimination phases will also be tracked while that of malaria-free eliminated zones will begin to be measured starting 2013. These indicators and targets are useful in monitoring the operational aspects of the MP, measuring the impact to ensure that activities are yielding the desired results and in moving the program towards achieving its operational targets and objectives. These are also able to monitor changes in epidemiological indicators resulting from the activities implemented. However, there is still a need for the MP to establish a system to interpret results and inform revisions in policies and strategies when needed to ensure progress, including a system to document progress towards elimination. Impact indicators are to be measured at mid and end points of the MP-MDTP period including the outcome indicators as shown below. Please refer to Annex 4 for the basis of the baseline and targets.

Table 5. List of Impact Indicators and Corresponding Targets

Indicators	Baseline 2009	Mid-Term 2013	End-Term 2016	Means of Verification	Frequency	Assumption and Risk
A. National Average						
1. Malaria Morbidity Rate reduced by ≥ 70% from 2009 to 2015	22/ 100,000 pop	14.3/ 100,000 pop	6.6/ 100,000 pop	MP Reports	Annual	• Sufficient funds mobilized and available • Political will of national and local government • LGU ownership of MCP program • intervention package by stratification category available and followed by concerned areas
2. Malaria Mortality Rate reduced by ≥ 90% from 2009 to 2015	0.03/ 100,000 pop	.015/ 100,000 pop	.003/ 100,000 Pop	MP Reports	Annual	
3. Annual Parasite Incidence (API) reduced by ≥ 80% from 2009 to 2015	1.7/1,000 pop at risk	1.2/1,000 pop at risk	0.8/1,000 pop at risk	MP Reports	Annual	
B. Impact Indicators by Area Strata/Classification						
1. No./% of stable risk-high endemic areas with API reduced by ≥ 80% from 2009 to 2015	5	2/5	5/5	MP Reports	Annual	
2. No./% of stable risk-moderate endemic areas with API reduced by ≥ 90% from 2009 to 2015	18	9/18	18/18	MP Reports	Annual	

3. No./% of stable risk-low endemic areas with API reduced by ≥ 90% from 2009 to 2015	6	3/6	6/6	MP Reports	Annual	• Stratification by barangay is regularly done by the LGUs • LGUs willing to establish Malaria Disease Elimination hubs
4. No/% of unstable risk areas with API reduced by 100% from 2009 to 2015	10	5/10	10/10	MP Reports,	Annual	
5. All low risk areas with API < 1/1000 in 2015	18	9/18	18/18	MP Reports	Annual	
Indicators	**Baseline 2009**	**Mid-Term 2013**	**End-Term 2016**	**Means of Verification**	**Frequency**	**Assumption and Risk**
C. Transition/Movement of Provinces and Cities By Stage/Phase of the Elimination						
1. No. of Stable Risk Areas	37	30	12	MCP Report	Every 3 years	
1.1 stable- high areas	(7)	(6)	(4)			
1.2 stable-moderate areas	(21)	(5)	(6)			
1.3 stable-low areas	(9)	(19)	(2)			
2. No. of Unstable Risk areas	11	6	13			
3. No. of Epidemic Risk Areas/sporadic	20	16	16			
4. No. of Malaria-Prone Areas (MPA) increased (with 0 case maintained from 2009 to 2012 and from 2013 to 2015)	0	11	10			
5. No. of Malaria-Free Areas (MFA) increased to 40 - 23 maintained and 17 newly declared	23	28 23 Plus 5 new	40 28 Plus 12 new	MCP Reports	Annual	• lab capacity to perform serologic testing
6. No. of malaria disease eliminated zone (MDEZ)	0	1	2	Survey	Every 3 years	
D. Outcome Indicators						
Objective 1. *Ensure universal access to anti-malarial services*						• PhilMIS in place • Availability of trained medtech lab supplies and equipment
1. On Diagnosis						
Outcome Indicator 1.1 *Test Positivity Rate*	TBD	TBD	TBD	PhilMIS	Monthly	
Outcome Indicator 1.2 *Proportion of suspected malaria patients diagnosed within 24 hours of consult in a health facility (hospital, RHU, BMMC, RDT sites)*	TBD	TBD	TBD	PhilMIS	Monthly	
2. On Treatment				PhilMIS	Monthly	• Availability of anti-malarials • Availability of records on follow-up consults • availability of trained health staff
Outcome Indicator 1.3 *Proportion of confirmed malaria patients receiving anti-malarial drugs upon consult (day zero of treatment) per month according to national guideline*	TBD	TBD	TBD			
Outcome Indicator 1.4 *Proportion of suspected malaria patients given anti-malarial drugs upon consultation (probable malaria patients)*	TBD	TBD	TBD	PhilMIS	Monthly	
Outcome Indicator 1.5 *Proportion of patients who completed treatment*	TBD	TBD	TBD	PhilMIS	Monthly	

Outcome Indicator 1.6 *Proportion of malaria patients who sought follow-up in a health facility*	TBD	TBD	TBD	PhilMIS	Monthly	
3. On Vector Control						• Intervention of politicians/ influentials in
Outcome Indicator 1.7 *Proportion of population sleeping under LLIN*	TBD	TBD	TBD	Special survey	Annual	
Indicators	**Baseline 2009**	**Mid-Term 2013**	**End-Term 2016**	**Means of Verification**	**Frequency**	**Assumption and Risk**
Outcome Indicator 1.8 *Proportion of children below 5 y.o. who slept under LLIN the previous night*	TBD	TBD	TBD	Special survey	Annual	net distribution • Theft of LLIN • availability of baseline population data • availability of the trained spray man and logistics
Outcome Indicator 1.9 *Proportion of pregnant women who slept under the LLIN the previous night*	TBD	TBD	TBD	Special survey	Annual	
Outcome Indicator 1.10 *% population protected through IRS*	TBD	TBD	TBD	Spray-men's Report	Monthly	
Objective 2. To capacitate LGUs to own, manage and sustain the Malaria Program in their respective localities						Willingness/ commitment of LGUs to formulate strategic plan, allocate budget for MP and establish/ sustain coordination mechanisms
Outcome Indicator 2.1 *Proportion of areas with MP plan with corresponding local resources and functional coordination mechanism*	0	At least 80%	100%	Annual M & E report	Annually	
Objective 3. Sustain the financing of malaria program at all levels of operations						Political will of DOH leadership, national government oversight agencies and local executives to allocate budget for MP
Outcome Indicator 3.1 *Ratio of non-government to government funds for malaria decreased*	TBD	TBD	TBD	Special survey	Every 3 years	
Objective 4. Assure quality of anti-malaria operations						
Outcome Indicator 4.1 *Proportion of facilities with 100% of negative slides truly negative and positive slides truly positive*	TBD	TBD	TBD	MCP-Validators Report	Annual	Microscopists have undergone training
Outcome Indicator 4.2 *Proportion of confirmed cases given malaria treatment according to national guideline (c/o Objective 1)*	TBD	TBD	TBD	Survey	Annual	
Outcome Indicator 4.3 *Proportion of HHs applied with WHOPES - accredited and FDA-registered insecticide and LLIN and subjected bioassay and susceptibility test respectively in sentinel sites*	TBD	TBD	TBD	MCP Reports	Annual	Advocacy and IEC campaign conducted in the area

Note: *The baseline values and targets of the outcome indicators will be established upon conduct of surveys or installation of the MP reporting systems. The rest of the indicators (output, input and process) are still subject to on-going discussions among members of the M and E Task Force and in consultations with selected regional and local MP coordinators and M and E advisors*.

C. Key Strategies, Performance Indicators and Milestones

The following are the 10 key strategies to be pursued in order to achieve the 2011-2016 MP MDTP goal and objectives.

Objective	Key Strategy
Objective 1. *To ensure universal access to reliable diagnosis, highly effective and appropriate treatment and preventive measures*	**Strategy 1.1** *Level-up focal anti-malaria interventions in stable and unstable risk areas.* **Strategy 1.2** *Sustain provision of anti-malaria diagnostic, treatment and preventive measures in epidemic risk and malaria-free areas.* **Strategy 1.3** *Design and implement responsive interventions to identified high risk groups.* **Strategy 1.4** *Increase demand and support for anti-malaria services.*
Objective 2. *To capacitate LGUs to own, manage and sustain the Malaria Program in their respective localities*	**Strategy 2.1** *Institutionalize area stratification, zoning and planning towards elimination of the disease.* **Strategy 2.2** *Enhance malaria surveillance and response, monitoring and evaluation.* **Strategy 2.3** *Strengthen organizational support and coordination mechanism for malaria operations at all levels.*
Objective 3. *To sustain financing of anti-malaria efforts at all levels of operations*	**Strategy 3.1** *Secure government and non-government financial assistance in support to malaria elimination*
Objective 4. *To ensure a functioning quality assurance system for malaria operations*	**Strategy 4.1** *Strengthen QAS for anti-malaria diagnostic and treatment facilities.* **Strategy 4.2** *Improve quality of vector control measures.*

A total of 24 performance indicators are expected to be realized with the implementation of the above 10 strategies. These performance indicators guide the scope and type of actions to be carried out from 2011-2016.

Objective 1. *On Delivery of Anti-Malaria Services*

To achieve universal access to anti-malaria services, there is a need to scale up and focus the intervention to the 39 stable and unstable provinces and 9 chartered cities.

Strategy	Performance Indicators
Strategy 1.1 ***Level up focal interventions in stable and unstable risk areas***	***Performance Indicator 1.1.1*** ***At ≥ 80% of stratified barangays in the 39 provinces and 9 chartered cities with stable and unstable transmission received appropriate anti-malaria preventive, diagnosis, treatment and management services.*** ***Performance Indicator 1.1.2*** ***Referral network of public and private health facilities providing anti-malaria diagnostic and treatment services established and functional in the 39 provinces and 9 chartered cities with stable and unstable transmission.*** ***Performance Indicator 1.1.3*** ***Border operations undertaken in the 39 provinces and 9 chartered cities with stable and unstable transmission as appropriate.***

Strategy 1.1 calls for leveled-up implementation of anti-malaria services in the 39 provinces and 9 chartered cities which remained with stable and unstable transmission of the disease based on the stratification conducted in 2010. These areas are known to contribute to more than 95% of total cases nationwide, thereby necessitating the intensified delivery of comprehensive package of interventions which include (i) early diagnosis, (ii) prompt management and treatment and (iii) appropriate vector control measures such as distribution of LLINs, complementary indoor residual spraying of houses and use of personal protective measures by the population at risk. Universal access to these services also requires the reactivation and sustained operations of previously established microscopy centers and RDT sites especially in remote barangays, strengthening the capability of RHUs, health centers and hospitals on malaria case management and treatment, equipping them with appropriately trained staff, functional equipment, and adequate stock of anti-malarial commodities and supplies. Anti-malaria service coverage will be expanded by putting up more malaria drug outlets in strategically located provincial hospitals and mobilizing the participation of the private practitioners as providers of anti-malaria service themselves or making appropriate referrals. Support system in the delivery of anti-malaria services activities include the establishment of training institution/s to provide training to newly-hired/designated health personnel and/or provide technical updates or refresher courses to those who have been trained in the past. In addition, facility-based tracking/inventory of supplies/commodities and equipment are also basic to guarantee easy and timely access of said services.

Strategy 1.1 also highlights the need for each province/city to install, operate and sustain a functional referral system that links malaria cases coming in for diagnosis,

with appropriate management and treatment services, up to the completion of their follow-up smears. PCR will also be employed to address multi-drug resistant clients to P. *falciparum.* Cross-border operations will be organized to reach clients along the borders of each endemic province/city that are rarely visited and serviced by health providers.

The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 1.1

Strategy 1.1 *Level up focal interventions in stable and unstable risk areas*

Performance Indicator 1.1.1
At ≥ 80% of stratified barangays in the 39 provinces and 9 chartered cities with stable and unstable transmission received appropriate anti-malaria preventive, diagnosis, treatment and management services

Activities	2011	2012	2013	2014	2015	2016
1. Procure diagnostic, treatment and vector control commodities, equipment and supplies for operations of anti-malaria health facilities	X	X	X	X	X	X
2. Train staff on appropriate malaria courses and equip them with bench and ward aids on clinical protocols						
2.1 Malaria Diagnosis	X	X	X	X	X	X
2.2 Clinical Management of Malaria/ Basic Malaria Management, Malaria Elimination	X	X	X	X	X	X
2.3 Vector Control	X	X	X	X	X	X
3. Establish service delivery support systems						
3.1 Establish strategically-located anti-malaria drug distribution centers for 24/7 access			X			
3.2 Establish coordinating training centers on diagnosis, case management/treatment			X			
3.3 Design tracking system: malaria commodities (anti-malarial drugs, vector control commodities, lab supplies/ materials, malaria equipment and training		X				
4. Design and undertake operations research						
4.1 Conduct operations research on LLIN durability specifications		X				
4.2 Conduct study on combo RDT kit	X					
4.3 Conduct operations research on LLIN disposal in Palawan, Sulu, Tawi-Tawi)			X			
Performance Indicator 1.1.2 *Referral network of public and private health facilities providing anti-malaria diagnostic and treatment services established and functional in the 39 provinces and 9 chartered cities with stable and unstable transmission.*						
1. Develop referral protocol		X				
2. Orient CHDs and LGUs on referral guide		X	X			
3. Advocate with medical societies or other private professional groups		X				
4. Train private practitioners on modified malaria program management including updated anti-malaria treatment policy			X			
5. Orient other private health providers on the referral protocol			X			

Activities	2011	2012	2013	2014	2015	2016
Performance Indicator 1.1.3 *Border operations undertaken among the 39 provinces and 9 chartered cities with stable and unstable transmission as appropriate*						
1. Develop guidelines on border operations		X				
2. Orient CHDs/P/CHO on border operations		X				
3. Develop plan for border operations among concerned LGUs		X				
4. Organize border operations in identified provinces and chartered cities (every 1-2 years at least)		X		X		X

Strategy 1.2 demands that the same level of effort and attention be accorded to the other provinces and cities which still have sporadic transmission and those already classified as malaria-prone and malaria-free areas. As a stark contrast to past performance, this strategy will help to ensure that anti-malaria services are made accessible to all clients and community members even if their area is already malaria-prone or malaria-free.

Strategy	*Performance Indicator*
Strategy 1.2 ***Sustain provision of diagnostic, treatment and anti-malaria preventive measures in epidemic risk and malaria-free areas***	***Performance Indicator 1.2.1*** ***Malaria elimination hub established in all epidemic risk and malaria – free provinces and chartered cities.***

This calls for the establishment of a malaria elimination hub that will be responsible for overseeing and sustaining the malaria-free status of their respective provinces and cities. The elimination hub is expected to be managed by a team of local malaria personnel and other provincial/city health staff with expertise in malaria surveillance and response, an entomologist, a medical doctor trained in malaria case management and treatment, the existing malaria program coordinator and one person to be in-charge of health promotion. The number of elimination hubs to be established would vary depending on the endemic population size, geographical spread and location of endemic barangays and the accessibility for clients to these hubs.

Though early diagnosis and prompt management and treatment of cases will not be the prominent interventions to be carried out in these areas, the elimination hub will have to carry out a mix of interventions to prevent the re-introduction of the disease, which equally requires local government commitment, policy support and resources. Key interventions identified to be made available by the elimination hub include the following: (i) intensified malaria disease surveillance, (ii) pro-active vector surveillance, (iii) establishment of response mechanism in case there is an outbreak or epidemic such as stockpiling of necessary anti malarial drugs, insecticides and lab reagents, (iv) measures to modify the vector environment, (v) focused and intentional health promotion to prevent complacency among community members, (v) technical updating of knowledge and skills of service providers, and (vii) the institutionalization of appropriate policies and local ordinances to support and sustain malaria-free status in each area. Foremost to this is the installations and operations of a functional referral system to ensure that clients will have access to the abovementioned services.

The strategy requires that all declared malaria-free areas should be able to establish their respective elimination hubs by 2013. Provinces and cities which are currently classified as epidemic-risk and malaria-prone are also expected to do the same. The presence of the abovementioned elements of the elimination hub will be considered as additional criteria before declaring provinces and cities as malaria-free. The same elements should also guide the allocation and utilization of any grant assistance given by the DOH as a reward for recognition of those areas which have reached zero case in their locality.

The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 1.2:

Strategy 1.2 *Sustain provision of anti-malaria diagnostic, treatment and preventive measures in epidemic risk and malaria-free provinces and chartered cities*						
Performance Indicator 1.2.1 *Malaria elimination hub established in all epidemic risk and malaria free provinces and cities*						
Activity	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1. Establish elimination hub and provide elimination guidelines and SOPs						
1.1 Develop guide on the establishment and operations of elimination hub	X					
1.2 Orient CHDs and LGUs on the Elimination Hub Establishment guide		X				
1.3 Form the hubs:						
a. in the 18 epidemic-risk provinces and 2 chartered cities and 23 malaria free areas		X	X			
b. in the new 12 epidemic risk areas by 2013			X	X		
1.4 Organize consultative meeting of the hubs			X	X	X	X
1.5 Conduct regular hub meetings			X	X	X	X
2. Equip microscopy units of the elimination hub	X	X	X	X	X	X
3. Equip hub with anti-malarial drug stockpiles	X	X	X	X	X	X
4. Provide for vector control supplies						
4.1 insecticide		X	X			
4.2 spray cans/spare parts		X				
4.3 PPEs		X				
5. Conduct training	X	X	X	X	X	
6. Establish functional surveillance units		X				
7. Establish vector surveillance system		X	X	X		
8. Adopt IVM intervention measures as needed			X	X		
9. Formulate policy/ordinance to adopt national guide and other local needs to prevent re-introduction of infection		X	X	X	X	X
10. Conduct health promotion activities to improve awareness of population (e.g. IEC materials, tri-media, counseling, etc.)		X	X	X	X	X
11. Undertake advocacy activities to increase participation of stakeholders in sustaining malaria-free status in each province/city		X	X	X	X	X
12. Assess elimination progress and plan					X	X

Strategy 1.3 recognizes the need to tailor-fit intervention approaches and service package for populations with special needs and who are in extraordinary situations. These are the population groups where malaria prevalence is found to be high and may be quite difficult to reduce and control due to their peculiar characteristics and situation.

Strategy	Performance Indicator
Strategy 1.3 **Design and implement responsive interventions to identified high risk groups**	***Performance Indicator 1.3.1*** ***Malaria intervention package for 7 priority vulnerable groups with accompanying guides developed and implemented in ≥ 80% of the 39 provinces and 9 chartered cities with stable and unstable transmission.***

Seven population groups are identified for focused intervention in the next 6 years. These include: (i) the Indigenous Peoples (IPs) whose livelihood requires them to constantly move from one area to another; (ii) the military who are intermittently assigned and re-assigned for field operations, (iii) the Overseas Filipino Workers (OFWs) whose work destination may bring them to high malaria-endemic countries like the Middle East and Africa.,[11] (iv) the displaced communities as a result of war/armed conflict, military operations and occurrence of natural disasters, (v) communities that become sites of development projects that trigger movements of workers that would expose them to transmission of the disease, (vi) the tourist population that usually visits malaria-endemic tourist/travel destinations, and (vii) the forest workers whose occupation exposes them to malaria endemic areas. These population groups need to be reached through special and separate approaches much different from the traditional manner in which diagnosis, management and treatment are usually delivered.

In Strategy 1.3, in-depth analysis of the behaviours and characteristics of these special population groups and the design of responsive approaches to reach them with corresponding diagnosis and treatment services is essential. Guidelines on how to reach these groups will be determined through consultations with the concerned groups and stakeholders. High level advocacy with the different sectors (e.g. agriculture, military, industrial development corporations, etc.) to adopt the guidelines and support the program will also be pursued. As planned, the first two years will be dedicated to developing and piloting the approach and the package of interventions in selected areas before rolling them out to the rest of the country by mid-term.

The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 1.3

Strategy 1.3	*Establish and implement malaria program interventions among identified high risk groups*
Performance Indicator 1.3.1 *Malaria intervention package for 7 priority vulnerable groups with accompanying guides developed and implemented in at least 80% of the 39 provinces and 9 chartered cities with stable and unstable transmission.*	

[11] Based on the 2004 Regional Distribution of Land-based Overseas Filipino Workers, 50.0 of OFWs are deployed in the Middle east and 1.2% migrated to Africa for work, *The Philippines' Culture of Migration* by Maruja M.B. Asis Scalabrini Migration Center-Philippines, January 2006.

Activity	2011	2012	2013	2014	2015	2016
1. Develop guidelines on 7 pop groups at risk	X	X				
2. Document good practices in each pop group		X				
3. Conduct consultations with concerned agencies/ stakeholders		X				
4. Orient pilot areas on the policy/guide		X				
5. Pilot the implementation of the package of intervention and approaches		X				
6. Evaluate pilot and enhance policies and guides						
7. Expand to other areas starting 2013 in 25 provinces/ cities and another roll out in 2014 to the other 25 provinces/ cities			X	X	X	X

While the first three strategies center the action towards the enhancement and expansion of malaria service delivery (supply side), Strategy 1.4 focuses on the interventions for improving the knowledge and awareness of the clients themselves (demand side), and to advocate for the increased involvement and participation of the different groups of stakeholders in anti-malaria prevention and elimination efforts.

Strategy	Performance Indicator
Strategy 1.4 ***Increase demand and support for anti-malaria services.***	***Performance Indicator 1.4.1*** ***Awareness of the population and participation of various groups of stakeholders in anti-malaria prevention and elimination efforts improved as evidenced by:*** • ***% of population with correct knowledge on malaria signs and symptoms, mode of transmission and prevention measures*** • **% of identified groups of stakeholders at the national, regional and local levels participating in anti-malaria prevention and elimination efforts**

Given that access to services is not only a function of the service providers, several interventions must take place to improve the awareness of clients on malaria prevention and improve their compliance to diagnosis, treatment and follow-up protocols and use of preventive measures (e.g. LLINs, IRS, personal protection measures, etc.). A set of key messages appropriate to generate the desired behavior of clients living in the differently stratified communities must be effectively disseminated. Every effort to communicate and promote these desired behaviors should be identified and maximized. Hence the provinces and cities need to formulate their own Malaria Health Promotion Plan as a guide to implementing appropriately designed, innovative health promotion activities that would prompt timely access by clients to appropriate anti-malaria services.

On the other hand, Strategy 1.4 advocates and challenges the different groups of stakeholders to participate in the management and implementation of the MP. This entails the mobilization of development partners at the national, regional and local levels and campaign for the involvement of the private sector, NGOs and civil society. Forms of engagement or participation will be identified and appropriate advocacy materials will be developed. Existing advocacy events such as World Malaria Day will

be made more creative while other national events where anti-malaria advocacy will be identified and maximized.

Overall, this strategy begins with the development of a national Health Promotion Plan that is cognizant of the different needs of clients based in the different stratification areas. This national plan will be cascaded down to the regional health offices and the LGUs for their own adaptation as appropriate to their local situations.

The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 1.4

Strategy 1.4
Increase demand and support for anti- malaria services.

Performance Indicator 1.4.1
Awareness of the population and participation of various groups of stakeholders in anti-malaria prevention and elimination efforts improved as evidenced by:

- *% of population with correct knowledge on malaria signs and symptoms, mode of transmission and prevention measures*
- *% of identified stakeholders at the national, regional and local level participating in anti-malaria prevention and elimination efforts*

Activity	2011	2012	2013	2014	2015	2016
1. Conduct pre-KABP and post-KABP Survey		X				X
2. Develop MP-HPC Plan to enhance behaviour change by area of stratification		X				
3. Develop CHD and LGU MPHPC Plans		X				
4. Develop and produce IEC materials		X	X	X	X	X
5. Disseminate info through quad-media and innovative communication schemes (e.g. community and, school-based promotion, vulnerable groups-focused, etc.)		X	X	X	X	X
6. Advocate to LGUs to support MP elimination implementation		X	X	X	X	X
7. Train staff on social mobilization, advocacy and communication skills			X			
8. Conduct special events		X	X	X	X	X
9. Evaluate health promotion and communication activities and outcome		X		X		X
10. Disseminate results of evaluation/studies		X		X		X

Objective 2. ***On Malaria Program Governance***

In order to capacitate the LGUs to own and implement the Malaria Program in their respective localities, four (4) strategies will be implemented. The first strategy is to institutionalize the micro-stratification, macro-zoning and strategic planning processes at the local level.

Strategy	Performance Indicator
Strategy 2.1 **Institutionalize area stratification, macro-zoning and strategic planning towards the**	**Performance Indicator 2.1.1** ***Malaria transmission-based stratification per barangay completed and regularly updated every 3 years in all malaria endemic provinces and chartered cities.*** **Performance Indicator 2.1.2**

elimination of the disease	***100% of malaria endemic provinces and chartered cities formed into Malaria Disease Elimination Zones (MDEZ).*** **Performance Indicator 2.1.3** ***Overall assessment and validation criteria and process in declaring malaria-free areas and malaria-eliminated zones developed and applied accordingly to candidate provinces, chartered cities and zones respectively.*** **Performance Indicator 2.1.4** ***2012-2016 LGU Malaria Program Strategic Plans formulated in sync with the national program policy direction, strategic thrusts and funding priorities and integrated into their P/CIPH.***

Strategy 2.1 seeks to prepare the LGUs towards elimination of malaria in their respective localities. This necessitates the institutionalization of the area stratification process based on the rate of transmission beginning at the barangay proceeding up to the municipal, city and provincial level. The results of stratification and area classification are critical in determining the appropriate package of interventions that must be implemented in each area stratum. Health personnel at the province/city, municipal barangay levels will be oriented on the stratification process and are expected to observe and record malaria cases by barangay on a monthly basis and to classify/reclassify their overall LGU malaria status every three years.

Strategy 2.1 also initiates the establishment of malaria-disease elimination zones (MDZEs) throughout the country. Macro-zoning is seen to facilitate better management of elimination efforts among contiguous endemic areas. It becomes the unit for declaring malaria eliminated zones after each individual province/city has been declared malaria-free. Each MDEZ is to be declared malaria-eliminated zones only if the individual provinces/cities belonging to the zone are malaria-free based on serologic testing. For this purpose complementary malaria serological tests will be applied to validate malaria-free status of different malaria foci among contiguous LGU zones[12] that may be highly isolated from each other. Guidelines and criteria will be developed as basis in mapping and clustering contiguous regions/provinces/cities into MDZEs while the protocols in performing serological tests in a given zone will be established as reference in assessing and validating malaria-disease eliminated zones.

Efforts will be exerted to design an incentive scheme to encourage and recognize provinces and cities declared as individual malaria-free areas, and at the same time as members of the MDZEs. While the incentives may come in different forms and amounts their utilization must be aligned with the essential elements necessary to sustain their malaria-free or malaria-eliminated status.

Lastly, a fundamental tool to help provinces and cities effectively and efficiently manage MP implementation in their respective areas is the formulation of their own Strategic Elimination Plans over the next 5 years. These plans will be based on the results of their micro-stratification and assessment of their peculiar needs and situation. For this purpose, a series of MP Strategic Planning workshops will be conducted in each region with participation of PHO/CHO staff and heads of their respective endemic

[12] WHO (2007) elimination manual emphasizes the continued high quality surveillance net. If this is not adequate, there is no need for serology; however if surveillance is not adequate, then serology is not a good substitute.

municipalities. These MP Strategic Plans are expected to be integrated to the LGUs' P/C/MIPH or into their Annual Operational Plans.

The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 2.1

Strategy 2.1 I*nstitutionalize stratification, zoning and planning at the local level towards malaria elimination*						
Performance Indicator 2.1.1 *Malaria transmission-based stratification per barangay completed and regularly updated every 3 years in all malaria endemic provinces and chartered cities.*						
Activity	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1. Orient/re-orient local health staff and program/project officers on stratification guide and analysis	X					
2. Update micro-stratification in 2013 and 2016			X			X
Performance Indicator 2.1.2 *100% of malaria endemic provinces and chartered cities formed into Malaria Disease Elimination Zones (MDEZ).*						
1. Develop criteria and guide on macro-stratification of malaria-endemic areas into malaria disease elimination zones		X	X			
2. Map-out and establish malaria disease elimination zones based on criteria		X				
3. Undertake joint zonal activities (e.g. planning, PIR, border operations, etc.)				X	X	X
Performance Indicator 2.1.3 *Overall assessment and validation criteria and process in declaring malaria-free areas and malaria-eliminated zones developed and applied accordingly to candidate provinces/cities and zones respectively.*						
Activity	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1. Enhance protocol and guide in assessing and declaring malaria-free areas	X					
2. Validate potential malaria free areas			X			X
3. Develop criteria and guide in declaring malaria disease elimination zones		X				
4. Develop serologic testing capability of 4 regional collaborating centers			X			
5. Actual validation of malaria-free areas in a given zone through serologic test			X			X
6. Design and implement incentive/ reward program for provinces/cities declared MFA and malaria eliminated zones		X				
7. Orient provinces/cities on guide/ criteria in assessing awards/ recognition scheme		X				
8. Provide corresponding incentive/ awards		X	X			
Performance Indicator 2.1.4 *2012-2016 LGU Malaria Program Strategic Plans formulated in sync with the national program policy direction, strategic thrusts and funding priorities and integrated into their P/CMIPH*						
1. Develop guidelines and design for 2012-2016 Regional and Local Malaria Program Plans	X					

2. Conduct Strategic Planning Workshop in all endemic provinces and cities	X					

Strategy 2.2 aims to capacitate the LGUs to achieve malaria elimination by establishing and sustaining their respective malaria disease surveillance system designed to generate timely and accurate information crucial in tracking their progress towards elimination. A functional malaria disease surveillance system is essential in both the stable and unstable risk provinces and cities. Installation and running of the surveillance system in the epidemic-risk, malaria-prone and malaria-free areas is also of equal importance.

Strategy	Performance Indicator
Strategy 2.2 **Enhance malaria surveillance and response, monitoring and evaluation system**	**Performance Indicator 2.2.1** ***Malaria Program Monitoring and Evaluation Plan, Guide and Tool developed and disseminated.*** **Performance Indicator 2.2.2** ***Malaria Program status tracked through the routine malaria information system at the national level and in all regions and malaria-endemic provinces and cities.*** **Performance Indicator 2.2.3** ***Periodic special surveys designed and completed with results disseminated and utilized.*** **Performance Indicator 2.2.4** ***Each region, province and chartered city monitored at least once a year.***

Strategy 2.2 begins with the formulation of an overall Malaria Program Monitoring and Evaluation (M and E) Plan that defines the core indicators and targets to be achieved by the national Malaria Program and by each individual endemic province/city. The M and E Plan will be accompanied by a guide and set of tools for use by the MP managers and implementers at various levels.

Existing routine data bases as sources of malaria-related information for surveillance will be strengthened. These include the timely accomplishment and submission by the LGUs of the Philippine Integrated Disease Surveillance and Response (PIDSR), particularly the Notifiable Disease Report (which reports on a weekly basis deaths and cases of malaria), and harmonization of the Philippine Malaria Information System (PhilMIS) and the Field Health Service Information System (FHSIS) as sources of information on service coverage and utilization. These routine data systems will be strengthened in each province, city, municipality and barangay for effective surveillance of malaria. Information that cannot be sourced from the routine data bases will be collected through special surveys and studies. The MP-MTDP for 2011-2016 will secure funding for these surveys and aims that a proper design, execution and adequate dissemination of results will be done for maximum use in decision making and charting program thrust and directions.

Efforts will be exerted to enhance the monitoring of other components of the MP. These include service delivery processes, governance, financing and regulatory measures which are not collected through the routine data bases. An integrated Malaria

Program Monitoring Guide and Tool will be developed for field and facility monitoring with accompanying standard MP Reporting Form to ensure systematic reporting of non-routine data from municipal/city/province to regional and national DOH. Along this line, M and E teams will be organized at the national level and in each region and province/city. Joint monitoring by external and local groups of stakeholders is also encouraged for wider coverage and integrated effort. The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 2.2.

Strategy 2.2 *Enhance malaria surveillance and response, monitoring and evaluation system.*						
Performance Indicator 2.2.1 *Malaria Program Monitoring and Evaluation Framework, Guide and Tool developed and disseminated.*						
Milestones/Activities	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1. Organize M and E Task Force and conduct regular meeting	X	X	X	X	X	X
2.Formulate Malaria Program M and E Plan						
3. Develop M and E Guideline and Tools	X					
4. Orient LGUs and other offices concerned on Malaria M and E Plan		X				
5. Organize annual technical conference to disseminate M and E results		X	X	X	X	X
Performance Indicator 2.2.2 *Malaria Program status tracked through the routine malaria information system at the national level and in all regions and malaria-endemic provinces and chartered cities.*						
1. Assess and enhance PhilMIS						
1.1 Assess system by stakeholders (forms, software, SOG)	X					
1.2 Revise and pilot test forms and SOG	X					
Milestones/Activities	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1.3 Enhance PhilMIS software	X					
1.4 Develop referral guide (to include protocol on reporting and recording)	X					
1.5. Develop data system monitoring checklist	X					
2. Orient areas with existing PhilMIS, new areas and the 11 chartered cities		X				
3. Consultative meeting malaria free and epidemic-risk and malaria-free provinces		X				
4. Implement revised forms, SOG and software to include data entry		X				
5. Disseminate results (PhilMIS,PIDSR, FHSIS)	X	X	X	X	X	X
6. PIDSR						
6.1 Establish new PESUs	X					
6.2 Strengthen 8 partially functional PESUs	X	X				
7. Train staff on data management		X				
8. Document best practices on data management			X			X
. System maintenance						
9.1 Monitor functionality of system (forms, process flow, data management, data quality audit, TNA, logistics and manpower)		X	X	X	X	X
9.2. Maintain PhilMIS vector control forms and shift to PIDSR for malaria free LGUs		X	X	X	X	X
Performance Indicator 2.2.3 *Periodic special surveys designed and completed with results disseminated and utilized.*						

1. Design and undertake special surveys						
1.1 Bed Net Utilization	X	X	X	X	X	X
1.2 Vector Surveillance Mapping		X	X	X	X	X
1.3 Facility Survey on diagnosis and treatment protocols		X	X	X	X	X
1.4 Multiple Indicator Cluster Survey- Malaria		X				X
1.5 Other Operations research		X		X		X
2. Midterm and End Term Evaluation			X			X
3. Institutionalize GIS		X	X			
4. Organize periodic dissemination forum to share results of completed researches/studies			X	X	X	X
5. Conduct Spacial Distribution Net Mapping		X	X			
6. Conduct PCR (for treatment failures)		X	X	X	X	X
Performance Indicator 2.2.4 *Each region, province and chartered city monitored at least once a year.*						
1. Consultative meeting to review/assess current M and E field monitoring scheme and develop field monitoring guide	X					
2. TOT on the M and E Tools and Guide		X				
3. Roll out training						
4. Conduct monitoring by National DOH		X	X	X	X	X
5. Conduct monitoring by Regional DOH		X	X	X	X	X
6. Conduct monitoring by PHO/CHO		X	X	X	X	X
7. Conduct PIR		X	X	X	X	X

Strategy 2.3 embarks on harmonizing and strengthening the organizational structure and coordination mechanisms to support anti-malaria operations at all levels. This strategy is critical in supporting the LGUs to take the lead in the implementation and management of the Malaria Program in their respective localities.

Strategy	Performance Indicator
Strategy 2.3 **Strengthen organizational support and coordination mechanism for malaria operations at all levels**	**Performance Indicator 2.3.1** ***At ≥ 80% of provinces and chartered cities with program policy issuance, designated staff and budget allocation in support to malaria prevention and/or elimination*** **Performance Indicator 2.3.2** ***Supervisory guide adopted and implemented in at least 80% of the malaria service health facilities*** **Performance Indicator 2.3.3** ***Coordination mechanism of program and project efforts and resources established and functional at the national and regional levels and in ≥ 80% of LGUs levels.*** **Performance Indicator 2.3.4** ***Multi-sectoral stakeholders involvement in malaria program expanded at the national and regional levels and in at ≥ LGUs***

One major concern to be dealt with by this strategy is the harmonization of CHDs' roles and functions vis-à-vis the provinces and cities in the actual implementation of the program. The MP-MDTP recommends a thorough assessment and documentation of the peculiar staffing set-up and coordination arrangements

existing between the different regions and provinces/cities. This will serve as the springboard for charting a CHD-LGU Staff Function Transition Plan where LGUs begin to gradually take over the lead in the implementation and management of MP in their area. Accompanying this plan is a Staff Retooling Plan which is highly essential as each area moves towards elimination.

Strategy 2.3 also supports the strengthening of the supervisory system at the local level by developing a simple, easy-to-use supervisory guide and tool for use by designated supervisors in the provinces/ILHZs and municipal/city levels. The malaria supervision system is hoped to assist the LGU health managers and supervisors to ensure the compliance of their staff to diagnosis, management and treatment protocols, and in the proper administration of vector control interventions such as IRS and LLIN distribution and use.

Strengthening coordination across levels of operations and within each administrative level is critical to empowering the LGUs in owning the Malaria Program. The MP-MDTP will support the enhancement of coordination mechanisms that would pave the way for more regular consultations and wider participation of key players in the Malaria Program. Periodic consultative meetings at all levels will be organized and supported. Technical updates, program reviews and sharing of good practices will be the dominating themes of these inter-level consultations. The participation of non-health sectors will be further mobilized and expanded. A thorough inventory of these key players will be conducted and high advocacy will be pursued to garner their support. Coordination of external projects of assistance and provision of technical and financial assistance from development partners will also be pursued to avoid any overlap of resources or missing out on assistance coverage.

The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 2.2.

Strategy 2.3 *Strengthen organizational support and coordination mechanism for malaria operations at all levels*						
Performance Indicator 2.3.1 *At ≥ 80% of provinces and chartered cities with policy issuance, designated staff and budget allocation in support to malaria prevention and/or elimination*						
Milestones/Activities	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1. Develop phase-in/phase-out (transition) plan for LGU-led MP implementation		X				
2. Advocate among LGUs to adopt staff transition plan		X				
3. Conduct actual advocacy/consultation and joint transition planning with concerned regions and :LGUs			X	X		
4. Train/Retool of LGU personnel involved in malaria program implementation.		X	X	X	X	X
Performance Indicator 2.3.2 *Supervisory guide adopted and implemented in at least 80% of the malaria service health facilities*						
1. Develop post-training supervision guideline and tool for facility staff on diagnosis, treatment and vector control		X				
2. Pilot implementation of supervisory guideline and tool			X			
3. Expand supervision initiative to other areas				X	X	X
4. Develop /enhance staff incentive scheme and				X	X	X

recognize staff performance						
Performance Indicator 2.3.3 *Coordination mechanism of program and project efforts and resources established and functional at the national and regional levels and in ≥ 80% of LGUs levels.*						
1. Establish and regular meetings of Task Forces		X	X	X	X	X
2. Strengthen regional coordination of malaria-related efforts		X	X	X	X	X
3. Conduct regular provincial/city/municipal coordination meetings		X	X	X	X	X
Performance Indicator 2.3.4 *Multi-sectoral stakeholders involvement in malaria program expanded at the national and regional levels and in at ≥ LGUs*						
1. Strengthen performance of PhilMAM	X	X	X	X	X	X
2. Conduct inventory of LGU and Regon-based NGOs and institutions		X				
3. Advocate for participation/support						
4. Conduct regular meetings of CHDs with NGOs and other development partners		X	X	X	X	X

Objective 3. *On Financing the Malaria Program*

To achieve Objective 3 which is to secure financing to sustain malaria operations at all levels, the capability of the national and local governments on resource mobilization and management will be developed. It is also imperative to narrow the gap between external (non-government) and government financing of the malaria program. This can be done by increasing the budget allocation from the national and local governments to sustain malaria operations while maintaining at least the existing level of external funds to finance the investment requirements for the elimination of the disease.

Strategy	Performance Indicator
Strategy 3.1 ***Secure government and non-government financial assistance in support to malaria elimination.***	**Performance Indicator 3.1.1** ***Capability of national and local governments to mobilize and manage malaria program resources improved.*** **Performance Indicator 3.1.2** ***National and local government funds to support and sustain malaria operations increased.*** **Performance Indicator 3.1.3** ***External funds (non-government funds) to finance investment requirements for malaria elimination mobilized.***

MP stakeholders must be guided with a financial investment road map that estimates the amount of investment to be raised, identifies the investment sources, defines the scheme, determines how these investments will be allocated, and specifies technical and administrative requirements to be met. The MP-MDTP will support the preparation of a Malaria Financing Investment Plan that will guide national and local governments in securing the necessary financing for malaria elimination in the country. The series of strategic planning workshops in each endemic province and city is expected to provide the initial foundation for a long-term, holistic investment planning for malaria elimination. Part of the equipping process is the development of a cost-sharing mechanism between the national and local government units including external

fund sources in financing the malaria elimination requirements of each LGU. This cost-sharing mechanism will spell out the cost items the LGUs should finance vis-à-vis those that will be taken up by the national government or external funding sources (e.g. GF, RBM, etc.). Advocacy will be undertaken among LCEs to adopt the cost-sharing scheme. Their adherence to the scheme including the development partners and externally-assisted projects will be monitored. Joint planning-budgeting session will be organized among the DOH, RBM and GF management to harmonize specific funding scope and coverage. LGUs interested in mobilizing additional resources from external sources will also be given training on project proposal development, advocacy and negotiation skills. A list of possible local and international donors for the Malaria Program will be prepared and updated.

Series of advocacy activities will be carried out to increase the national and local government budget allocation for MP. PhilHealth reimbursement through the participation and accreditation of health facilities to certain benefit packages aside from the Malaria Outpatient Benefit Package is another option to raise funds for the highly endemic areas. The installation of local financing schemes (e.g. LLIN revolving fund, etc.) will also be explored in each endemic province or city. Epidemic-risk and malaria-free areas will be assisted to generate funds from the national government through grant assistance from the DOH or other funding sources in addition to their local government contributions. Given that MP implementation in stable and unstable areas is highly dependent on external sources with a finite life-span, coupled with very limited contribution from their LGUs, it is imperative for the national government in partnership with the LGUs to mobilize external funds (both local and international) to support large investment cost items for elimination in these areas. The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 3.1.

Strategy 3.1 *Secure government and non-government financial assistance in support to malaria elimination.*						
Performance Indicator 3.1.1 *Capability of national and local governments to mobilize and manage MP resources improved.*						
Milestones/Activities	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1. Prepare overall Financial Investment Plan to support elimination of the disease.		X				
2. Orient LGUs on the overall Financing Investment Plan		X				
3. Advocate for approval of financing plan/ scheme by local officials			X			
4. Develop cost-sharing scheme between national and local governments in the elimination efforts	X					
5. Orient development partners to adopt the cost-sharing mechanism.		X				
6. Conduct joint planning workshop for GF, RBM DOH and LGUs		X	X	X	X	X
7. Train LGUs on project proposal development		X	X	X		
Performance Indicator 3.1.2 *National and local government funds to support and sustain malaria operations increased.*						
1. Formulate policy and guide for provision of DOH Malaria grant assistance and orient epidemic-risk, MPA and MFA on the guide		X				
2. Advocate among LGUs to increase budget allocation for malaria prevention/elimination		X				
3. Advocate among oversight agencies to increase if not sustain national government		X				

allocation for malaria program						
4. Promote PhilHealth enrolment and facility accreditation to Malaria Outpatient Benefit Package in stable/unstable provinces/cities		X		X		
5. Develop financing mechanism to sustain operations of 4 Zonal Giemsa Centers		X				
Performance Indicator 3.1.3 *External funds (non-government) to finance investment requirements for malaria elimination mobilized.*						
1. Prepare proposals for GF, RBM, other donors		X		X		
2. Advocacy among local-based NGOs, development partners and corporations		X	X	X	X	X
3. Conduct donors meeting			X	X	X	
4. Explore and establish local financing schemes (e.g. cost-recovery scheme for LLIN/IRS intervention)		X				

Objective 4. *On Quality Assurance of Anti-Malarial Services*

The aim of Objective 4 which is to establish functional quality assurance systems for malaria operations is highly critical to the elimination of malaria. It is the product of a well-designed and strictly implemented quality assurance processes that cover the delivery of diagnostic services (both RDT and microscopy services), management and treatment, and provision of preventive measures (use of LLIN and IRS). Quality assurance also entails periodic testing of the efficacy of the interventions, regular validation of procedures as performed by the different health care providers and the close monitoring of service providers' adherence to DOH-recommended standards and protocols.

Strategy 4.1 ensures that all facilities providing malaria diagnostic and treatment services must be subject to the QAS process and protocols to ensure the quality of services given to clients. Every facility therefore that provides malaria diagnostic and treatment services must be equipped to participate in the QAS.

Strategy	Performance Indicator
Strategy 4.1 ***Strengthen QAS for anti-malaria diagnostic and treatment facilities.***	**Performance Indicator 4.1.1** ***All facilities providing anti-malaria diagnostic services are covered and participating in the QAS.*** **Performance Indicator 4.1.2** ***All facilities are using DOH-recommended anti-malarial drugs and supplies.***

For microscopy services, the DOH has already developed and installed the three-level QAS in various health facilities nationwide. Its adoption however must be scaled up to include the rest of the facilities. The validation process should be strengthened through a more reasonable ratio of validator to microscopists and the regular conduct of validation visits to concerned microscopy centers. In addition, the QAS for diagnosis services must also be strengthened on the use of RDTs. Research efforts will continue to be undertaken to identify a more effective RDT product.

Malaria treatment is also expected to be of high quality. Key measures to ensure quality anti-malarial drugs include the adherence of any procuring office to the DOH-recommended anti-malarial drugs contained in the DOH AO No. 2009 - 0001. Regular testing of lot/batch of every procured anti-malarial drug assures quality of the product prior to distribution to the different facilities nationwide.

On the other hand, health care providers, especially in both public and private hospitals must be oriented on the treatment protocols for proper compliance to treatment regimen. Campaigns against pilferage and repacking or relabeling of these DOH-procured anti-malarial drugs and reselling them in the local market must also be undertaken in collaboration with the DOH-FDA and local authorities. In conjunction with these efforts, the MP-MDTP will continue to support and conduct treatment efficacy studies which are undertaken by RITM every two years. Based on the results of these studies, the AO on Anti-Malarial Treatment will be upgraded every 5 years.
The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 4.1.

Performance Indicator 4.1.1 *All facilities providing malaria diagnostic services are covered and participating in the QAS.*						
Milestones/Activities	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1. Monitor functionality of malaria laboratory units including quality of RDT under storage.	X	X	X	X	X	X
2. Orient and advocate all malaria microscopy centers to participate in the QAS	X	X	X	X		
3. Procure additional panel of slides for validation		X	X	X	X	X
4, Submit slides for validation	X	X	X	X	X	X
5. Conduct validation visits at various levels	X	X	X	X	X	X
6. Train medtechs/ microscopists as QAS validators		X	X	X	X	X
7. External Competency Certification Training for National Core Trainers		X			X	
Performance Indicator 4.1.2 *All facilities are using DOH-recommended anti-malarial drugs and supplies*						
1. Conduct therapeutic efficacy studies in designated sentinel sites every 2 years		X	X	X	X	X
2. Update malaria treatment guide based on result of efficacy studies			X			X
3. Establish reporting system of any deviations/ violation at local level re procurement or use of DOH-recommended anti-malaria drugs		X				
4. Orient FDA personnel on acceptable list of malarial drugs and advocate integration in their regular monitoring at the local level			X		X	
5. Orient local authorities on acceptable anti-malaria drugs and other commodities			X		X	
6. Advocate among local health personnel re participation in adoption and involvement in enforcing quality anti-malarial drugs and other commodities			X		X	
7. Conduct PCR in selected MDR areas		X	X	X	X	X

Strategy 4.2 requires that quality assurance system is also established for vector control interventions. These include tracking the quality of ITNs/LLINs used and the quality of the IRS conducted on households. In addition, the quality of insecticides being used in the treatment/re-treatment of mosquito nets and used in the IRS must also be regularly monitored or tested. Part of this strategy is also to monitor local deviations in the procurement or use of non-WHOPES recommended and FDA accredited insecticides at the local market. It must be noted that most LGUs do procure their own insecticides for IRS as indicated in their PIPH.

Strategy 4.2 ***Improve quality of vector control measures***	**Performance Indicator 4.2.1** ***Quality of ITN/LLIN and house spraying in stable and unstable risk areas tracked.*** **Performance Indicator 4.2.2** ***Susceptibility tests using WHO standard test kit conducted every 2 years in all designated sentinel sites.***

Built-in quality assurance mechanism on vector control measures is the regular conduct of bioassay tests on used LLIN and susceptibility tests on the insecticide used in spraying houses or treatment of ITNs. The same tests will be supported over the next 6 years but with a purposive monitoring mechanism if said tests are actually undertaken on a regular basis. Part of the QAS effort will be to promote the WHOPES-approved insecticides at the local level and to strengthen the coordination with the DOH-DFA personnel in tracking any deviation in the use of said insecticides. Foremost is to monitor if the implementation of IRS follows the recommended protocol in the Malaria Program Manual of Operations.

The following outlines the action points to be undertaken to achieve each of the performance indicator under Strategy 4.2.

Strategy 4.2 *Improve quality of vector control measures.*						
Performance Indicator 4.2.1 *Quality of ITN/LLIN and house spraying in stable and unstable risk areas tracked.*						
Milestones/Activities	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1. Conduct bioassay tests on used ITN/LLIN	X	X	X	X	X	X
2. Conduct bioassay test on IRS	X	X	X	X	X	X
3, Operations research-LLIN Durability	X	X	X	X	X	X
Performance Indicator 4.2.2 *Susceptibility tests of insecticides using WHO standard test kit conducted every 2 years in all designated sentinel sites.*						
1. Conduct insecticide susceptibility testing		X	X			
2. Perform Insecticide Quality Protein Test			X	X	X	X
3. Promote list of WHOPES approved-FDA recommended insecticide to LGUs.		X				X
4. Orient FDA personnel on WHOPES-approved and FDA- recommended insecticides and sound management of pesticides of public health importance		X				X

5. Establish reporting system of any deviation/ violation found at local level relative to procurement and use of non-WHOPES-approved and DOH-FDA recommended insecticide products	X					
6. Monitor IRS application in selected areas		X	X	X	X	X

VI. Investment Requirement

An estimated amount of 4.6 billion pesos is required to finance the 2011-2016 MP-MDTP. As summarized below, highest investment is needed to cut down the transmission of the disease in the 39 stable and unstable provinces and 9 chartered cities in the form of commodities, supplies, and equipment and training. A substantial amount is also required to finance the establishment of elimination hubs in the epidemic-risk and malaria free areas. Increasing the demand for and support to anti-malarial services through health promotion and advocacy including capacitating the LGUs to management and implement anti-malarial services in their respective localities also demand substantial resources. Please refer to Annex 5 for the more detailed breakdown of the budgetary requirement.

Table 6. Estimated Amount of Budgetary Requirements for the 2011-2016 MP-MDTP

Objective/Strategy	2011	2012	2013	2014	2015	2016	Total
Objective 1. ***To ensure universal access to reliable diagnosis, highly effective and appropriate treatment and preventive measures***	426.0	589.9	924.6	491.0	661.0	753.4	3,845.8
Strategy 1.1 *Level up focal interventions in stable and unstable risk areas*	399.9	430.7	278.7	392.1	571.8	654.8	2,728.0
Strategy 1.2 *Sustain provision of diagnostic, treatment and anti-malaria preventive measures in epidemic risk and malaria-free provinces and chartered cities*	9.8	84.0	611.2	69.2	52.1	59.7	886.1
Strategy 1.3 *Establish and implement malaria program interventions among identified high risk groups*	0.0	12.8	9.9	6.6	0.0	0.0	29.3
Strategy 1.4 *Increase demand and support for anti-malaria prevention, diagnosis and treatment services*	16.3	52.3	24.9	23.0	37.2	38.8	202.5
Objective 2. *To capacitate the LGUs to own, manage and sustain the Malaria Program in their respective localities*	68.1	115.9	108.7	79.4	66.7	117.7	556.4
Strategy 2. 1 *Institutionalize stratification, zoning and planning at the local level towards malaria elimination*	20.2	18.5	31.0	4.0	3.0	40.3	117.0
Strategy 2.2 *Enhance malaria surveillance and response, monitoring and evaluation system*	27.5	66.9	47.9	46.8	36.8	51.3	277.2
Strategy 2.3 *Strengthen organizational support and coordination mechanism for malaria operations at all levels*	20.4	30.4	29.8	28.6	26.9	26.1	162.2
Objective 3. *To sustain financing of anti-malaria efforts at all levels of operations*	2.1	8.7	12.1	10.3	9.1	0.3	42.7
Strategy 3.1 *Secure government and non-government financial assistance in support to malaria elimination.*	2.1	8.7	12.1	10.3	9.1	0.3	42.7
Objective 4. *To ensure a functioning quality assurance system for malaria operations*	19.5	31.5	18.7	17.6	31.5	15.9	134.6

Strategy 4.1 *Strengthen QAS for diagnostic and treatment service facilities*	15.5	27.1	16.0	15.1	29.0	13.2	115.9
Strategy 4.2 *Improve quality of vector control measures*	3.9	4.4	2.7	2.5	2.5	2.7	18.7
Grand Total	515.7	745.9	1,064.0	598.3	768.3	887.3	4,579.5

VII. Implementation Arrangements

The 2011-2016 MP-MDTP will be implemented in a concerted effort among national, regional and local groups of stakeholders. The cooperation of other development partners and the malaria program donor community will be harnessed to ensure efficient and effective implementation of the plan. A team of consultants will be hired to assist the DOH and the LGUs in the development or formulation of technical assistance guides and tools. Existing members of the Technical Working Groups established at the national and local levels will be mobilized to coordinate the implementation of the 2011-2016 MP-MDTP.

At the National Level. At the national level, the National Center for Disease Prevention and Control (NCDPC), particularly the Infectious Disease Office (IDO) will take the lead in coordinating the overall implementation of the plan. A full-time, organic technical staff in the IDO will be designated as the National Malaria Program Coordinator and will be responsible in managing all GOP-funded and foreign-funded activities to ensure that all resources and assistance being allotted will be efficiently and effectively utilized according to the approved MP-MDTP. To further enhance the coordination of malaria-elimination efforts and ensure technical quality and relevance of activities and efforts, a National Technical Working Group (TWG) will be created to assist in the overall management of the Malaria Program. This TWG will be composed of technical staff from IDO, RITM, National Center for Health Promotion (NCHP), National Epidemiology Center NEC) and development partners to include the UP-College of Public Health, Act-Malaria, Pilipinas Shell Foundation Incorporated (PSFI) with advisor/s from WHO. Sub-Committees will also be formed to manage the following MP components: (1) Governance (which includes policy, program planning and review, financing and regulations), (2) Operations Research, (3) Health Promotion; (4) Diagnosis and Treatment, (5) Vector Control, and (6) Monitoring and Evaluation. The overall function of these sub-committees is to ensure the relevance, technical soundness and effectiveness of malaria-related programs and activities. Closer coordination will also be fostered among existing committees on GF (CCM, TWG-GF, etc.) for better harmonization of efforts and to maximize available resources.

At the Regional Level. The Regional Malaria Program Coordinators (RMPCs) in each CHD will be responsible for coordinating all regional level activities towards malaria elimination. Said coordinators are expected to coordinate with other CHD offices and personnel involved in the Malaria Program particularly the regional entomologists, medical technologist, the health education and promotion officers (HEPO), the regional epidemiology surveillance unit (RESU) and other officers concerned. The RMPCs will be mandated to oversee both GOP-funded and externally funded malaria activities within their region and ensure that resources and activities are synchronized to effect better malaria outcomes. As required in the MP-MDTP, each CHD is encouraged to establish a multi-sectoral coordination group to encourage non-DOH development partners and those in the private sector to participate and become involved in malaria elimination.

At the Local Level. The LGUs will take the lead in the provision of anti-malaria services to their catchment population. The existing coordination committees currently established in the different provinces through the efforts of the Global Funds will be expanded to cover malaria program-wide concerns. Their agenda should not be limited only to GF-funded activities but to include all malaria program-related concerns, whether these are funded by the DOH, GF, RBM, etc.

The LGUs are expected to implement the following to operationalize the national/regional activities in support to the above strategy.

A. On Service Delivery

A.1 Delivery of Anti-Malaria Services in Stable and Unstable Areas

1. Implement Prevention Measures
   - 1.1 Conduct inventory of ITN/LLIN distribution, re/treatment, replacement or disposal
   - 1.2 Distribute ITN/LLIN based on updated inventory
   - 1.3 Monitor use of LLIN/ITN by community members
   - 1.4 Ensure proper disposal of nets
   - 1.5 Conduct IRS as appropriate
   - 1.6 Undertake environmental modification measures (as applicable)

2. Provision of Diagnosis Services
   - 2.1 Assess functionality and adequacy of BMMCs and RDT sites
   - 2.2 Reactivate microscopy centers/BMMCs/RDT sites with trained staff and commodities

3. Provision of Treatment and Management Services
   - 3.1 Equip BMMCs, RHUs with anti-malaria drugs and trained staff
   - 3.2 Provide hospitals with anti-malaria drugs
   - 3.3 Operate hospitals as expanded outlets for anti-malarial drugs (in selected areas)

4. Establishment and Maintain Logistics Management System
   - 4.1 Orient designated supply officer on malaria supply management
   - 4.2 Forecast/estimate requirements
   - 4.3 Procure lab reagents/supplies
   - 4.4 Operate and maintain additional anti0malarial drug distribution centers
   - 4.5 Conduct integrated inventory of microscopes and lab supplies annually
   - 4.6 Track anti-malarial-drugs stock out by facility
   - 4.7 Track ITN/LLINs maintenance, re-treatment/ treatment or replacement
   - 4.8 Continuous supply of ITN/LLINs in all MCH and EPI clinics

5. Establishment and Operations of the Referral System
   - 5.Assess existing capacity of private health facilities in delivering anti-malaria services
   - 5.2 Advocate with professional society groups and other concerned organizations
   - 5.3 Identify public/private health facility staff to attend appropriate malaria training courses on malaria diagnosis and malaria case management and treatment
   - 5.4 Organize regular consultation/meeting among members of the referral network

6. Conduct of Cross-Border Operations
   - 6.1 Designate staff and/or organize border operations team in Most At Risk Populations (MARP)
   - 6.2 Map out areas requiring border operations in each province and chartered city
   - 6.3 Attend border operations consultative meeting and planning
   - 6.4 Mobilize local team for border operations in MARP areas
   - 6.5 Mobilize commodities, equipment and necessary supplies for border operations

6.6 Conduct border operations
6.7 Document process and results of border operations

A.2 Service Delivery in Epidemic- Risk and Malaria-Free Areas

1. Map diagnostic centers, management and treatment facilities for referral services and establish malaria elimination hub
2. Establish functional surveillance and response units for case surveillance by designating P/C/MESU officer and staff, training on PIDSR and provision of forms
3. Establish functional surveillance and response units for vector surveillance
3. Perform case investigation as needed
4. Regular zero reporting through PIDSR
5. Map breeding sites and conduct entomological investigations during outbreaks
6. Formulate ordinance as appropriate to adopt national guide and or support local needs to prevent re-introduction of infection
7. Implement health promotion - c/o Item on increasing demand
8. Maintain stock piles of anti-malaria drugs and insecticides
9. Undertake serology with zero reported indigenous case in past 5 years and in areas with high quality surveillance

A.3 On Service Delivery for High-Risk Population Groups

1. Advocate re adoption of package among identified LGUs
2. Map out presence, magnitude and location of vulnerable groups per LGU
3. Orient health staff and other local offices on the recommended package of intervention.
4. Implement intervention package as needed to identified vulnerable groups

A.4 On Increasing Demand and Support for Malaria Program

1. Localize Communication Plan.
2. Reproduce IEC materials.
3. Integrate counseling on malaria prevention at service delivery points.
4. Implement innovative health promotion approaches (e.g. school in the air, community-based promo schemes, etc.).
5. Mobilize community members to seek consultations at the health center once signs and symptoms occur.
6. Conduct house to house visit of clients that do not return for follow-up check-up.
7. Organize/participate in advocacy campaign in support to malaria elimination
8. Participate in the evaluation or conduct of operations research/surveys.

B. On Malaria Program Governance

B.1 Area Stratification, Macro-Zoning and Planning

1. <u>Stratification by Barangay</u>
   1.1 Classify barangays according to level of risk or pattern of transmission
   1.2 Summarize stratification of endemic barangays and submit summary to the next level of administration
   1.3 Monitor and analyze pattern of transmission every month
   1.4 Update stratification of barangays every 3 years

2. <u>Establishment of Malaria Disease Zones</u>
   2.1 Organize MDEZ technical working group to coordinate zonal activities
   2.2 Conduct regular zonal consultative meetings
   2.3 Undertake joint review and planning for elimination as a zone
   2.4 Mobilize and pool resources (finance, manpower) for elimination
   2.5 Conduct border operations within zones
   2.6 Monitor elimination progress and status among member LGUs

3. Validation and Declaration of Malaria-Free Areas and Malaria-Disease Free Zones
   3.1 Request evaluation as malaria-free areas or as zone
   3.2 Maintain malaria records for 5 years and provide to CHD/IDO for validation
   3.3 Develop plan of action to sustain malaria-free status (c/o Item on planning)

4. Planning for Elimination
   4.1 Conduct Malaria Elimination Strategic Planning Workshop by province with municipalities and in chartered cities with development partners
   4.2 Integrate provincial/city Malaria Elimination Plan into the P/CIPH
   4.3 Formulate annual Work and Financial Plans at all levels
   4.4 Monitor implementation of plan at municipal/barangay levels
   4.5 Conduct joint annual program review at various levels: national with CHDs, CHDs with provinces and chartered cities, and province with municipalities and component cities

B.2 On Malaria Monitoring and Evaluation

1. On Disease Surveillance and Response
   1.1 Establish functional surveillance and response units in stable and unstable provinces
      a. designate PESU/MESU/CESU officer and staff
      b. training on PIDSR
      c. provision of forms
   1.2 Establish functional surveillance and response units both for case and vector surveillance in epidemic-risk and malaria-free provinces (c/o Item 1.2)
   1.3 Implement malaria surveillance activities as appropriate: MBS, ACD, fever reporting, etc.
   1.4 Prepare annual accomplishment reports
   1.5 Undertake local technical conferences

2. On Routine Data Bases
   2.1 Collect, consolidate and analyze FHSIS data on malaria and submit consolidated reports to higher administrative levels
   2.2 Collect, consolidate and analyze PIDSR malaria data and submit to higher level of administration (in epidemic-risk and malaria-free provinces and chartered cities
   2,3 Collect, consolidate and analyze PhilMIS data and submit reports to higher administrative levels (in stable and unstable provinces and chartered cities)

3. Conduct of Surveys and Special Studies
   3.1 Participate in the special surveys as needed
   3.2 Attend technical conferences organized to disseminate results

4. Malaria Program Component Monitoring
   4.1 Organize PHO-DOH-Rep M and E Team in each province/city
   4.2 Attend orientation/training on Malaria Program Component Monitoring Tool
   4.3 Accomplish Malaria Program Reporting Forms, analyze and submit according to protocol
   4.4 Conduct monitoring visits to municipal/barangays
   4.5 Prepare M and E report and disseminate results to concerned stakeholders

B.3 On Organizational Support and Coordination

1. Harmonization of CHD-PHO/CHO Malaria Staffing and Tasks
   1.1 Develop Transition Plan
   1.2 Absorb/hire project staff or CHD field workers (as appropriate)

2. Supervision
   2.1 Designate provincial/city/municipal malaria program supervisors
   2.2 Attend training on the Malaria Program Supervisory Tool
   2.3 Prepare supervisory plan and conduct supervisory visits and give feedback
   2.4 Implement recommended actions based on results of supervision
3. Intra and Inter-Level Coordination
   3.1 Establish provincial/city malaria program coordinating team
   3.2 Conduct quarterly coordination meeting
4. Expand multi-sectoral collaboration
   4.1 Inventory local government offices, local-based NGOs and development partners with related work on malaria program
   4.2 Conduct organizational meetings.

C. On Financing the Malaria Program
C.1 On Capability-Building on Resource Mobilization and Management

1. On Financial Investment Plan
   1.1 Review national investment plan for malaria prevention/elimination
   1.2 Prepare local investment plan using the national investment template and guide and based on the strategic plan formulated by area.
   1.3 Incorporate investment estimates for malaria elimination into the P/CIPH or annual operational plan.

2. On Cost-Sharing Scheme
   2.1 Participate in the design of cost-sharing mechanism for malaria elimination in their respective localities.
   2.2 Orient and consult municipalities/component cities re their contributions to malaria cost-sharing.
   2.3 Prepare local malaria program strategic/annual operational reflecting cost-sharing agreement.
   2.4 Identify local needs and requirements to be supported by non-government funds according to agreed-upon cost-sharing scheme.
   2.5 Reflect allocation and use of non-government funds in Strategic/Operational Plans and integrate into the P/CIPH.
   2.6 Utilize external funds for items identified in agreed-upon cost sharing scheme
   2.7 Monitor national level compliance to agreed-upon cost sharing mechanism.

C.2 On Mobilization of Resources

1. On Mobilization of Local Resources
   1.1 Advocate for inclusion and/or increase of LGU budget for malaria elimination
   1.2 Mobilize additional resources from locally-based NGOs and companies, private companies, development partners and other institutions for anti-malaria prevention
   1.3 Attend training on project proposal development and advocacy skills training
   1.4 Identify potential donors

2. Mobilization of Resources for Stable and Unstable Risk Areas
   2.1 Participate in the PhilHealth Benefit Packages
   2.2 Meet accreditation requirements of PhilHealth Outpatient Benefit Package
   2.3 Enroll constituents to PhilHealth
   2.4 Promote benefits of PhilHealth accreditation among HHs
   2.4 Access external funds by submitting project proposals
   2.5 Meet requirements of external projects/donors

3. Mobilization of Resources for Epidemic Risk and Malaria Free Areas
   3.1 Meet requirements to avail DOH grant assistance (epidemic-risk/malaria-free;
   3.2 Mobilize other local sources of funds e.g. tourism earnings, project development companies, etc.
   3.3 Advocate from the provincial/municipal governments and barangays support for the establishment and operationalization of the elimination hubs.

D. On Malaria Program Regulations - Quality Assurance

D.1 QAS of Diagnostic Services

1. Establish/reactivate diagnostic centers (BMMCs, etc.)
   1.1 Hire medical technologist or designate microscopist in the BMMC, RHU
   1.2 Send medical technologists/microscopists to training
   1.3 Establish lab work area for malaria microscopy
   1.4 Provide/procure laboratory reagents and other supplies

2. Participate in the QAS
   2.1 Reproduce validation forms
   2.2 Implement appropriate validation scheme based on protocol
   2.3 Conduct validation according to protocol (if validators)
   2.4 Maintain and store microscopes and QAS slides properly

D.2 QAS of Anti-Malarial Treatment

2.1 Procure only anti-malarial drugs listed in the PNDF
2.2 Participate in the therapeutic efficacy studies
2.3 Prescribe anti-malarial drugs recommended by DOH and follow protocol
2.4 Report to DOH/FDA the presence of any anti-malarial drugs not recommended by DOH or those that are mislabeled and repacked

D.3 QAS of Vector Control Measures

1. Use of LLIN
   1.1 Participate in the conduct of bioassay test
   1.2 Procure new ITNs/LLINs or re-treat nets as needed
2. Use of Insecticide
   2.1 Procure only WHOPES-approved and FDA recommended insecticide
   2.2 Report to DOH any deviation on procurement/use of insecticide

Annexes

Annex 1

Assessment of the Malaria Control Program (2002-2009)

I. Introduction

As the DOH strives to establish malaria disease free-zones (DFZ) in the country, an assessment of the MCP performance in the past 8 years was undertaken to serve as springboard for charting the subsequent course of action to be pursued in the next 6 years. The first half of this decade is a critical period as the country's commitment to the Millennium Development Goals (MDGs), particularly the halting and reversal of malaria situation (Goal No. 6) nears its evaluation in 2015. It is also the period for accelerated performance to achieve the vision of a malaria-free Philippines by 2020.

A. Objectives of the Assessment

The results of the assessment will guide the formulation of the Malaria Program Medium Term Development Plan (MP-MTDP) for 2011-2016. Specifically, it aims to:

(1) establish the performance of the MCP according to the goals, objectives and targets set for 2005-2010;
(2) identify the factors that influenced the achievement and non-achievement of desired results; and
(3) identify program areas for priority action and enhancement in the next 6 years.

B. The Assessment Framework

The Health Sector Reform Framework guided the assessment of the MCP. The interplay of key players in the health sector at various levels of administration is seen to influence the intermediate and final outcome of the MCP as laid out in the 2005-2010 DOH- NOH. These include malaria morbidity and mortality reduction as well as the sustenance of the malaria-free status of identified provinces. These outcomes are believed to be directly affected by the utilization of quality anti-malarial services, which encompass diagnosis and treatment, use of insecticide-treated nets (ITNs) and conduct of indoor residual spraying (IRS) as needed. The assessment also considered factors that contributed to the utilization of anti-malarial services: both the provider actions (supply side) in the public and private sector and the corresponding actions of the consumers (demand side). LGU governance of MCP in their respective localities formed a major part of the assessment framework. DOH's contributions both from the national and regional levels, its allied agencies (e.g. PhilHealth) and that of development partners particularly the Global Funds (GF) and Roll Back Malaria (RBM) Partnership are significant components of the review as they influenced the dynamics between the providers and consumers in each LGU. The assessment of these influencing factors followed the four (4) pillars of the health sector reform, namely: service delivery, governance, financing and regulations.

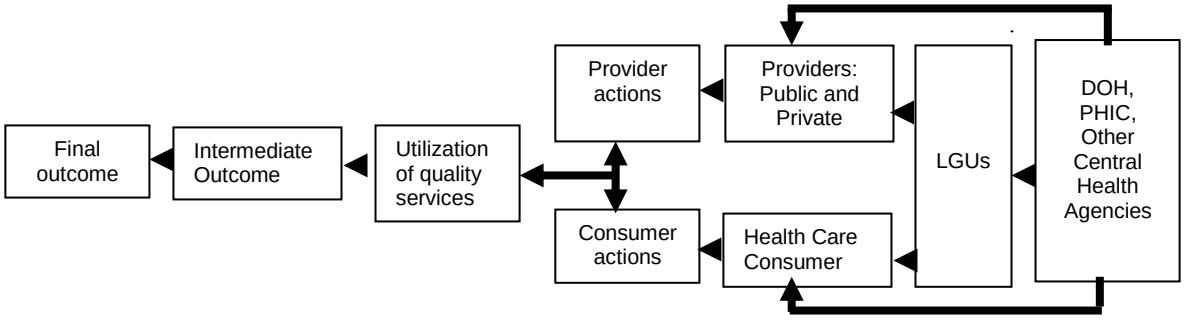


Figure 1. Health Sector Reform Framework

Summarized below are the goal, objectives, targets and strategic thrusts set by DOH in its 2005-2010 NOH for MCP. Initial validation of data however pointed out some baseline values erroneously indicated and these are now replaced with the recomputed values.

Table 1. MCP Goal, Objectives and Strategies, 2005-2010 DOH-NOH

Goal: *To eliminate malaria as a public health problem in all endemic provinces and maintain malaria-free status of 13 provinces*		
Objectives:	**Baseline**	**2010 Target**
(1) *Reduce malaria morbidity by at least 70% in 26 Cat. A provinces*	50.3/100,000 population (FHSIS, 2002)	15.1/100,000 population or less
Corrected Value	**227.6/100,000 population (2002 FHSIS)[13]**	**68.3/100,000 population**
(2) *Reduce malaria mortality by at least 50% in 26 Cat. A provinces*	0.11/100,000 population (PHS, 2002)	0.05/100,000 population or less
Corrected Value	**1.1/100,000 population (PHS, 2002)[14]**	**0.55/100,000 population or less**
(3.a) *Reduce malaria morbidity in Cat. B and C provinces by ≤ 50%*	5.1 morbidity cases/ 100,000 population (2003 NCDPC Report)	2.6 morbidity cases/ 100,000 population or less
Corrected Value	**9.5/100,000 pop (2002 FHSIS)[15]**	**4.8/100,000 population or less**
(3.b) *Reduce malaria mortality in Cat. B and C provinces by ≤ 50%*	.07 deaths/100,000 pop (2003 NCDPC Report)	0.04 deaths/ 100,000 population or less
Corrected Value	**0.18/100,000 pop (PHS 2002)[16]**	**0.05/100,000 pop or less**
(4) *Achieve malaria-free status in more provinces*	13 malaria-free provinces (2004 DOH Adm. Report)	18 provinces (13 retain and 5 new areas)
(5) *Reduce the transmission of malaria in general population* • *Proportion of population in malaria-risk areas using ITN* • *Proportion of children under 5 years old sleeping under ITN*	No data	
Strategic Thrusts: • Ensure the availability of anti-malaria drugs to endemic areas through centralized procurement and distribution • Promote early diagnosis, management and referral of malaria cases and improved forecasting of stock outs • Promote effective and regular use of ITNs including universal coverage • Plan and implement malaria control measures with specific target population groups • Mobilize LGUs and community resources for malaria surveillance in areas where malaria has been eliminated and case detection and management in 26 Cat. A provinces		

[13] Malaria Morbidity Rate in the 26 Category A Provinces, 2002 FHSIS: 33,759 cases/14,832,908 pop X 100,000 pop = 227.6

[14] Malaria Mortality Rate in the 26 Category A Provinces, 2002 PHS: 171 deaths/15,382,498 pop X 1,000,000 pop = 1.1

[15] Malaria Morbidity Rate in the 22 Category B and 18 Category C Provinces, 2002 FHSIS: 3,541 cases/37,168,620 X 100,000 pop = 9.5

[16] Malaria Mortality Rate in the 22 Category B and 18 Category C Provinces, 2002 PHS: 67/ 36,498,213 X 100,000 pop = .18

C. Assessment Methodology

The MCP assessment entailed a review of secondary data, consultations with various groups of stakeholders at the national, regional and local levels. Meetings were held with members of the Technical Working Group (TWG) created for the formulation of the MP-MTDP for 2011-2016. The Advisory Group provided overall direction in the assessment and the formulation of the MP-MTDP. All regional and selected provincial MCP Coordinators representing were participants during consultations. Review of secondary data covered the results of KAP Survey series and Bed Net Utilization Surveys, external evaluations of GF/RBM implementation, annual accomplishment reports, routine reports from FHSIS, PhilMIS, PHS and MCP Reports, documentation of program implementation reviews, component assessment, policy issuances and other administrative documents. It also made use of observations obtained during the joint monitoring of Malaria Program conducted by WHO, IDO and other development partners in selected provinces last February to March 2011.

II. Understanding the Malaria as a Disease

Malaria is a disease caused by one or more species of the protozoan parasite called *Plasmodium* which is usually transmitted through the infective bite of a female *Anopheles* mosquito, and rarely through blood transfusion and sharing of contaminated needles and syringes. As a disease, it can cause irreversible damages and could result to deaths if not promptly detected and properly treated.[17] Malaria is the most common and most persistent mosquito-borne infection in the country. Several species of malaria parasites in the Philippines abound, namely: *P. falciparum*, *P. vivax, P. malariae* and *P. ovale*. A fifth plasmodium species, *P. knowalesi* was identified in the Province of Palawan in 2006.

Malaria infection usually thrives in rural, hilly or mountainous, and hard to reach areas. Disease transmission is perennial and generally higher during the rainy season. High-risk groups consist of upland subsistence farmers, forest workers, indigenous people (IPs) and settlers in frontier areas and migrant agricultural workers. Malaria also significantly affects children under 5 years old due to lack of acquired immunity. In areas with high malaria transmission, most severe malarial cases and deaths occur in infants and young children. Pregnant women are also considered high risk of malaria. In stable transmission areas, malaria-related anemia in the mother and the presence of parasites in the placenta result in low birth weight infants, contributing substantially to deaths among children.

III. Magnitude of the Malaria Problem

A. Global Burden of Malaria

In 2000, malaria caused about 350-500 M clinical episodes annually and resulted in over 1 M deaths globally.[18] There are 109 endemic malaria-countries worldwide that pose as many as 3.3 B people at risk to the infection. Two thirds (67%) of the at-risk population are in Asia. Forty seven (47) countries, one of which is the Philippines, have a smaller share of global deaths and cases. Twenty seven (27) countries currently have very low malaria burden level and are in various stages of

[17] Malaria Program Manual of Operations, 2010
[18] The Global Malaria Action Plan, Roll Back Malaria Partnership, 2008.

elimination. The Philippines is considered along with other Asian countries that account for about 4% of malaria cases along with India, Myanmar, Bangladesh and Papua New Guinea.[19]

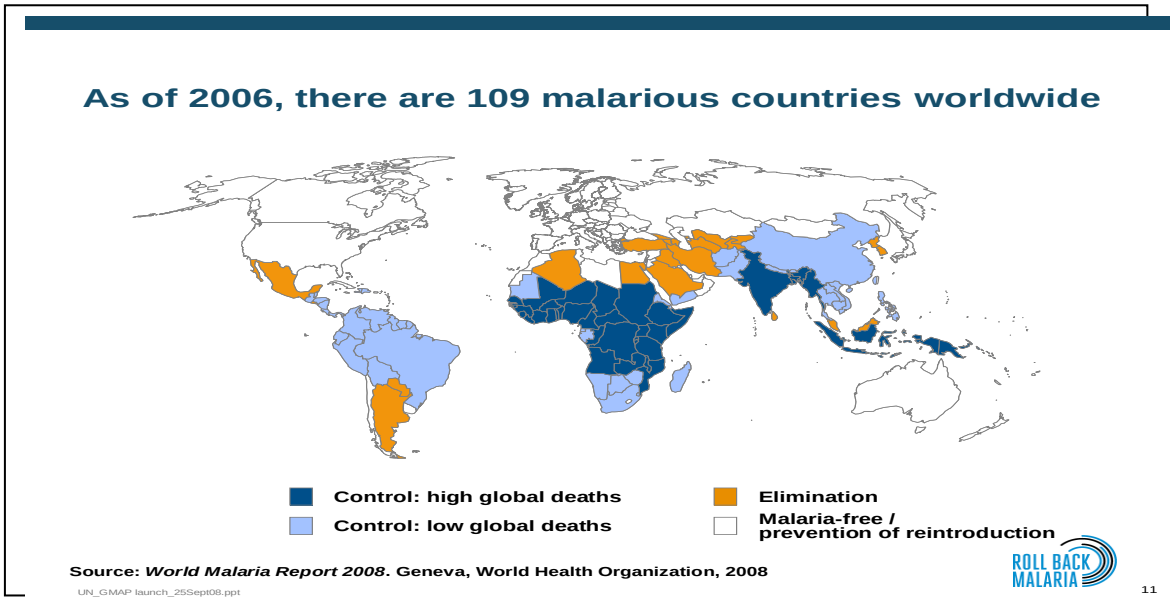


Figure 2: Global Distribution of Malaria

In addition to its death toll, malaria also places a heavy burden on the economic well-being of population in endemic countries. In Africa, it has been estimated that malaria costs about $ 12 B dollars in direct losses due to illness, treatment, premature death, etc. notwithstanding losses in the region's economic growth. As a disease, it has perpetuated the continuing cycle of poverty among the people affected and their families. In the Philippines, malaria had a moderate effect on the quality of life of confirmed cases, affected mostly by physical symptoms, followed by functional deficiencies. Least impact of the disease was on the social well-being which confirms that malaria is not a totally stigmatizing disease. It is estimated that malaria costs the country a total of P221.6 M in lost wages, and diagnosis and treatment costs. Use of ITNs can prevent the loss of P136.4M, focal spraying can prevent a little over P94 M while early diagnosis and treatment can prevent around P8.2 M in wage losses, curative and diagnostic expenses.[20]

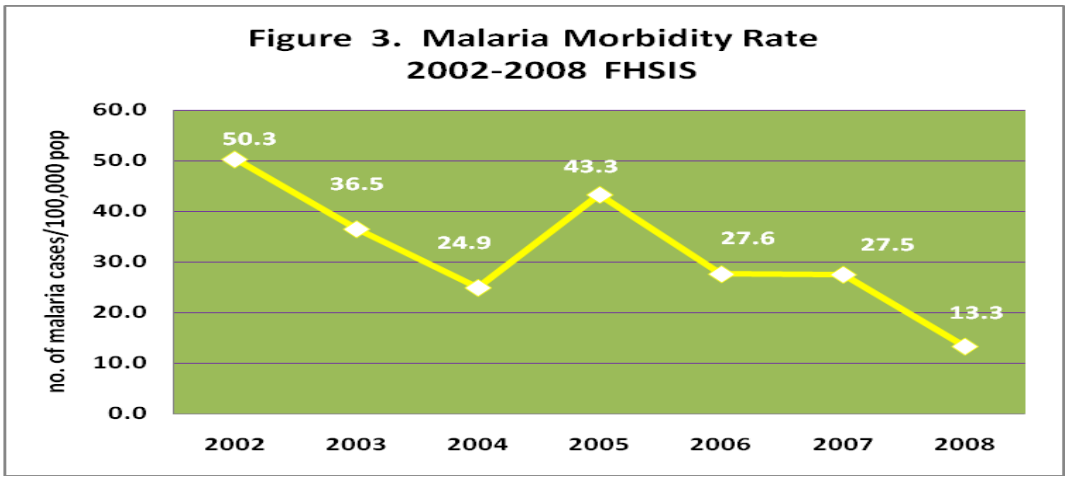
B. Malaria Situation in the Philippines

Although malaria has been delisted from the top 10 leading causes of morbidity in the country beginning 2008[21], it remains a public health problem that continues to threaten the lives of about 12.0 M Filipinos in the 58 malaria endemic provinces. It has also ceased to be listed as one of the top ten leading causes of deaths beginning 1996. As of 2008, there are 23,655 cases and 58 deaths that were reported (2008 MCP Reports).

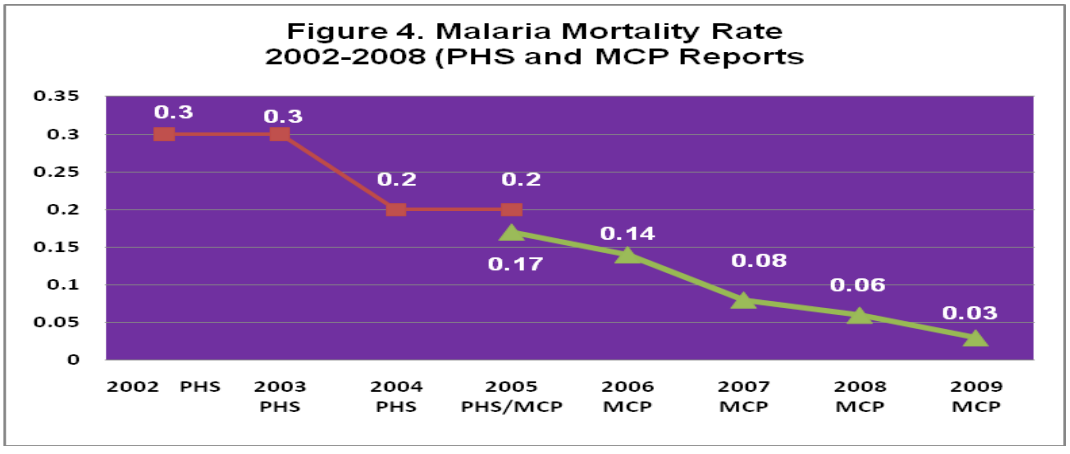
[19] The Philippines Malaria Program Manual of Operations, 2010
[20] Malaria Burden of Diseases and Quality of Life Study in Palawan, University of the Philippines – College of Public Health, 2004
[21] 2008 Annual Accomplishment Report – Field Health Service Information system

B.1 Overall Malaria Morbidity and Mortality, 2002-2008

Malaria Morbidity. From 2002 to 2008, malaria morbidity rate showed a significant decrease by three fourths (73.6%), with an average reduction of 10.5/100,000 pop per annum (see Fig. 3). Malaria morbidity was reduced by half from 2002 to 2004, but there was an upsurge in the following year (2005) owing to the expanded network of diagnostic service outlets established nationwide which covered catchment areas down to the remotest barangays. Continuous decline ensued from 2005 to 2008 - a promising indication that the country will most likely achieve MDG No. 6 of halting and reversing the malaria situation in the country by 2015.



Malaria Mortality. Overall, malaria mortality also decreased significantly by four-fifths (80.0%) from 2002 to 2009 (see Fig. 4). Philippine Health Statistics (PHS) data from 2002 to 2005 showed that malaria mortality began to decrease slightly in 2004 and maintained the same level until 2005. It showed a steady decline from 2005 to 2009 based on the 2005-2009 MCP Reports. Malaria mortality rate declined more markedly at an average of 11.4/100,000 pop per annum compared to malaria morbidity over the same period.



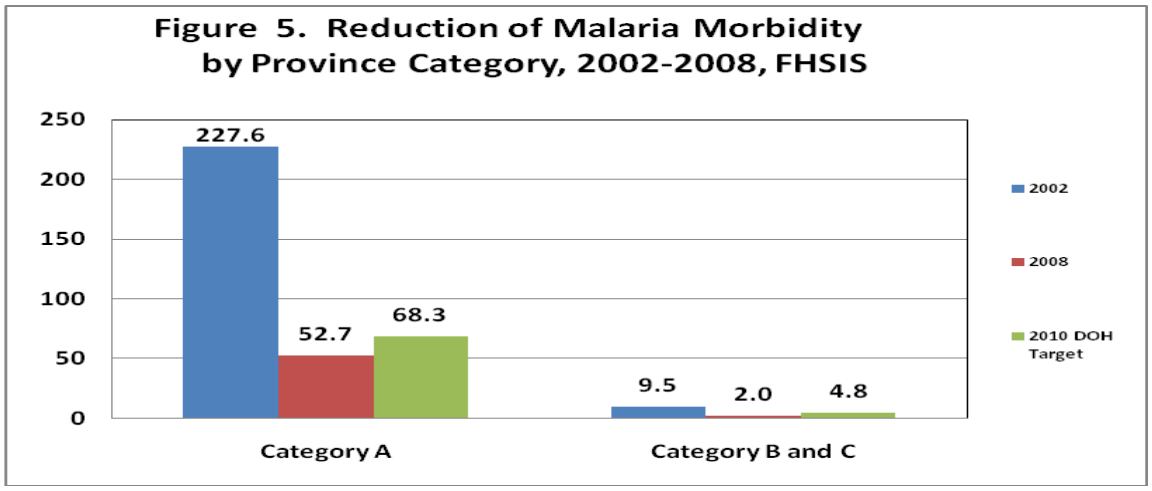
The significant decline has been attributed to early diagnosis and prompt treatment brought about by the expanded outlets of diagnostic services, training of health staff and availability of anti-malarial drugs in most of the health facilities and at the periphery.

B.2 Malaria Morbidity and Mortality Reduction by Category of Provinces Vis-à-vis 2005-2010 NOH Targets

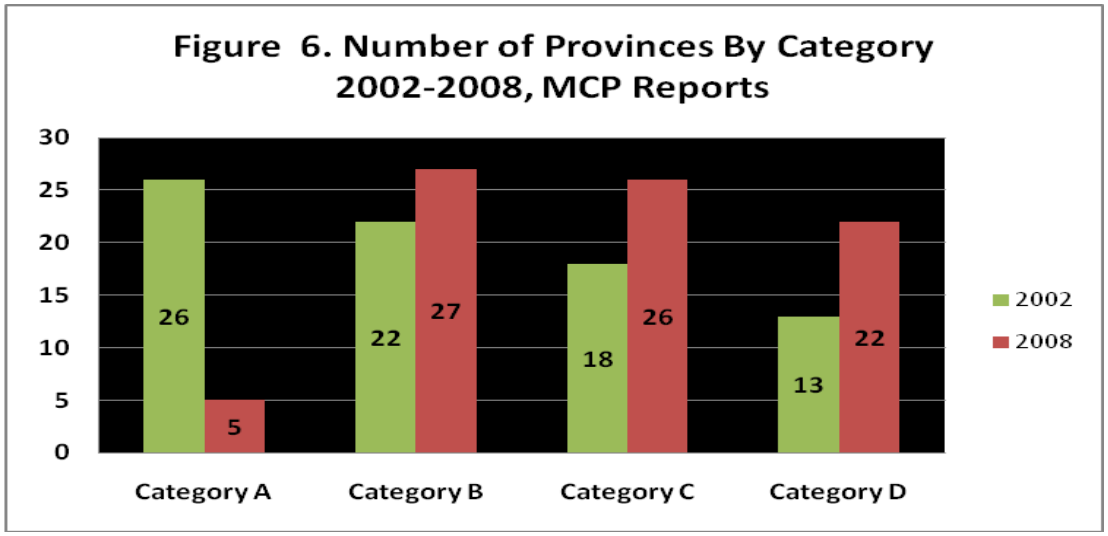
The 2002 and 2008 FHSIS data were used to assess the achievement of the goal and targets on morbidity reduction by category of provinces while the reduction of malaria mortality was computed using the 2002 PHS and 2009 MCP Reports. Malaria cases of component cities were analyzed as part of the provincial data to which they belong while those of chartered cities were separated being under different administrative jurisdictions.

B.2.1 Reduction of Malaria Morbidity by Category of Provinces

In general, all categories of provinces achieved the respective malaria morbidity reduction targets two years ahead of the 2010 schedule (see Fig.5). From 2002 to 2008, malaria morbidity decreased, on the average, in Category A provinces by more than three fourths (76.8%) and by four-fifths (78.9%) in Category B and C areas, exceeding the targets set at 70% and 50% respectively.

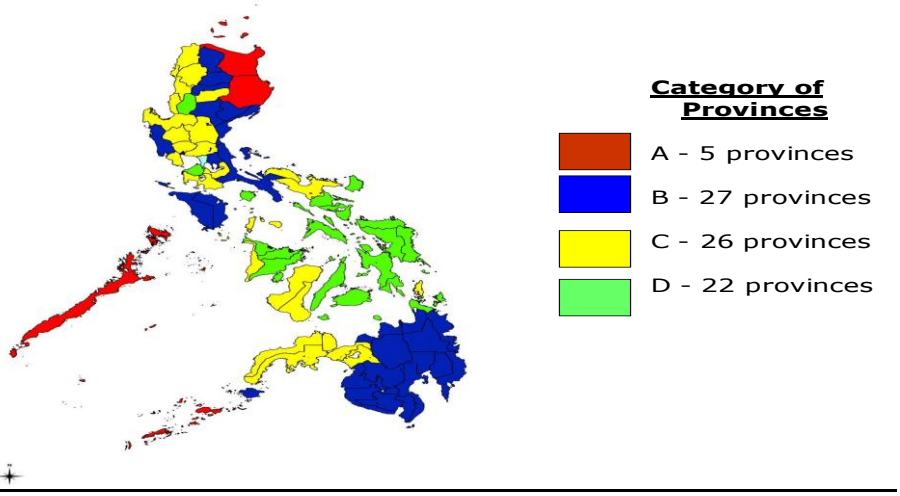


All the 13 formerly classified Category D provinces were able to sustain their malaria-free status. Nine (9) additional areas were declared malaria-free as of 2009 exceeding the 18 malaria-free provinces targeted for 2010 (see Fig. 6). Another 4 areas (Batangas, Camarines Sur, Batanes and Dinagat Province) are candidates for validation by 2015.



In sum, there are now only 5 provinces classified as highly endemic (Category A) which include: Palawan, Tawi-Tawi, Sulu, Cagayan and Isabela, 27 moderately endemic (Category B), 26 low-endemic and 22 malaria-free provinces in the country (see Fig. 7). Refer to Appendix 1 for the listing of provinces by category. It has been estimated that the 29 endemic provinces in Luzon accounts largely (60.4%) for the total malaria cases in the country. The 26 malaria endemic provinces in Mindanao contribute about 39.5% while the 3 malaria endemic provinces in Visayas contribute only 0.1% of total cases nationwide. The geographic spread of malaria endemicity is shown in Fig. 7 below.

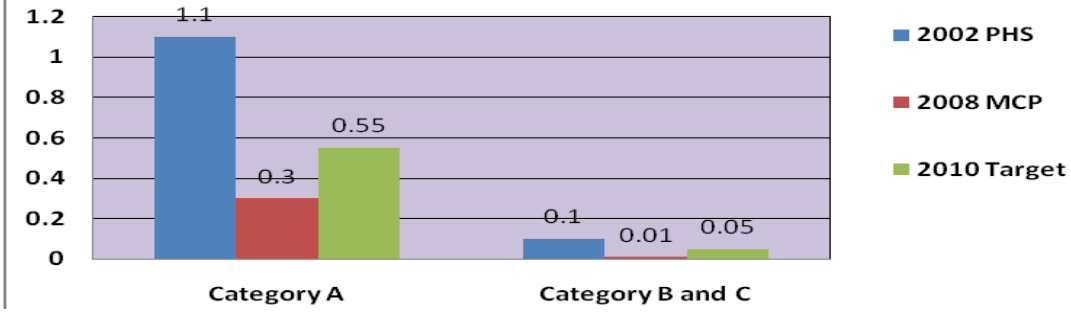
Figure 7. Geographical Distribution of Malaria Cases, Average (2003 – 2008), Philippines



B.2.2 Reduction of Malaria Mortality by Category of Provinces

Mortality due to malaria decreased by almost three fourths (72.3%) from 2002 (PHS) to 2008 (MCP Reports) among Category A Provinces (see Fig. 8). Malaria mortality reduction among Category B and C provinces is more pronounced at 90.0% over the same period. All categories of provinces surpassed the 50% mortality reduction target.

Figure 8. Malaria Mortality Reduction 2002-2008 (PHS and MCP Reports)



Not all provinces in each category met the desired reduction targets. Category A provinces achieved the desired targets the least despite being recipients of GF/RBM

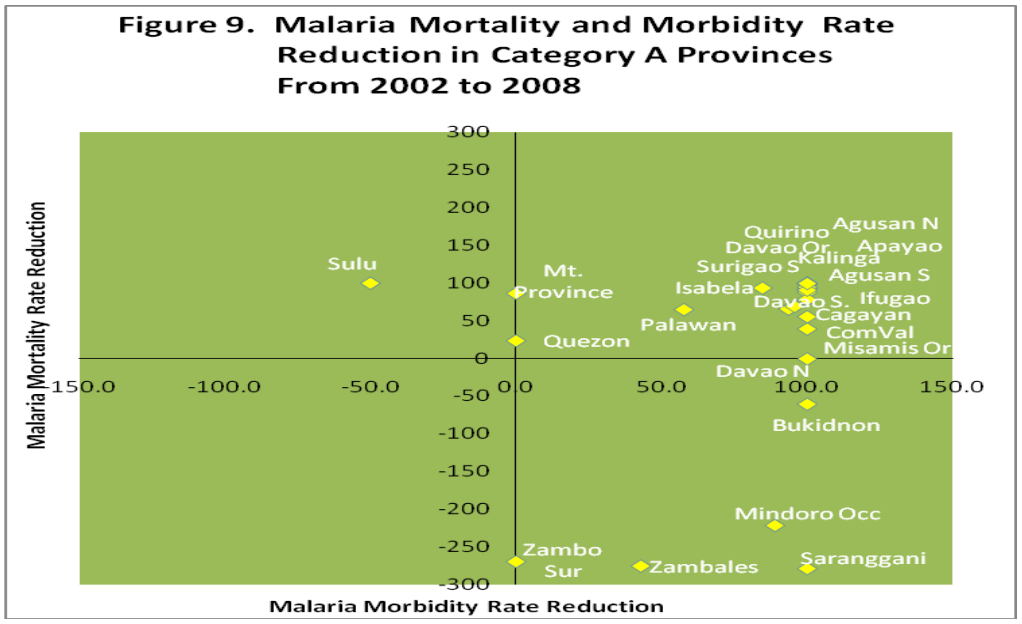
funds. Some of the provinces were unable to meet the targets and even posted increases in mortality or morbidity or both in 2008. Generally though, more provinces regardless of category were able to meet mortality reduction target than their morbidity reduction target.

Table 2. Performance of Provinces by Category in Morbidity Reduction and Mortality Reduction Between 2002 and 2008
(Data Sources: 2002 and 2008 FHSIS, 2002 PHS and 2008 MCP Reports)

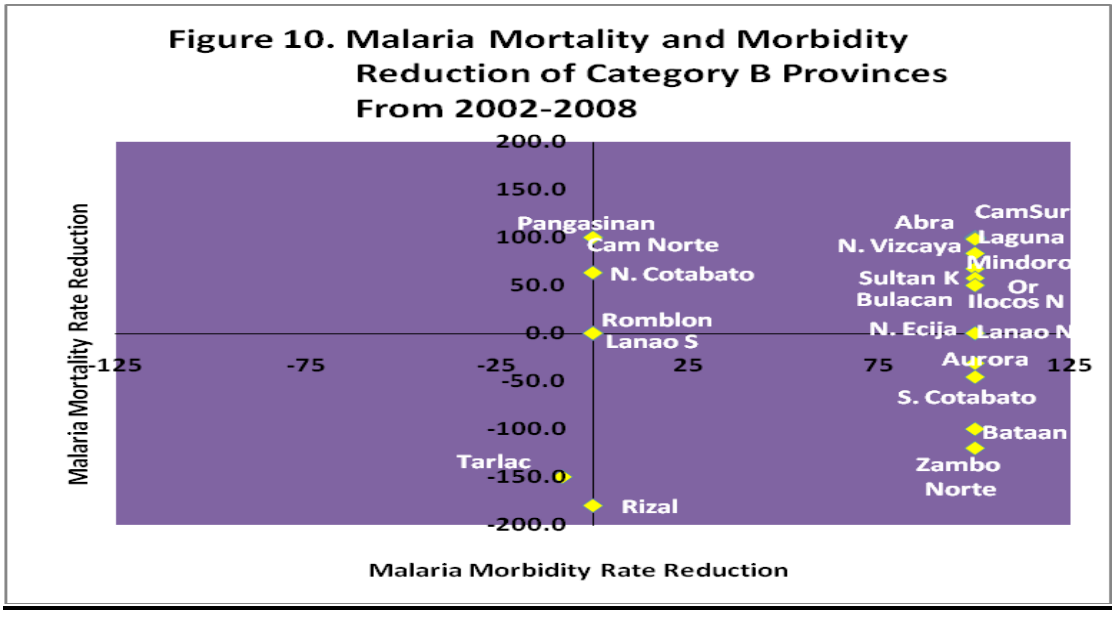
Malaria Mortality and Morbidity Reduction Patterns from 2002 to 2008	Category A		Category B		Category C	
	No.	%	No.	%	No.	%
Total No. of Provinces	26	100.0	22	100.0	18	100.0
1 - No./% of provinces that met both morbidity and mortality reduction targets with steady decline and/or with sustained zero mortality in 2008	5	19.2	1	4.5	8	44.4
2 - No./% of provinces that met both morbidity and mortality reduction targets but with either mortality or morbidity with fluctuating trends or both	6	23.1	12	54.5	-	-
3 - No./% of provinces which met only the mortality reduction target and with fluctuating trends in either morbidity or mortality or both	6	23.1	1	4.5	8	44.4
4- No./% of provinces which met only the mortality reduction target but with higher morbidity in 2008	5	19.2	5	22.7	-	-
5 - No./% of provinces which met only the morbidity reduction target but with same or higher mortality	2	7.7	1	4.5	2	11.1
6 - No./% of provinces which did not meet any of the morbidity and mortality reduction target	1	3.8	1	4.5	-	-
7 - No./% of provinces/cities with incomplete data	1	3.8	1	4.5	-	-

Category A Provinces. Only 11 of the 26 Category A provinces met at least 70% morbidity and 50% mortality reductions from 2002 to 2008 (see Fig. 9). Of these, 6 provinces had steady decline in both malaria morbidity and mortality while the other 5 showed steady mortality decline but with fluctuating cases. Another 11 areas met at least 50% mortality reduction but below the 70% reduction in cases. Five (5) of them in fact had increase in malaria cases.

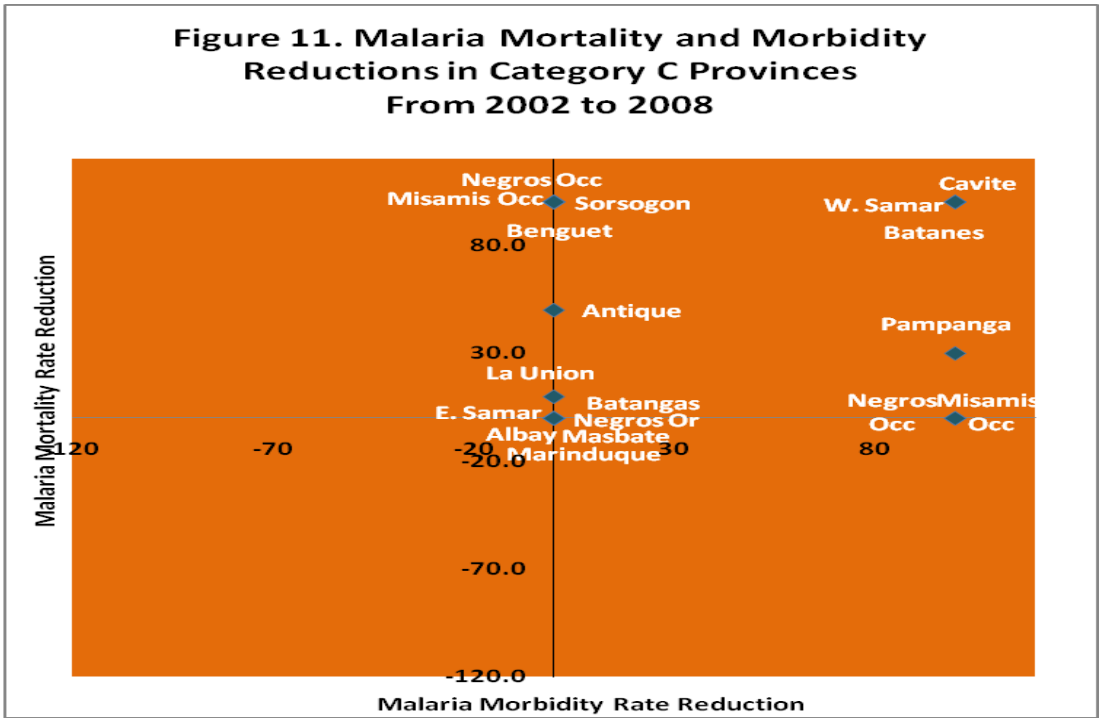
Common among these provinces is that they had reported outbreaks in the past and share similar features that highly expose them to the infection: (i) share common borders with other highly endemic areas; (ii) are indigenous peoples (IPs), (iii) majority of areas are rural, hilly/mountainous and remote; and (iv) presence of conflict/wars causing displacement of population. Only 1 majority of population province (Sulu) posted an increase in malaria mortality from 2002 to 2008 while Palawan, which has the largest number of cases, was able to lower both mortality and morbidity but below the targets. Tawi-Tawi and Basilan have incomplete data so the reduction rates cannot be established.



Category B Provinces. Two thirds (15) of the 22 Category B provinces achieved the desired 50% reduction targets in both morbidity and mortality from 2002 to 2008 (see Fig. 10). The 7 other provinces have reported either zero morbidity or zero mortality or both in 2002 and 2008. Five of these provinces have attained zero death in 2008 but their cases are much higher in 2008 than 2002 levels. As shown below, these include Aurora, South Cotabato, Bataan, Zamboanga del Norte and Rizal. Tarlac Province had increases in both mortality and morbidity. These 6 provinces share the same features as those provinces in Category A with increased morbidity/mortality from 2002 to 2008. Maguindanao Province had no available data from 2002-2008. It must be noted that Category B provinces were not recipients of GOP and external funds (GF and RBM) until late 2008.

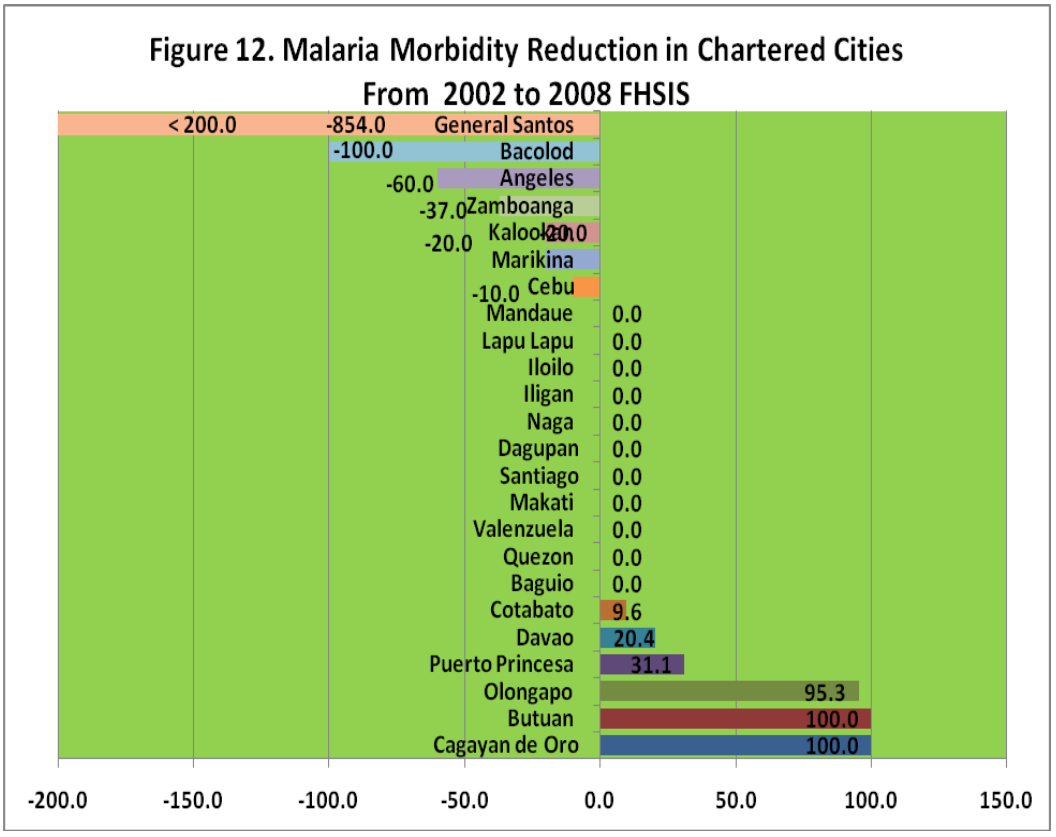


Category C Provinces. Category C provinces exhibited better performance than Category A and B areas given that none posted any increase in morbidity or mortality from 2002 to 2008 despite the absence of GOP and external assistance. Six (6) provinces reported zero mortality in 2002 and in 2008 (see Fig. 11). Four (4) of these: (Albay, Masbate, Marinduque and Eastern Samar) were declared malaria free in 2007. Only 2 provinces (La Union and Pampanga) were unable to reduce their morbidities at the desired level. These 2 provinces including Antique still have malaria cases as of 2008. La Union had an outbreak in 2007 due to the introduction of an imported malaria case from Zambales as a result of the Hanjin Ship Building Project in Subic. Pampanga also had an outbreak in 2003 in areas where there are several IPs. Antique has been a host to a mining company in its island municipality endemic with malaria.



Morbidity Reduction In Chartered Cities. This section is purposively included to highlight the need to track the status of malaria infection in chartered cities and accord them the same attention given to the provinces. Of the 24 chartered cities with complete data, more than half (13) had lower morbidity rates in 2008 (see Fog. 12), with 10 of these exhibiting significant reductions ranging from 95.3-100.0%. Three (3) cities (Cotabato, Davao, Puerto Princess) which are contiguously located near highly endemic provinces have only slight reductions.

Seven (7) cities posted increases in morbidity rates in 2008 (e.g. General Santos City with almost a 9-fold increase, Bacolod City which doubled, Zamboanga City which increased by more than a third, Kalookan and Marikina with 20% increase and Cebu City with 10% increase. These results suggest the need to provide equal attention to chartered cities especially in areas where they become potential threats to contiguous provinces and municipalities. Further validation of said cases however has to be done to check if cases really belong to these cities or not.

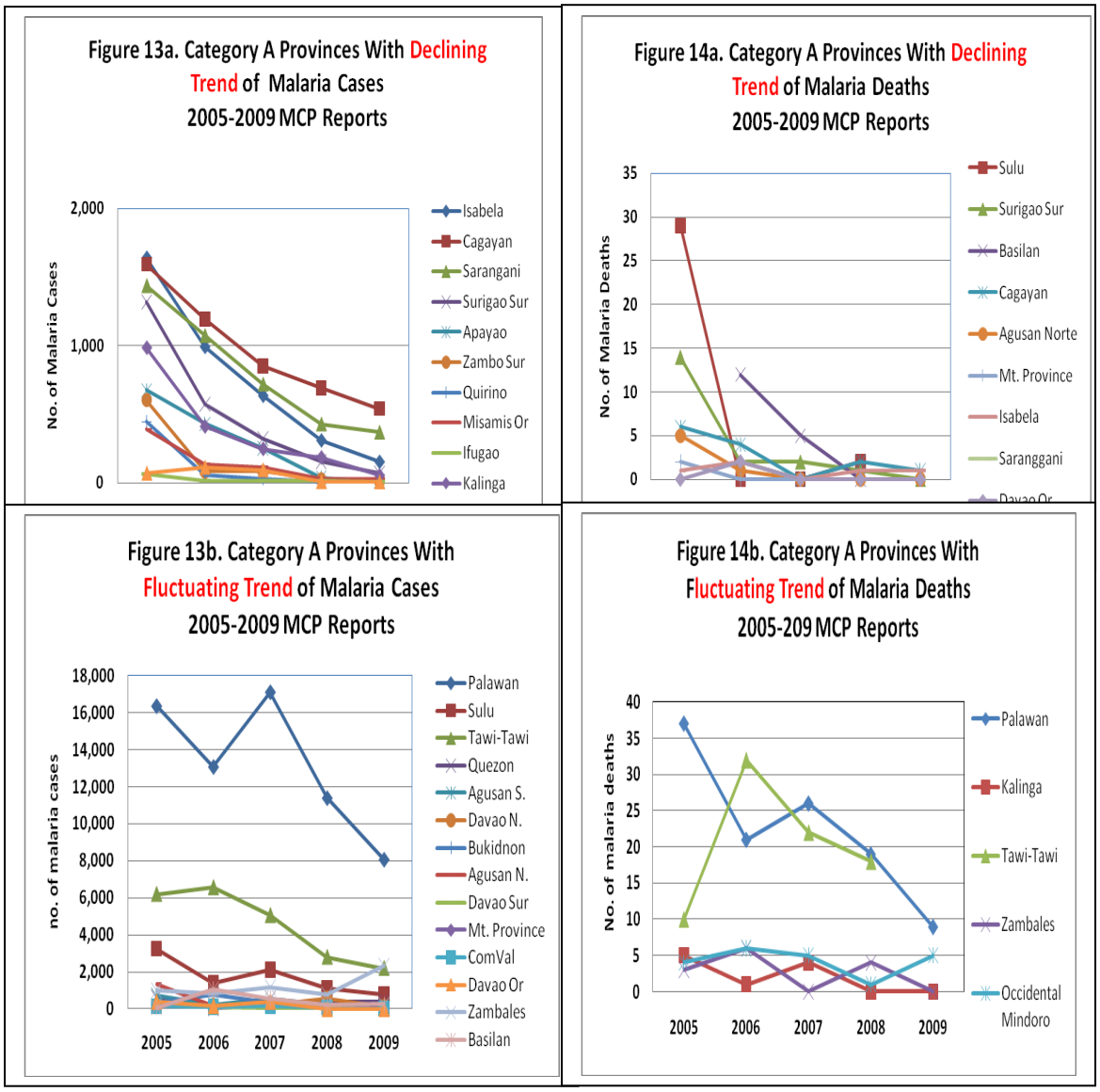


B.4 Annual Patterns of Malaria Cases and Deaths by Individual Provinces Per Category from 2005-2009, MCP Reports

While the reduction in mortality and morbidity rates has been assessed at two timelines (2002 and 2008), there is a need to look at the annual behaviour of individual provinces in the past 5 years to further identify areas requiring focused attention. This section shows the 5-year trend of morbidity and mortality per province under each category.

Category A Provinces

From 2005 to 2009, 11 of the 26 Category A provinces displayed a declining trend in the number of malaria cases (see Fig. 13a), fourteen (14) have fluctuating levels over the 5-year period (see Fig. 13b), and one area (Mindoro Occidental) reported consistent increase (not plotted). Number of malaria deaths, on the other hand, dropped steadily in 9 of the 26 provinces (see Fig. 14a) while 5 have fluctuating deaths over the same period (see Fig. 14b). There are 7 provinces which have sustained either 0 or 1 death from 2005 to 2009. Only 3 provinces (Cagayan, Saranggani and Surigao Sur) displayed a steady decrease in both malaria cases and deaths.



Category B Provinces.

Only 5 of the 22 Category B provinces exhibited a declining trend in malaria cases from 2005 to 2009 (see Fig. 15a). The rest had fluctuating trends, 9 of which had lower number of malaria cases in 2009 see Fig. 15b) compared to 2005 and 5 had increased cases over the same period (see Fig. 15c). With regard to the number of malaria deaths, 8 provinces have maintained zero death from 2005 to 2009 (not plotted), 4 had declining trend (See Fig. 16a) and the rest with fluctuating number of deaths (see Fig. 16b and Fig. 16c). Five of these provinces registered lower number of deaths in 2009 than in 2005, and the other 4, namely Tarlac, Sultan Kudarat, North Cotabato and Ilocos Norte ended up with higher cases in 2009 (see Fig. 16c). It must be noted that Category B provinces were not recipients of external assistance from GF, RBM Partnership or from the DOH until late in 2008 where 14 of these provinces were included in the GF list of assisted areas. The DOH was also able to provide assistance only in late 2008 when it received substantial increase in its MCP budget.

Figure 15a. Category B Provinces With Declining Trend in Malaria Cases 2005-2009 MCP Reports

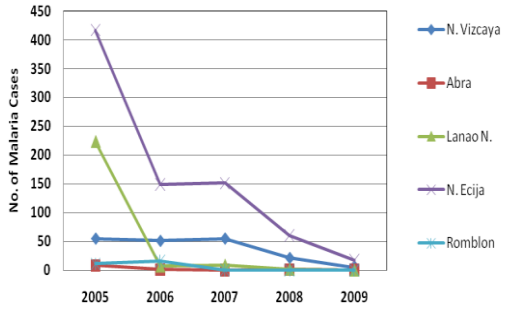


Figure 16a. Category B Porvinces With Declining Trend in Malaria Deaths 2005-2009 MCP Reports

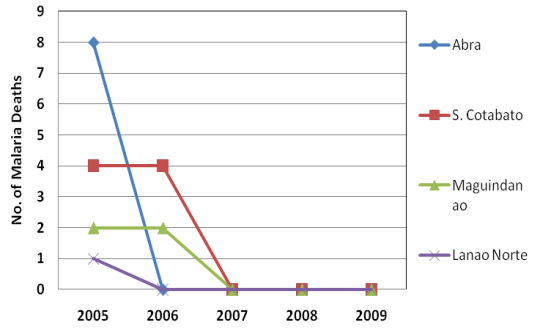


Figure 15b. Category B Provinces With Fluctuating Trend of Malaria Cases With Lower Cases in 2009 Than 2005 2005-2009 MCP Reports

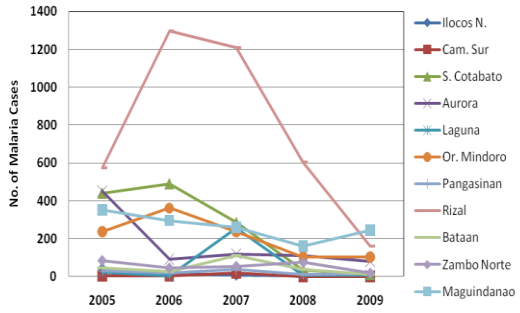


Figure 16b. Category B Provinces With Fluctuating Malaria Deaths Lower in 2009 Than 2002005-2009 MCP Reports

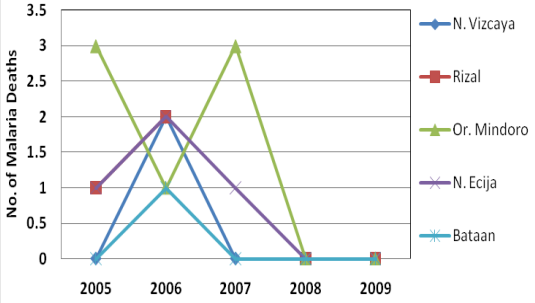


Figure 15c. Category B Provinces With Fluctuating Trend in Malaria Cases Higher in 2009 Than in 2005 2005-2009 MCP Reports

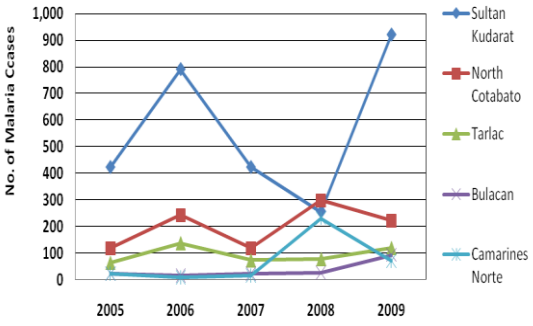
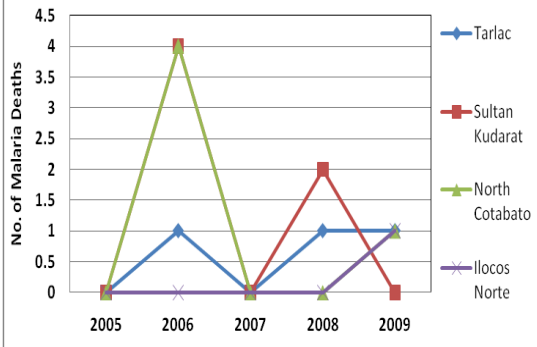
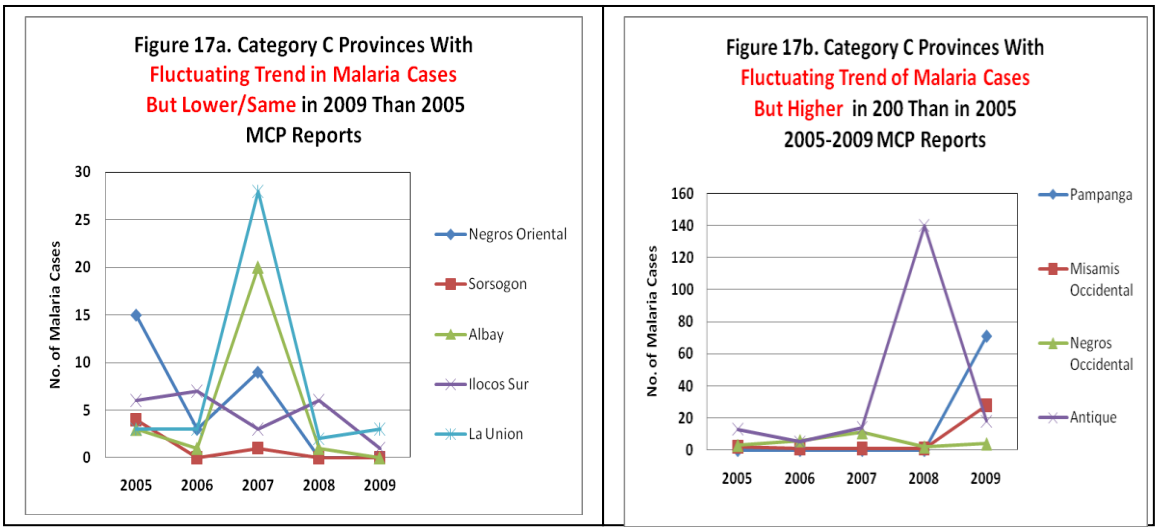


Figure 16c. Category B Provinces With Fluctuating Deaths Higher in 2009 Than in 2005 2005-2009 MCP Reports



Category C Provinces.

All the 18 Category C provinces have maintained zero death from 2005 to 2009. Of these, 9 had also no malaria case reported over the same period. These were the provinces declared malaria-free in 2009 and some are candidates for validation in 2011. Nine provinces exhibited fluctuating trends in number of malaria cases from 2005 to 2009. Five (5) of these ended up with lower cases in 200 than in 2005 (see Fig. 17a) while 4 provinces, namely Pampanga, Misamis Occidental, Negros Occidental and Antique) registered higher levels of cases in 2009 than in 2005 (see Fig. 17b). Just like with Category B Provinces, Category C areas are also not recipients of external assistance. They began to receive technical assistance from the DOH only in the latter part of 2008. Note that some of the cases in these provinces are imported.



In summary, significant progress has been made in the reduction of malaria cases and deaths from 2005 to 2008. Several provinces though merit priority attention and assistance:

(1) Provinces with fluctuating trends in cases and/or deaths from 2005 to 2009, especially those which had higher number of cases and/or deaths in 2009 than in 2005.

(2) Provinces which still have a significant burden of the disease (with >500 cases, 2009).

(3) Provinces with slow rate of reduction in cases and/or deaths.

(4) Chartered cities which have significant number of reported number of cases and deaths, especially those that are not currently supported by GF and RBM Partnership.

(5) Rural inter-phasing to urbanizing areas.

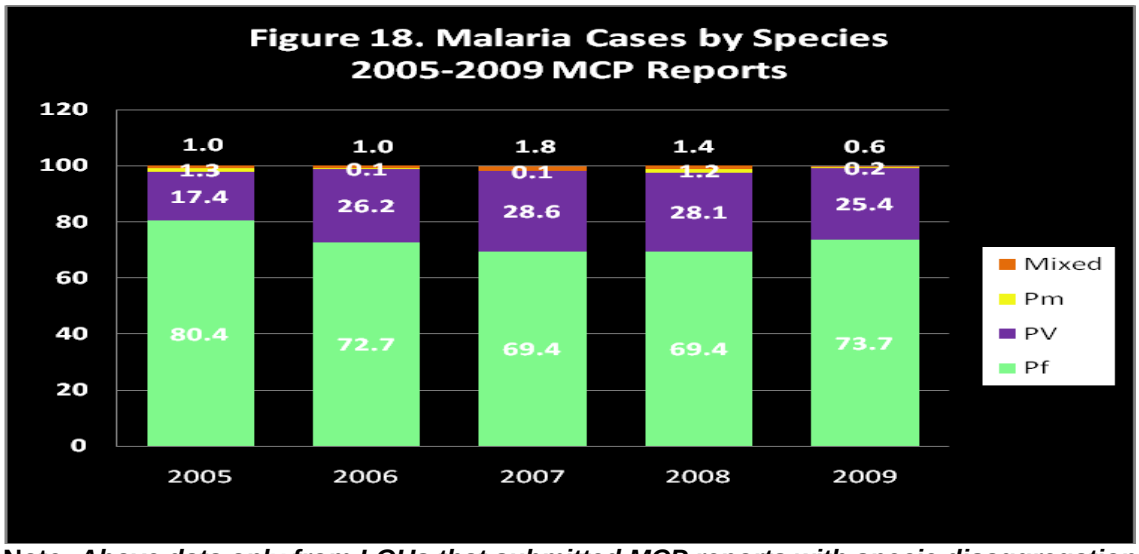
(6) All malaria-free provinces to prevent the re-introduction of the infection.

Please refer to Appendix 2 for the list of provinces and chartered cities that exhibited any of the above performance.

B.5 Malaria Cases by Species and Demographic-Socio Status

B.5.1 Malaria Cases by Species

Almost two-thirds (69.4%) to four-fifths (80.0%) of total cases from 2005-2009 were contributed by P. *falciparum,* but this has been slowly decreasing with a corresponding slight increase in P. *vivax* cases. As shown below, P. *vivax* malaria contributed about a fifth (17.4%) to a fourth (23.6%) over the same period while P. *malariae* accounted only for 1%. In 2007, the presence of one imported (1) P. *ovale* case from Africa, was reported by Negros Oriental. A small number of cases are also caused by mixed species, which are usually the combination of P. *falciparum* and P. *vivax.* Note that the data were taken from the MCP reports of provinces that have disaggregrated data by species and age. The occurrence also of non-*falciparum* malaria cases requires further honing of the health workers' proficiency in diagnosis and treatment. It also necessitates that appropriate anti-malarial drugs responsive to the different species of the causative agents are available in all service delivery points. A recent survey undertaken by the Research Institute for Tropical Medicine (RITM) this year in Palawan showed that 9 mixed cases tested positive for P. *knowlesi* based on PCR, affirming the province a host to all the 5 species. The presence of P. *knowlesi* infection requires further study even outside Palawan. Likewise, Anopheles *litoralis* abound in the Province of Tawi-Tawi, which has a different biting behavior that must be taken into account for appropriate vector control measures.



Note: ***Above data only from LGUs that submitted MCP reports with specie disaggregation***

B.5.2 Malaria Cases by Demographic and Socio Characteristics

In the 2004 Malaria Burden of Diseases and Quality of Life Study, malaria was found to be more common among males (59.0%) than females (41.0%). The infection is also most common among 6-14 years old (31.2%) and among 15-29 years old (27.3%). The proportion of 0-5 year old children with malaria is 16.9%. The 2008 KAP Survey conducted in 7 provinces reported that infants had the highest prevalence at 3.5/1,000, followed by the 13-17 years old at 2.6/1,000 pop. Prevalence between males and females were identical. On the other hand, malaria was highest among mothers with only a primary education (57.0%) and lower among those who completed high school (30.3%).

IV. Influencing Factors

The marked reduction of malaria cases and deaths in the past 8 years is attributed to several interventions pursued by different groups of stakeholders at various levels of operations. There were also several factors identified that facilitated these reductions, and on the other, limited the achievements of the goals and objectives of the MCP. These factors are seen to be related to service delivery, governance, financing and regulations in support to the MCP.

A. Service Delivery

Strategy 1. Promote early diagnosis, prompt management and treatment and referral of malaria cases

Early diagnosis and prompt treatment is aimed at ensuring the rapid and complete treatment of the infection to prevent the progression of uncomplicated malaria to severe cases, and to curtail the transmission of the infection by reducing the parasite reservoir of infection and infectivity.[22] The DOH recommends that all malaria patients must undergo prompt parasitological confirmation by microscopy or the alternative rapid diagnostic test (RDT) before given treatment, unless these are not readily acceptable at point of service.

Status

Access to diagnostic services significantly improved beginning 2005 resulting in increased cases being identified and given prompt treatment. The improved quality of malaria diagnosis was evidenced by 96% of uncomplicated malaria patients correctly diagnosed in the different microscopy centers.[23] Prompt treatment of identified positive cases was made possible by the availability of anti-malarial drugs at different levels of health care by trained health providers. Adherence to treatment protocols was moderate as shown by two thirds (66%) of uncomplicated malaria cases and half (52%) of severe cases given proper treatment in 2007.[24] Similar findings were seen in 2009 with half (50.9%) of patients treated following the protocols. Correct treatment was noted to be better in P. *falciparum* cases (48.0%) and mixed infections (50.0%) in contrast to P.*vivax* (6.8%).

Much still need to be done though to achieve the desired quality and compliance to diagnosis and treatment protocols. Findings in some hospitals showed that some malaria cases were identified merely on the basis of clinical manifestations despite the availability of a microscopy laboratory within their health facilities.[25] Some also received anti-malaria drugs even if a laboratory result was negative for malaria parasite. Moreover, correct treatment of patients in private hospitals is quite low at 32% and in the tertiary level hospitals at 36%. Only 6 of 10 patients attended by physicians already trained on malaria clinical management were properly treated. There are also large variations in the proportion of patients given proper treatment from one LGU to another.

[22] World Malaria Report t 2009, World Health Organization
[23] GFATM Round 2 Assessment Report and 2007 Facility Survey in 23 GF-assisted provinces
[24] 2007 Facility-Based Survey , GF assisted provinces
[25] 2009 Facility Survey ,GF assisted provinces

In spite of clinical management training supported by RBM-MCP, treatment of severe malaria using sometimes bizarre combinations of first and second-line treatment (e.g. intravenous quinine plus oral *Co-Artem*) remains common. From medical records examined during the September 2010 Malaria PIR Review, adverse clinical outcomes still occur following incorrect treatment.

Efforts Undertaken.

A total of 1,152 diagnostic centers were established from 2003-2007. To man these centers, LGUs hired medtechs using their own resources or with GF assistance or by designating other staff as microscopists in areas without medtechs. These staff underwent training with noticeable improvement in performance after training. Their performance is supervised by designated validators as part of the Quality Assurance System (QAS). On malaria treatment, BHS/RHU staff were trained on malaria case management and hospital doctors on severe case management. A big difference was also seen in the continuous availability of anti-malarial drugs in adequate quantity in the different health care facilities. Treatment policy and guidelines were also updated based on results of efficacy studies undertaken by the RITM. Said guideline was disseminated to all MCP coordinators down to the health care providers with accompanying orientation.

The Malaria Manual of Operations (MOP) recommends the concurrent collection of a blood film to detect low levels of parasitaemia that may not be detected by RDT. Parallel testing by RDT and microscopy is therefore common in the field but data are not being collated at either the LGU level or by microscopy validators at the regional level. Although the use of RDTs may be expected to wane as the Philippines approaches elimination, they continue to be funded by donor projects and will remain a useful adjunct to diagnosis and outbreak detection (especially in remote communities) for some years to come.

Gaps and Challenges

(1) Operations of the BMMC/RDT sites are difficult to sustain. Of those established in 2004-2005, only 89% BMMCs and 50% RDT sites remained functional as of 2007. This may have worsened in the past 2 years given the LGUs' inability to sustain staff salaries/allowance, equipment maintenance and replenishment of supplies.

(2) RDT performance is highly variable and its efficacy as a diagnostic tool is yet to be established. It is unable to detect P. *vivax* and therefore cannot be used in areas where P. *vivax* is predominant. When reliable RDTs are available, options for the collation, analysis and monitoring of operational QA data for RDTs under field conditions in selected sentinel sites where microscopy and RDT are being conducted in parallel.

(3) Microscopists' proficiency is difficult to sustain especially in low prevalence areas as they examine only a few slides below the required minimum to be handled.

(4) Advice on follow-up smears seldom seen in patient records and referral of cases to health centers for smear follow-up were seldom indicated.

(5) Non-government laboratories and laboratories attached to the CHO of chartered cities, in pre-elimination areas (e.g. the Visayas) or in lower incidence areas that are particularly vulnerable to malaria re-introduction and outbreaks (e.g. Rizal) may miss out on the benefits of the QA scheme. For example, during the field visit in

September 2010 to the rural area under the jurisdiction of the Davao CHO, it was noted that there had been a missed opportunity for early detection of the recent outbreak in Barangay Gumitan, Marilog District, Davao (which resulted in a fatality) as the laboratory at the nearby non-government hospital did not, at that time, conduct routine epidemiological analysis of malaria microscopy data.[26]

(6) ACT is far from universal. The pre-ACT first-line treatments for *falciparum* malaria - chloroquine plus sulphadoxine-pyrimethamine - are still available and used in some health centers. Although included in the MOP, artemesinin-based suppositories are not yet widely available for pre-referral treatment of children and adults with severe or complicated malaria.

(7) There is dissonance in the administration of anti-malaria drugs from the guide in areas where MHOs do not allow BHW microscopists but only midwives to dispense drugs. Thus, some BMMCs have no ready drugs for immediate treatment of identified cases.

(8) The supply/re-supply of anti-malarial drugs is done only in the public health facilities particularly RHUs and hospitals. Private hospitals do not receive anti-malarial drug to date. At the same time, the participation of private practitioners in malaria prevention and control remains nil as only a few private hospital doctors have attended training.

(9) Compliance to treatment protocols by doctors is weak despite the training given. No follow-up supervision of trained staff after completing the course has been established. It is important to review the effectiveness of training courses provided to date and explore options for improving their impact on clinical practice. This includes the development of bench/ward aids and ready reference guides to operationalize clinical protocols in the new MOP. MCP should continue to strive for the universal adoption of the recommended standard treatment guidelines for malaria, including in the private and non-government sectors.

(10) Moreover, while many training courses on malaria treatment have been undertaken, there seems to be a shortage of trained hospital physicians.

Strategy 2. Promote effective and regular use of insecticide-treated bed nets (ITNs) and indoor residual spraying (IRS) as needed

Vector control is the mainstay in the prevention and control of malaria by cutting the transmission of infection in the general population. The use of ITN (conventional treated nets or LLINs) is the main vector control intervention with the assumption that sleeping under ITN minimizes the vector-human contact since the nocturnal biting patterns of the vector is to actively hunt for hosts at night.[27] On the other hand, Indoor Residual Spraying (IRS) continues to be the primary vector control strategy in areas where there is an outbreak or where the use of net is not culturally acceptable and where there are displaced populations due to conflict/war or natural disasters.

[26] The Region XI CHD Malaria Microscopy Validator visited this laboratory with the reviewer to initiate QA activities for staff. The reviewer provided guidance in data management for laboratory staff at the same time.

[27] Pagkukulambo in Malaria – Endemic Ares in the Philippines. Bednet Utilization Survey, July 2006. Summary Report

2.1 Protection Through the Use of Insecticide-Treated Nets

Status

No target was specified in the 2005-2010 NOH in terms of ITN coverage and use, but in 2004, the GF Project-Phase 2 set at least 80% ITN coverage among households in Category A Provinces. Surveys were undertaken in 2006, 2007 and 2009 to assess ITN coverage, use and maintenance. Results cannot be compared due to different survey sites covered and the varying seasons when these were conducted. Higher values though are observed in the latter surveys considering that projects' assistance and inputs have already reached a majority of the targeted households.

Net ownership is relatively high among households. Not all nets owned though were insecticide treated. ITN ownership is lower by about 15-25% than net ownership. It also varied largely from one province to another. Only a few provinces achieved the 80% target while the desired ITN to population ratio of 1:2 is yet to be achieved. Utilization by households of their ITNs is also relatively high. Among the total endemic population, proportion of people using/sleeping under ITN ranged from 48% (2006) to 75% (2007) and 91.2% (2009). Given the high vulnerability of the underfive year old and pregnant women to malaria infection, ITN use is prioritized for both groups.

Table 3. Net Ownership and ITN Utilization
2006-2009 BedNet Ownership and Utilization Surveys

Indicators	2006 Survey (12 Cat A Provinces	Sep 2006 Palawan Survey	2007 Survey (21 Cat A Provinces)	2009 Survey (5 Cat A Provinces)
Net Ownership				
- % of Hh owning a net	78%	86%	84%	98.1%
- % Hh owning at least 1 ITN	53%	54%	72%	88.1%
- No. of provinces w/ ≥ 80% ITN coverage	3/12	0/1	8/21	1/5
- ITN to household ratio	-	-	1 : 3	1 : 2.5
ITN Utilization				
- Total Hhs using ITN among those w/ net	98%	100%	97%	-
- % of Total Pop sleeping under ITN	48%	48%	75%	91.2%
- % of < 5 y.o. sleeping under ITN	54%	15%	67%	95.6%
- % of pregnant women sleeping under ITN	-	-	60%	86.1%

Efforts Undertaken

The relatively high ITN ownership and utilization is attributed to GF/RBM/DOH provision of ITNs/LLINs to the LGUs. Another batch of LLINs is awaited to enable them meet the 80% target coverage and the desired 1 net to 2 person ratio. The transition from conventional ITNs to LLINs has minimized treatment/re-treatment concerns. Insecticide tablets (KO tab, active ingredient is deltamethrin) for net treatment were also provided through GF with augmentation from DOH. Several health promotion activities were undertaken to improve use of ITNs/LLINs.

Gaps and Challenges

(1) All Category A provinces have not reached 80% Hhs ITN coverage and the desired 1 net:2 person ratio, much less in Category B and C areas which are not recipients of external assistance. Net coverage also varied largely from one province to another.

(2) There is no clear plan on how to achieve a full 100% coverage, with 1 net for 2 people at household (Hh) level. A good way to do this is to distribute nets to Hhs at the rate of 1 net for every 2 Hh members, rounding up in Hhs with odd numbers of members.[28] Counts of sleeping places in surveys should be done to provide an index of access to nets at the Hh level. The index is the proportion of sleeping places covered by ITNs/LLINs - this can be measured in Hh surveys, and gives a direct and explicit indication of the number of additional ITNs/LLINs needed to reach 100% coverage.

(3) The procurement of LLINs in the past failed to consider the desired net to person ratio and universal coverage. The procurement ratio must be adjusted to allow for this rounding up, and this implies a procurement ratio of 550 LLINs for 1000 population, in a population with a mean household size of five. Note that these figures have been adjusted in the light of practical experience since the previous GF rounds.

(4) Net re-treatment has been left to the discretion of the barangays without supervision from RHU/PHO/CHD, thus resulting in widely varied quality in terms of technique, timing, place and who should perform it. There is no monitoring of timeliness of when the distributed ITNs are to be re-treated or when they should be replaced with LLINs.

(5) There is also no monitoring of the durability of LLINs to inform procurement and other programmatic decisions. This involves comparing the LLIN fabric integrity in endemic areas of varying socio-cultural settings to assist in making decisions for procurement, replacement and product improvement, as well to further guide program planning.

(6) No mechanism is in place for how to sustain the use of LLINs once GF assistance ends, making net replacements difficult after a 5 year shelf-life period.

(7) There is also lack of a mechanism in place for how to manage the thousands of LLINs that will become tons of insecticide-tainted (pyrethroids in polyethyelene and polyester) plastic waste, and options for recycling , energy recovery, and disposal. This needs to take into account both the plastic and the residual pesticides in the nets and the packaging. Pilot studies are needed to gauge viewpoints, attitudes and approaches of MCP, NGOs, the donor community, industry and barangays.

(8) As Visayas is so close to elimination but lie outside the support of GF Project, more efforts in scaling up coverage of malaria interventions to the last remaining foci of transmission are needed. Such interventions may be adaptable to augment prevention of dengue transmission as well.

2.2 Indoor Residual Spraying

Indoor Residual Spraying (IRS) is used as the vector control method of choice during outbreaks and serves as supplement in areas with stable transmission but without

[28] However this is ratio is meant to be an approximate guide, not a strict rule. It can be refrred to as the "minimum planning ratio for a universal coverage campaign" or the "minimum planning ratio" for short. Some programmes have used slightly different planning ratios (eg 1 net per 1.8 people, or 2 to 3 nets per household) in their plans to achieve "universal coverage". The exact ratio of nets-per-person needed to cover all sleeping places can vary, and when local data of this kind is available, it should be taken into consideration when planning procurement needs

reduction of malaria incidence despite high ITN coverage over a 1-year period. It also supplements the use of ITN among displaced populations as a result of conflicts/war, natural and other man-made disasters, and where ITN is not culturally acceptable.

Status

Evaluation of GF Rounds 2 and 5 documented a total number of 76,242 houses sprayed from August 2006 to September 2008. For the period 2008-2009, a total of 31,642 houses were also sprayed, exceeding the targeted number of houses to be sprayed.

Efforts Undertaken

The increased coverage of IRS was made possible through the organization and training of spray teams on the proper conduct of IRS and the procurement of insecticides for IRS, supplies and equipment (e.g. spray cans, personal protective equipment (PPE) for the spray teams. Supervision was also accorded by designated malaria personnel.

Gaps/Challenges

(1) No specifications and guidelines exist regarding the local procurement of insecticides for indoor residual spraying. Based on the external evaluation conducted on GF-Round, the presence of K-Othrine 25 WG and Deltamax 2.5 wp in the local market from non-accredited suppliers may have compromised the quality of IRS.

(2) Training on IRS does not follow a standard module. Duration of actual training varied from half a day to 3 days. There is also low supervisor to spray team ratio in some areas affecting their productivity, assurance of accuracy and adequacy of coverage.

(3) The lack of supervision may have brought the quality of IRS below par where lapses in procedures were noted in some areas (e.g. spray teams not using spraying record books and spot maps as guide, absence of data on spraying refusals, etc.).

(4) There is lack of clarity on the timing of spraying considering that the northeastern monsoon affects the southern Philippine islands and the heavy monsoon rains and typhoons which affect the central northern isles from May through October.

(5) There seems to be an insufficient number of spray operators to cover the target areas prior to the transmission season. More operators have to be recruited, trained and assured of salary.

(6) IRS coverage is not routinely reported. IRS-related information should be reported through the collation of household spray records (or from spraymen notebooks) kept by spray teams and supervisors, and should be checked. The target number of households should be determined prior to spraying.

Strategy 3. Increasing Demand for Anti-Malarial Services

The improved access to early diagnosis, prompt treatment and use of ITNs is not only a function of the enhanced capacity of the health care system but is also an outcome of improved health seeking behavior of clients. This, in turn, is influenced by the clients' knowledge of malaria as a disease, its causative agent and mode of transmission including their awareness of anti-malaria prevention, available services and their sources. Support generated from various groups of stakeholders and participation of the community further improved access to malaria prevention and control services.

Status

Majority of the targeted population are aware of malaria as a problem and have generally correct knowledge of its cause, mode of transmission and prevention measures. Interview of household members confirmed that most were well-informed about malaria and its prevention.[29] A few though still cited other modes of transmission and preventive measures. Survey results on seeking care once signs and symptoms occur vary considerably from 25% among IPs and non-IPs in 2009 to 80.0% in Palawan in 2008. Most clients however preferred consulting the health centers.[30] Treatment compliance among clients is high. Adherence to net maintenance protocols is far from optimum. Only 6 out of 10 net recipients have their nets treated with insecticide upon acquisition. Retreatment of nets among the IPs is quite low ranging from 21.4% (2005 KAP Survey) to 47.5% (2009 KAP Survey). The practice of retreatment of nets is even lower among the non-IPs at only 13.8% (2009 KAP Survey). Majority of households washed their nets more frequently than recommended and a number use detergent in washing their nets. Refer to Appendix 3.

Efforts Undertaken

The MCP adopted the Communication for Behavioral Impact (COMBI) in promoting anti-malaria prevention and control measures. Several promotion activities were undertaken and many innovative social mobilization and communication approaches and materials were developed. A school-based malaria education was established in selected elementary and secondary schools with a Malaria Module as a guide for teachers - duly approved by the Department of Education (DepEd) provincial and district offices. Under GF assistance as of 2006, a total of 115 elementary and 38 high school teachers and 102 Malaria Health Educators were oriented. The URBANI School Health Kit (USHK) was introduced by RBM in 2006 with the aim being to provide a healthy environment, health education, and health services in schools, along with community projects. As of 2009, a total of 133 elementary schools have been engaged in USHK. Additional USHKs were procured by DOH in 2009 for distribution to non-GF/RBM assisted areas.

The Malaria Awareness Day (MAD) Celebration has been instituted in several LGUs through the advocacy effort of health staff to their LCEs, reaching an estimated 700,000 people. Schools and medical outreaches were major avenues for wide scale information dissemination of basic knowledge on malaria to community members. Municipal/ Barangay committees and faith-based organizations were mobilized to support anti-malaria prevention and control measures. Advocacy/lobby groups (e.g.

[29] 2009 RBM Accomplishment Report
[30] COMBI Evaluation Report in Palawan and Quirino. 2008

Barkadahan Laban sa Malaria) were also organized to improve malaria awareness and prevention.

IEC efforts include (i) placement of posters and billboards with key messages regarding use of bednets, (ii) conduct of special events (e.g. Malaria Awareness Month, Labada Festival, Araw ng Lumad, etc). where ITNs are usually distributed, smears collected and nets retreated, and (iii) the adaptation of IEC materials and activities for IPs. Some areas developed COMBI Plans as basis in implementing health promotion activities. The implementation of COMBI Plans was assessed in 2 provinces (Quirino and Palawan).

Gaps/Challenges

(1) Misconceptions about mode of malaria transmission (e.g. lack of rest, eating fruits, drinking dirty water, etc.) and its prevention still exist among a few households. Not all members were aware of the existence of new diagnostic services in their community.

(2) Certain segment of the endemic population still has poor access to diagnosis and treatment due to difficult terrain and inaccessible areas especially along borders. Top-most reason for not seeking care is the long distance of their residence to the facility.

(3) While there is high awareness of the signs and symptoms of malaria, not all consult immediately. Only about a fourth (2009 KAP Survey) to one half (2005 KAP Survey) consult the facility within 1-2 days upon the onset of signs and symptoms. Top-most reason for not consulting is distance and self-medication practice of clients.

(4) There are also pockets of clients that do not complete treatment giving the reason that they are already well. Others keep the rest of the drugs for their next illness, gave the drugs to other patients, and drugs have bad taste.

(5) Some clients do not use or sleep under the net because it is too warm inside the net, the ITN given is inadequate and laziness to hang the net. Though the use of LLINs has helped minimize the problem of retreatment, the existing culture of households still make them use old nets and reserve the new ones for guests.

(6) Net-maintenance practices of households are far from desirable. Some nets have holes big enough for mosquitoes to pass through. Net retreatment is also low.

(7) While there were several surveys undertaken to measure KAP, net ownership and utilization in project provinces, the design, coverage and scope of variables do not allow comparative measurements of progress or improvement among households.

(8) Utilization in schools may be limited by the USHK being seen as somehow a “special” resource that deserves to be preserved and not used excessively. Where this occurs, one or two teachers may be seen as custodians of the kit which, as a consequence, may not be made available to other classes. The overall behavioural impact of USHK at the personal, family and community level is unknown.

B. Governance

Strategy 4. Plan and implement malaria control measures with specific target population groups

Planning is the process by which the overall direction, goal and targets of the MCP for a given period are established and where key strategies and activities are laid down. MCP planning is to be cohesive across administrative levels where national program thrusts guide the local plans while the needs and priorities of the latter should in turn direct the focus/scope of regional/national plans. All MCP-funded activities regardless of source are to be integrated into a unified action plan. Other efforts to help identify priority groups and intervene appropriately include area stratification, border operations, designing innovative interventions, and formulation of national/local policies to guide operations.

4.1 Malaria Control Program Planning

Status

The MCP has no Strategic Plan developed for 2005-2010. Its goal, objectives and key strategies though were summarized in the 2005-2010 NOH. The project proposals prepared for the GF 2004 stood in as the MCP's Strategic Plan as this covered the 26 highly endemic provinces that account for 90% of total malaria cases in the country. The Infectious Disease Office (IDO) and CHDs prepare the MCP Work and Financial Plans (WFP) annually. Planning for GF and RBM was done separately with efforts ensuring non-overlap of assistance in common project areas. Local MCP plans do not reflect all the LGUs' efforts against the disease and only a few have integrated these into their Province-wide Investment Plan for Health (PIPH) with procurement of anti-malarial drugs/supplies as the main activity cited. Moreover, MCP activities funded by all sources still have to be seen into one unified plan at each level. Refer to Appendix 4 for the provinces with PIPH reflecting MCP activities.

Efforts Undertaken

Beginning 2008, the IDO and CHD WFPs expanded in scope and focus by providing assistance to non-GF/RBM-funded areas. GF and RBM plans were evolved in consultation with project provinces, duly approved by the CCM. In 2009, a regional cluster consultative and planning workshop was organized among malaria-free provinces together with their CHD counterparts as the first step after having been neglected in previous years. GF and RBM Implementation Reviews (PIR) were undertaken on a regular basis. In April 2010, a joint MCP implementation review of both program and project - the first in the last 5 years - was organized.

Gaps and Challenges

(1) MCP Planning was focused only to the 26 highly endemic areas from 2003-2007. Category B, C and D areas were not given due attention until outbreaks occurred in several areas. Only in late 2008 did the DOH start assisting these areas.

(2)There is no unified plan of action at the national, regional and local areas that consolidates all efforts for malaria prevention and control regardless of funding sources. This limits those concerned from responding to the problem in a holistic manner, and from appreciating the rationale of assistance from various sources.

(3) The DOH together with most provinces failed to make use of the PIPH process as a vehicle for mainstreaming investments and harmonizing current efforts towards the elimination of malaria in different zones and localities in the country.

(4) Planning as a process has not been harnessed by DOH to build up LGU financing to sustain the gains brought about by the external resources. To date, several LGUs remain highly dependent to DOH and external sources for financing their operations, particularly consumables, medtech salaries, transport/TEVs, etc.

4.2 Area Stratification

Stratification is the process of assessing the pattern of the transmission of malaria infection in each endemic area down to barangay/sitio level, and classifying those that share common features into a particular stratum requiring corresponding set of interventions for prevention, control and elimination. It is a tool to better focus assistance to the identified priority groups.

Status

The DOH has adopted micro-stratification as an approach in classifying and tracking the status of each malaria endemic area in the country. Half of the CHDs have completed the stratification of each province within their jurisdiction down to the barangay/sitio level and have already begun to reclassify the status of the provinces accordingly. The adoption of macro-stratification as an approach in establishing malaria disease-free zones among clusters of contiguous localities still need to be designed by the IDO and other partners.

Efforts Undertaken

The micro-stratification guidelines were developed collaboratively among IDO-CHD-NGO-WHO representatives and incorporated into the MCP Operations Manual. All CHD MCP Coordinators were oriented on these guidelines. The same has been cascaded to their provincial counterparts. A special orientation-workshop session was organized to assist the ARMM provinces to actually do the stratification. Some regions and LGUs have already used these initial results in planning appropriate interventions.

Gaps and Challenges

(1) Several LGUs do not have barangay breakdown of cases, some data are incomplete and localities do not also analyze their data on a regular basis so that the pattern of transmission could be readily determined, and area stratification cannot be completed.

(2) Stratification results from the different regions down to the barangay level of each of their provinces are far from complete.

(3) Guidelines for macro-stratification and establishment of malaria-disease free zones across contiguous malaria-endemic provinces/cities or regions have not been initiated.

4.3 Border Operations

In 2008, the DOH together with RBM introduced border operations as a key approach in addressing malaria problem in hard-to-reach, remote localities sharing common malarious borders. These areas are most likely to have the least access to anti-malaria diagnosis and treatment and preventive measures. It requires all concerned LGUs to jointly plan and share resources for the simultaneous conduct of interventions (e.g. LLIN distribution, IRS as applicable, mass blood survey, etc.) to effectively prevent and control malaria.

Status

In 2008, all the 5 Mindanao CHDs jointly identified common border areas and planned out appropriate interventions for each identified border. Only 5 of the 14 identified border operations were completed in 2008 with the rest done in 2009-2010. Border operation was proven effective in reducing malaria cases and deaths. Benefits gained include the identification of malaria positive cases and their immediate treatment, provision of new ITNs/LLINs and retreatment of old nets for wider protection coverage, conduct of seeding and larviciding in some areas and addressing the other health needs in the border area communities. Ordinances supporting MCP were also evolved during the process.

Efforts Undertaken

Guidelines on border operations were developed by DOH with technical assistance from WHO and in consultations with the CHDs and selected LGUs. Joint planning was undertaken among LGUs covered in border operations with the participation of the CHDs, PHOs as well as municipal/city staff. LGUs' participation and resources were generated to support border operations while assistance from outside sources was also mobilized.

Gaps and Challenges

(1) Border operations are difficult to implement given the inherent characteristics of the border areas, any of which could slow down the operations (e.g. high proportion of mobile population, faced with insurgency problems, difficult terrains).

(2) Follow-up treatment and monitoring of progress and compliance to treatment is difficult especially if there are no volunteer workers available to do the follow-up.

(3) Border operations require a large amount of resources including staff complement for addressing both malaria and other health concerns. Sustainability becomes an issue especially if external funds are no longer available to provide support.

(4) Some system gaps like the absence of inventory of nets distributed in these areas prevent the systematic and appropriate coverage of households with ITN.

(5) Cost-effective approaches are needed for planning and implementation of integrated 'border operations' addressing the malaria and other primary care and disease control needs of remote and vulnerable populations. This may include piloting these approaches in areas where they have not yet been used but where there may be a significant mobile population living in or moving through remote areas.

4.4 Intervention Package for Most-At-Risk Population

Most at-risk population include the IPs, pregnant women, underfives, internally displaced population and those areas where there are current mining, shipyard and other industries.

Status

The 2005-2008 MCP Reports showed increasing numbers of underfive year-old children and pregnant women diagnosed with malaria and given treatment. Proportion of pregnant women sleeping under ITN/LLIN ranged from 60% (2007 Survey) to 86.1% (2009 Survey) while among the underfive children, the proportion ranged 15% (2006 Palawan Survey) to 95.6% (2009 Survey). The 2009 KAP Survey also reported that twice the number of IPs did not sleep under a net because of lack of nets compared to non-IPs.

Table 4. Net Utilization Practice Among of At-Risk Population Groups

Target Population Sleeping Under ITN/LLIN	Jul, 2006 Bed Net Utilization Survey	Sep 2006 Bed Net Utilization Palawan	2007 BedNet Utilization Survey	2009 BedNet Utilization Survey
- < 5 year old sleeping under ITN/LLIN	54%	15%	67%	95.6%
- Pregnant women sleeping under ITN/LLIN	-	-	60%	86.1
- IP sleeping under ITN/LIN	81.8 (2005 KAP Survey)	-	-	number of IPs did not sleep under a net 2X compared to non-IPs (2009 KAP Survey)

Efforts Undertaken

In response to pregnant women with malaria, a Pregnant Women Kit consisting of ITN/LLIN, iron supplements, complete anti-malarial drug requirements and IEC materials were provided. Iron supplement for pregnant women in malaria-endemic areas is also incorporated in the overall DOH micronutrient supplementation package. There are anti-malarial drug preparations available for underfive children. PhilMIS reports have also disaggregated underfive data to be able to monitor malaria status in this group. For IPs, IEC materials/activities have been modified in several provinces for their use. Advocacy was undertaken among local officials, regional and national government offices involved in local industries causing rise in malaria cases and deaths (e.g. Hanjin operations in Subic, Zambales, mining company in Caluya, Antique, etc.).

Gaps and Challenges

(1) No concrete strategy and package of interventions have been designed to address malaria among the identified mobile groups (e.g. military, etc.) and displaced populations (e.g. due to armed conflict/war, etc.).

(2) Although several activities have been focused to the IPs in the past, the appropriate package of intervention and effective approach to reach them still has to be written up.

(3) A different track is also expected for those residing in areas with active mining and/or shipping industry or the like. This still needs to be designed and discussed.

(4) There are also concerns regarding how to control transmission in malaria endemic areas frequented by tourists and protection for OFW workers whose work destinations are to countries highly endemic with malaria.

4.5 Policy Support to MCP Management and Implementation

Policies and ordinances ensure a unified direction to malaria prevention and control at the national and local levels, minimize variations in standard practice across LGUs, allow adoption of innovative measures and help sustain gains in the program.

Status

The MCP management and implementation received supportive policies and guideline issuances in the past 5 years. Policy formulation has been evidenced-based and consultative involving the participation of concerned stakeholders.

Efforts Undertaken

The updated malaria diagnosis and treatment guide was based on results of efficacy studies and consultations among experts. The MCP Manual Operations was completed in 2010 through series of consultations among concerned stakeholders at all levels with technical assistance from various sources. Orientation has also been provided to all concerned. Common efforts on malaria and other infectious diseases are also being integrated (e.g. microscopy training for medtechs, integrated vector management training on malaria, dengue, filariasis, microscope provision and inventory, etc.). Policy support to MCP is evident at the local level through issuances of ordinances/resolutions (e.g. resolution mandating mobile population to bring nets when they go to field or banning fishing men from using ITNs in fishing with stipulated sanctions).

Gaps and Challenges

(1) Despite orientation on the revised policies/guides, not all comply with the provisions. Monitoring of adherence is weak at the local level.

(2) The lack of LGU ownership of the program still persists in several areas with malaria work being all done by the DOH field malaria personnel and LGUs' reluctance to absorb them, and allocate budget for malaria operations at their level.

(3) Cost-effective approaches are needed for planning and implementation of integrated 'border operations' addressing the malaria and other primary care and disease control needs of remote and vulnerable populations. This may include piloting these approaches in areas where they have not yet been used but where there may be a significant mobile population living in or moving through remote areas.

(4) Integration of efforts towards disease free-zone (DFZ) needs further push. Current DOH priorities and directions include the integration of different skill-sets and training across a variety of disease entities and for different cohorts of health workers (e.g. laboratory staff, clinicians). It is important to explore integrated models of training

and QA, beginning with malaria, schistosomiasis and tuberculosis and potentially extending to food and water-borne diseases and lymphatic filariasis.

Strategy 5. Mobilize local government and community resources for malaria case surveillance in areas where malaria has been eliminated

Malaria surveillance is core to the prevention and control of malaria as it helps prevent the re-introduction of malaria infection in malaria-free areas, prevents the occurrence of outbreaks in any endemic locality and deters their progress to full-blown epidemics.

Status

Malaria surveillance activities undertaken by the LGUs have helped prevent and control the rise of malaria cases and deaths in their respective localities. LGUs' efforts to sustain their malaria-free status have not been that apparent considering that they were only put on board in late 2008. One noticeable action done by most malaria-free provinces was the continuous submission of reports even though they no longer have indigenous cases. Some reports show a number of imported cases as per case investigations. The DOH follows a certain set of criteria for validation before a province is declared malaria-free but this remains to be standardized and the process to be properly documented.

Efforts Undertaken

Quality diagnosis contributed to improved malaria surveillance. This was made possible by making laboratory/diagnostic supplies available, training the microscopists and installing the Quality Assurance System (QAS). The Philippine Integrated Disease Surveillance and Response (PIDSR) Framework and Operations Manual developed in 2006 provided impetus to the creation of surveillance units at various levels of operations. All CHDs have functional Regional Epidemiology and Surveillance Units (RESUs), and all provinces have installed their own, although only 21 of these are considered functional (conduct weekly analysis of data, produce at least monthly disease surveillance report and conduct at least preliminary investigation of outbreaks). Please refer to Appendix 5. In 2009, 5 provinces were assisted by the Australian Agency for international Development (AusAID) through the WHO to localize and adapt the PIDSR Framework in their provinces and develop the Plan of Action how to further enhance their surveillance and response system. This initiative is currently expanded to more provinces.

With dengue being most common in urban and peri-urban areas, and during the recent outbreaks, (most cases were from the following regions: Region VI -16.8%, Region IV-A - 11%, Region XII-10.2%, Region VIII-9.5%, National Capital Region - 8.9%, and Region XI - 7.7%, the. DOH, PSFI and RBM supported the CHDs with training in surveillance including community level surveillance and outbreak detection and response as a parallel support as well for malaria surveillance. Community approaches to fever surveillance and possible outbreak detection have been introduced in some areas, but resources for enhanced vector control and QA for diagnostics are limited. Opportunities may have been missed to help the Visayas move from pre-elimination to elimination phase

Gaps and Challenges

(1) The low proportion of functional provincial/municipal surveillance units nationwide puts the population at risk to undetected outbreak/epidemic.

(2) There is no monitoring of actions undertaken by the malaria-free provinces to sustain their status. Mapping of breeding areas, other vector control measures not explored, establishment of laboratory referral network for necessary laboratory/microscopy services not established in all malaria-free provinces.

(3) Private sector participation in malaria surveillance has not been fully harnessed. To date, only a few private health facilities submit reports on malaria cases and deaths.

(4) No written standard guideline exists in validating/assessing provinces to be declared malaria-free, and process has not been properly documented.

(5) Developmental activities (e.g. land development, mining sector, agriculture, logging, etc.) that facilitate population movements and migrant labour will re-introduce drug-resistance malaria parasites in potential pre-elimination areas. The challenge is to put in place and strengthen active surveillance and control.

Strategy 6. Strengthening Organizational Support and Management Systems

In addition to the strategies in the 2005-2010 NOH, other governance-related efforts were undertaken in support of MCP implementation in the past 5 years. These include putting in place supportive organizational structures and enhancement of support systems like the malaria information system, monitoring and evaluation, and logistics management.

6.1 Organizational Support Structure

Status

The organizational structure support in the management and implementation of MCP underwent significant changes since devolution and DOH reengineering in 2000. From a 46-staff complement of the then Malaria Control Services, there is only now 1 regular technical staff in charge of MCP with additional 4 staff hired by WHO for QAS(1), malaria and MIS (2). At the region, each CHD has a Malaria Program Coordinator, and in some, a malaria entomologist. Organizational support structure at the local level varies from one LGU to another. Highly endemic provinces have designated MCP Coordinators but not in all the other categories. Several LGUs continue to benefit from the deployment of CHD malaria field workers but others have completely deferred the anti-malaria work to the CHD Malaria Field Assistance Workers (FAWs). In areas where there is good coordination with CHDs, malaria activities are shared, with the LGU health staff supervising the work of the CHD FAWs but their salaries are paid by DOH. Project management structures are also established to coordinate implementation of GF/RBM.

Efforts Undertaken

At the regional level, some CHDs designated medical technologists to handle QAS. Advocacy efforts were exerted by some CHDs to iron out coordination and implementation arrangements with their respective LGUs resulting in better outcomes.

Some CHDs have already reassigned malaria field workers to other programs and tasks, particularly in malaria-free areas. GF/RBM allowed DOH and selected provinces to augment current staff through hiring of contractual. LGUs also pitched in their resources to absorb some project-hired staff.

Gaps and Challenges

(1) Some provinces still hold the view that the MCP is a vertical program with the CHDs taking the lead in its management and implementation. LGUs hesitate to absorb the malaria field workers and seldom allocate budget for its operations. There is no standard mechanism/approach developed how the DOH-CHDs will be able to transfer the full MCP management and implementation into the hands of the LGUs.

(2) Due to limited funds and the DBM cap on personnel budget, some provinces could not hire the necessary staff and have difficulty providing staff with transpo/TEV.

(3) Given the decreasing malaria cases in several provinces, there is as yet no plan on how the malaria field personnel would be handled. Microscopy proficiency of medtechs/ microscopists in low endemic and malaria-free provinces is expected to weaken but no plan has been designed to demonstrate how said competencies can be sustained.

6.2 Multi-Sectoral Collaboration

Malaria can only be controlled through collective and concerted efforts of various sectors at all levels of operations. Malaria prevention and control requires not only health interventions but also actions from the other sectors. Participation of the private sector is equally essential while the support and assistance from the DOH, donors and other development partners cannot be dispensed with given the limited funds of the LGUs.

Status

Multi-sectoral collaboration in response to malaria prevention and control is highly observable at the national level and is becoming more evident in the regions and LGUs. Coordination mechanisms exist allowing participation of various sectors in MCP activities. Several partners have attended joint undertakings particularly in policy formulation, research, training, monitoring and evaluation and project proposal development at the national level. In the regions and LGUs, multi-sectoral collaboration is most palpable in the area of outbreak investigation and response, border operations, health promotion, actual provision of nets, and to some extent - malaria diagnosis and treatment.

The Philippines Movement Against Malaria (PhilMAM) itself has a governing board, and is registered as a foundation in the Philippines. Its Mission is to "*consolidate and strengthen efforts and resources through sustained public-private collaborations and partnerships in order to reduce the burden of malaria*. Its goals are strongly guided by those of the NMCP and are therefore – in theory – completely harmonized with the RBM-ECP: (i) to halt and reverse the incidence of malaria by 2015; (ii) to eliminate malaria by 2020; and (iii) to sustain a malaria-free Philippines. Although KLM publishes regular newsletters and updates at the national level and in some provinces, the distinction between activities of the KLM, the PMN and the Global Fund project is unclear; neither KLM not PMN sit above or are represented on the Global Fund Project

in a governance or funds management capacity. Other than the goals and priorities defined in the original working paper, the Network does not appear to have a business plan or annual activity plan. Advocacy meetings for local business communities are conducted and are useful, but follow-up appears to depend on whether there is a dedicated or energetic individual. Emerging issues appear to be managed on an *ad hoc* basis, with the risk of slow response to emerging priorities and opportunities

Efforts Undertaken

Multi-sectoral collaboration at the national level is made possible through the creation of multi-sectoral bodies: the Management Committee (MANCOM) and Technical Working Group (TWG) that meet ad hoc on program-wide issues and concerns. The Philippine Movement Against Malaria (PhilMAM) was organized and SEC-registered in 2008, with 11 members envisioned to build public-private partnership against malaria. Multi-sectoral collaboration exists at the regional level through direct participation of other sectors in malaria activities such as outbreak investigation, advocacy, etc. Only CHD 11 has initiated forming a multi-sectoral body ala national malaria network. Various groups of stakeholders have been mobilized at the local level for anti-malaria work: other government agencies in the integration of malaria prevention in schools, industrial partners with existing industrial projects, NGOs/faith-based organizations in the provision of nets, and private health facilities for malaria diagnosis and treatment. Local management committees are also established to coordinate GF activities.

Gaps and Challenges

(1) Collaboration with the following sectors has not been fully established: military, etc.) National Commission of IPs, concerned industrial agencies and companies with existing operations in several provinces, etc.

(2) Participation of private health care practitioners and private facilities has been limited to only a few and their compliance to recommended treatment standard is low.

(3) Not all management committees at the local level are functional. As they were established mainly for the GF, their sustainability after GF ends becomes a concern.

(4) The listing of NGOs at the regional and local levels stipulating their technical expertise, resources, possible scope of assistance is far from complete.

(5) Participation of the private sector has not been fully maximized. The work of the PMN remains appropriate somewhat free-form, and would benefit from active support for a business plan and annual activity planning and closer alignment with the principles of public-private partnership. With the emergence of dengue as a public health priority in the Philippines and the possible convergence of some control methods with current approaches to malaria control, more efforts to engage the governing board of the PMN in discussion about the inclusion of dengue (and possibly other VBDs) within the mandate of the PMN Network.

(6) TWG meetings are centered mainly on GF-related concerns and have not been maximized as avenues for harmonizing both program and project-related efforts. Focusing these meetings only on GF-funded activities have deprived the non-GF areas from receiving corresponding technical assistance from the DOH-IDO and the ripple effects of relevant, effective GF-funded approaches and activities. The TWG is only convened from time to time and the full attendance of the members is difficult to harness.

6.3 Malaria Information Management System

Status

The MCP is supported with several information systems that require collection, consolidation and analysis of data on a regular basis: (i) DOH-FHSIS collects data on malaria cases, disaggregated by sex, age and species; (ii) PHS that generates annual report on malaria deaths; (iii) PhilMIS which collects and reports wider set of malaria information but only installed in Category A provinces and is now being expanded to other 14 Category B areas; (iv) MCP Reports drawn from accomplishment reports submitted by the RMPCs; and (v) PIDSR Case Notification Reports in which malaria is one of the 24 diseases reported on a weekly basis. Reports generated out of these databases have been helpful in monitoring the progress in MCP performance in terms of service coverage, utilization and outcomes, Not one though has been spared from problems of delayed submission, incomplete or inaccurate data. Latest available FHSIS and MCP Reports were 2008 while the latest PHS Report on malaria deaths was in 2005.

Efforts Undertaken

The PhilMIS was designed with GF assistance and has undergone several enhancements from its inception in 2004. Series of orientations/training were undertaken to put on board intended users in the provinces and regions. Efforts to harmonize PhilMIS and FHSIS in GF provincial project sites are on-going. Progress of MCP implementation in different category of provinces is regularly tracked by the IDO using these databases.

Gaps and Challenges

(1) Some reports from lower levels are incomplete, inaccurate, not disaggregated by sex, age and species and delayed. Reports received at the national level indicate that no consistency/validity checks have been employed before submission as indicated by the inconsistencies between PhilMIS and MCP Reports. Provincial encoders do not regularly furnished the CHD MCP Coordinators with PhilMIS reports.

(2) Malaria service data provided in far-flung, underserved areas may not be recorded in any database leading to underreporting which in turn affects the reliability of reported data as basis for decision-making.

(3) The current malaria information system requires further enhancement through collaboration. This can be achieved by harmonizing PhilMIS with the PIDSR system, not necessarily integration. A cross-analysis of PHILMIS, PDSIR and FHSIS in terms of objectives, data collection process, confirmation, analysis, dissemination, scope of work, case definition, identify and prioritise indicators and M&E approaches, select

indicators, data sources and develop M&E matrix, develop an M and E Plan, and consensus is required.

(4) The institutionalization of PhilMIS is threatened by fast turnover of encoders and the inability of LGUs to provide for their salaries. The change in the GF principal recipient delayed the PhilMIS data collection/submission in 2009.

(5) Data analysis ad utilization is sparsely done by the LGUs while regular generation of reports is wanting at the regional and national levels.

(6) The harmonization of PIDSR, FHSIS and PhilMIS in the 40 provinces at the municipal level requires further refinements.

(7) The NMCP has to collect and manage a minimum dataset that will help account for deliverables (set targets – inputs, process, outputs, outcomes and impacts), as planned. The indicator framework (country level as in M and E Plan and project M&E Plan e.g. GF) will be good reference points.

(8) Integration with the Health Information System is an added advantage for MIS sustainability. This may be difficult initially but is cost-effective in the long run.

(9) The NMCP has to collect and manage a minimum dataset that will help contribute to Western Pacific Regional and global (annual World Malaria Report) reports. The WHO Biregional Malaria Indicator framework and World Malaria Report template will be good reference documents at this meeting.

6.4 Monitoring and Evaluation

A special assessment of the monitoring and evaluation component of the MCP was conducted among national, regional and local groups of stakeholders. The assessment yielded the following efforts and challenges of the monitoring and evaluation system.

Status

Monitoring and evaluation of MCP performance are undertaken at various levels of administration sans the presence of an overall MCP Monitoring and Evaluation (M and E) Plan. M and E activities across regions/LGUs vary in terms of scope, frequency, timing and tools used. TWG members usually undertake joint monitoring to selected provinces once a year (project site). However, there was no monitoring in non-GF provinces. Monitoring by the CHDs is highly dependent on funds available and the allowable number of days for field visits. Several evaluation studies were carried out were not designed to allow comparisons and to measure progress in performance and outcome.

Many operational research studies have influenced national policies for malaria treatment and national and regional approached to vector control. They can also contribute to malaria control and elimination policies. These have included therapeutic efficacy studies to monitor drug resistance in P falciparum and P vivax, the sentinel surveillance for insecticide resistance in malaria vectors and QA for RDTs. Screening for glucose-6-phosphate dehydrogenase (G6PD) deficiency can provide useful advance warning to clinical staff of patients who are at risk of an adverse (haemolytic) reaction to multi-dose courses of PQ for *P vivax* infection. G6PD is included in a panel of 5 tests

for newborn screening; however, this testing is not free (parents must pay Php 400-700 for testing) and its status for reimbursement by *PhilHealth* is uncertain. RITM has secured funding through the AusAID-funded Asia-Pacific Malaria Elimination Network (APMEN) to undertake comparative pilot testing of different, semi-quantitative, point-of-care tests for G6PD activity in peripheral blood.

Efforts Undertaken

The MCP has a set of M and E indicators, some were specified in the 2005-2010 NOH to measure achievements of goal, objectives and strategies. Some have baseline values with specified frequency of measurement. Indicators also exist to measure trend, service coverage and utilization. Data collected allow disaggregation by age, sex and geographic areas. Reports are available on program/project inputs (e.g. no. of trained staff, no. of malaria field staff, quantity of commodities and equipment procured and distributed, etc.). Key offices/staff have been designated at all levels to collect, encode, consolidate and control data quality. Coordination among concerned DOH and regional offices on M and E has improved significantly with the roles and functions of those involved clearly delineated. Majority of staff assigned in M and E were trained on the different information systems with some staff having capability to analyze data and generate report. Use of data is palpable in planning, health promotion and decision-making. Data are accessible to stakeholders upon requests. Surveys are undertaken to measure level of awareness, health seeking behaviour, service utilization while bioassays, efficacy studies and susceptibility tests are conducted from time to time. Ongoing operational research remains closely aligned with and supportive of the priorities of the national Program.

Gaps and Challenges

(1) The formulation of the MCP M and E Framework could not proceed without the updated MCP Strategic Plan.

(2) Indicators to measure quality and adherence to treatment are quite limited while BCC indicators are far from complete. Input and process indicators are not clearly defined and most have no baseline values. There are also no guides/tools to monitor behavioural change, distribution of IEC materials, commodities and inventory of stock outs, deployment and training of staff by facility.

(3) Existing data collection systems have no built-in mechanism to detect individuals receiving the same service twice if provided by the same facility and clients served with the same service in another facility. Nets distributed by other organizations are not recorded and coordinated with DOH resulting to possible assistance overlap.

(4) Existing data on malaria cannot be disaggregated by socio-economic status. Data on the number of staff trained staff are not submitted to higher levels and reports while report on equipment and commodities distributed were mere listing of quantities given.

(5) There is no assurance that all personnel assigned in M and E have been trained particularly those newly-hired or designated.

(6) There are many accounts of delayed submission of reports, incomplete data and non-disaggregation of data as desired. No standard procedure has been designed to address such. Validation/review of data quality is seldom undertaken by the LGUs.

(7) There is limited appreciation of and utilization of data. Data analysis and report documentation is weak especially at the local level. FHSIS coordinators are limited merely to consolidation of data and seldom do they make data analysis.

(8) MCP data are not readily available to the public as these are not posted in the web. Dissemination of reports and results of researches undertaken was limited. While some reports are accessible, these are not on time.

(9) There is no research agenda prepared on MCP. No comprehensive plan exists when to undertake surveys and research studies.

(10) Offices responsible for M and E are minimally staffed. This is true for offices handling MCP and surveillance units at all levels. Though additional contractual staff were hired through GF and RBM, they are also saddled with monitoring project concerns.

(11) Research partners at RITM or academia should review the approaches to documenting the results of neonatal and other screening for G6PD, and their availability to clinicians who may be treating individuals for vivax malaria. Through the representation of the WHO Regional Office for the Western Pacific (WPRO) on APMEN, opportunities for collaborative funding and research into G6PD deficiency, different PQ treatment protocols and other aspects of P. *vivax* treatment and elimination should also be identified and monitored.

(12) The current efficacy of CoARtem remains at >96% in the country but population movement and migrant labour are re-introducing drug resistant parasites in potential pre-elimination areas. Artemisinin combination treatment is a valuable resource that must be protected; this necessitates the institutionalisation of drug resistance monitoring systems in DOH as part of active surveillance.

6.4 Logistics Management

The continuous availability of anti-malarial drugs, laboratory reagents/supplies and vector control commodities contributed to significant reduction of malaria cases and deaths.

Status

The MCP continues to benefit from the provision of anti-malarial drugs in sufficient quantity in the last 5 years. The allocation of anti-malarial drugs and ITNs has become more efficient as more data on number of population at risk became available. Guidelines in forecasting anti-malaria drug requirements and other supplies have also been developed. The distribution of anti-malarial drugs, reagents and ITNs has not been timely all the time. The quantity of ITNs/ LLINs procured is still below to achieve the 1:2 net utilization ratio. The provision of microscopes needs further streamlining vis-à-vis those provided from other programs like NTP. BMMCs and RDT sites are the ones most often without stocks while private health facilities still have no direct access to DOH drugs.

Efforts Undertaken

Allocation of anti-malarial drugs and other commodities were supported by inventory reports from the LGUs. The availability of transportation and funds for

distribution facilitated anti-malaria drug availability and other commodities at point of service. Commodities procured through GF, RBM and DOH are properly receipted and acknowledged. The DOH-Material Management Division came up with the standard supply management forms with training provided to regional and local supply officers. DOH-procured drugs and insecticide undergo standard testing by proper authorities.

Gaps and Challenges

(1) The malaria logistics system experiences certain lapses from time to time with some health facilities lacking anti-malarial drugs while others have over stock supply.

(2) Population groups in geographically and socio-economically isolated malaria-endemic areas found local drug procurement to be difficult. This is compounded by delayed distribution of drugs procured by the national government or the province.

(3) There are still supply of the former first line of drug (Sulfadoxine) in some LGUs. Field reports suggest these are still used despite the new treatment guide. The presence also of drugs (e.g. chloroquine) in sari-sari stores may also compromise treatment.

(4) The intent to make use of selected government facilities as drug distribution centers where private facilities can access 24/7 still to be operationalized.

C. Financing of the Malaria Control Program

Status

The bulk of funds that supported the MCP from 2004-2008 years came from external sources (GF and RBM) with 40-70% share of the total MCP budget. The national government's share ranged only from 15-38%, but may have increased in 2009-2010 given the increment allocation from GOP budget in the amount of Php 150 M for disease elimination. The LGUs have also progressively increased their share over the years while Philhealth through its In-Patient Benefit Package and Malaria Outpatient Benefit Package (MOBP) represented only a very small portion of the total amount spent for malaria.

Table 5. Budget for the Malaria Control Program, 2004-2008

Amount (in $)	Y1 (2004)	Y2 (2005)	Y3 (2006)	Y4 (2007	Y5 (2008)
National Government	$2,100,000	$2,100,000	$2,100,000	$2,100,000	$2,100,000
Domestic-LGUs/NGOs	$278,020	$456,772	$590,080	$1,819,104	$1,602,064
External Funds					
- GF-Rounds 2 and 5	$2,766,831	$4,072,934	$9,418,211	$5,550,313	$2,550,137
- RBM	$300,000	$1,060,000	$1,100,000	$1,100,000	NA
Total Funding	$5,444,851	$7,689,706	$13,208,291	$10,569,417	$6,252,201

Efforts Undertaken

The DOH has made significant efforts in mobilizing external resources to support the nationwide implementation of MCP. The influx of these external resources allowed the scaling up of malaria prevention and control activities, thus expanding service coverage that resulted to significant reduction in malaria cases and deaths in most of the provinces. Since 2002, the MCP has been a beneficiary of RBM assistance in 14 provinces up to 2007, while another 19 provinces are covered from 2008 to 2011. Majority of these are in Mindanao. The RBM assisted the MCP in its various components, particularly the installation of QA for microscopy which included the training of validators, microscopy and basic malaria management and severe case management including the design and protocols of cross border operations.

In 2004, the DOH successfully obtained GF assistance to address malaria in the 26 highly endemic provinces (Category A). GF Rounds 2, 5, 6 and the Rolling Continuing Channel (RCC) provided continuous assistance to the 26 Category A provinces. With the transition of principal recipient in 2009, the RCC was re-designed to Consolidated Channel of Funds (CCF) which assisted new 10 selected Category B provinces. Assistance covered the procurement of anti-malarial drugs, LLINs, lab reagents/supplies, health promotion, researches, administrative support like salaries, transportation and funds for monitoring. Please refer to Appendix 6 for provinces covered by GF and RBM.

The DOH budget for MCP also increased from mere Php 3.0 M in 2007 to Php150.0 M beginning 2008. The amount was utilized for additional anti-malarial drugs, laboratory reagents/supplies including ITNs for the non-GF/RBM funded areas. MCP also received support from development partners, NGOs (e.g. Red Cross, Kilusang Laban sa Malaria) or private companies (e.g. Maranatha Foundation). Amounts from these sources are quite difficult to establish considering that most are given direct to the LGUs in the form of technical assistance or in kind. A Bed Net Revolving Fund, a three-tiered subsidy scheme intended to raise funds for the procurement of more nets and insecticides was established in 2004. The scheme however was cancelled by DOH in agreement with the GF's provisions disallowing the use of the grant assistance for income-earning purposes.

Figure 19. Morbidity Cases/Rate from 2000-2008

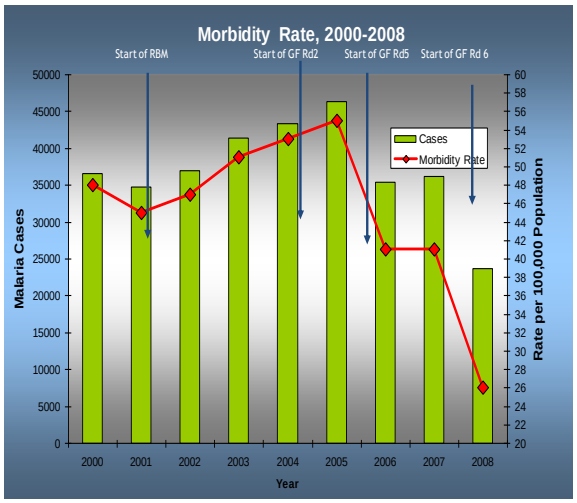
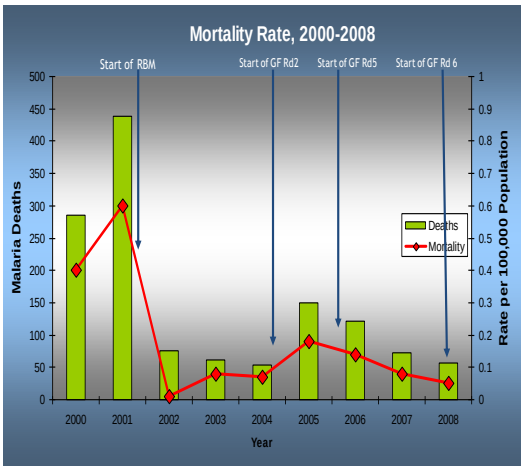


Figure 20. Mortality Cases/Rate from 2000-2008



Gaps and Challenges

(1) PhilHealth reimbursement under its In-Patient Benefit Package was minimal with only Php 3.9 M for 1,158 total claims as of 2009 compared to total number of hospitalized cases in the same period. The Malaria Outpatient Benefit Package (MOBP) launched in 2008 had also very low uptake among outpatient facilities. Only 50 health units were accredited nationwide as of August 2010, half of which are in Category B and C areas where cases are just few. Please refer to Appendix 7 for list of accredited facilities. The MOBP is an unattractive financing scheme in areas where malaria has already been eliminated or those in pre-elimination stage since only a very few cases exist.

(2) LGU financing for MCP is only noted in 4 of 80 the provinces with PIPH which had indicated amounts for anti-malarial drugs.

(3) Assistance to Category B, C and D provinces were given late, thus exposing their populations at risk to outbreaks or the re-introduction of the infection.

(4) The continuous financing by DOH and external funds of local operations especially consumables (e.g. supplies, reagents, etc.) including transportation/TEVs may dissuade the LGUs from allocating their own resources, and in the long run will constrain them from sustaining these recurring expenses.

(5) More funds are needed to procure additional LLINs in order to achieve the desired 1:2 net utilization ratio. Research studies as well as monitoring and evaluation of MCP seems to lack the necessary funds to make them fully operational.

(6) There is certain degree of willingness among IP and non-IP households to buy their own ITNs at a price reasonable to their capacity to pay (2009 KAP Survey). No strategy exists in financing the replacements of nets after external assistance ends.

D. Regulations

Regulatory measures in support to MCP encompass (i) the establishment of Quality Assurance System (QAS) for microscopy services, (ii) regular conduct of bioassay test to establish the efficacy of ITNs/LLINs; and (iii) monitoring compliance of anti-malarial drugs and insecticides procurement with DOH technical specifications and FDA requirements.

D.1 Microscopy Quality Assurance System

Microscopy, being the gold standard in malaria diagnosis, has to be validated through the established Quality Assurance System (QAS) nationwide designed at three levels. Level 1 ensures all microscopists in diagnostic centers undergo appropriate training courses provided by the National Core Group of Trainors (NCGT). Level 2 maintains the proficiency of microscopists through regular validation performed by certified provincial/ regional validator. Level 3 subjects the proficiency of validators in turn to proficiency assessment by RITM every 2 years while the training competency of NCGT members is assessed by an external expert through the Regional Accreditation and EQA Program.

Status

Most malaria endemic areas have malaria microscopy centers with at least 1 trained medical technologists or a designated microscopist. Most diagnostic facilities are conducive for microscopy work, equipped with functional microscopes and laboratory supplies. Most diagnostic centers and microscopists have a designated validator from the CHDs or PHOs. In general, there is a good ratio of validator to microscopists. Most microscopists were found compliant with the QAS protocols and to the corresponding validation schemes identified for each. Microscopists' performance in accuracy, sensitivity and specificity has generally improved including the quality of smearing and staining.

Efforts Undertaken

Support for early and quality microscopy has scaled up in previous years from various sources, particularly the expansion of microscopy centers, training of microscopists and validators, provisions of new microscopes and replacements of non-functional units. Laboratory supplies/reagents were provided and access to giemsa solution increased as result of the 3 Zonal Giemsa Production Centers strategically established in Region II, IV-A Extension Office in Palawan and XI. Several LGUs put up their own counterparts for supplies while some local NGOs provide their own augmentation. EQA slides as well as validation forms were also developed and reproduced. Validations were undertaken annually in most areas following the recommended schemes appropriate for each microscopy center. Results of validation are usually relayed to concerned authorities and staff. Supervision visits allowed open discussion of the validation results especially discrepant slides. Most microscopists were reported to be usually receptive of the recommendations given.

Gaps and Challenges

(1) The continuous operations of some diagnostic facilities is threatened due to the LGUs' inability to absorb the designated microscopists because of limited funds, absence of plantilla position or lack of interested applicants and fast turnover of staff.

(2) Some microscopy centers were reported without trained microscopists on Basic Malaria Microscopy while hospital-based medtechs have not undergone the 2-week Basic Malaria Microscopy Course including the newly-hired in non-GF areas. Some microscopists and validators were unable to attend updated QAS orientation. QAS reports also claimed that validation has not been strictly followed. There is yet to be a modification of the malaria microscopy curriculum without sacrificing quality, to be applied to those in malaria-free areas.

(3) Some diagnostic centers still experience problems with defective microscopes which remain unreplaced, microscopes being shared with other departments or used in other routine microscopy work. Most microscopes lack general cleaning and malfunctioning is not addressed due to lack of preventive maintenance services in the area. Some diagnostic centers also lack a designated laboratory area. Others have limited space.

(4)Though there were a number of provincial personnel trained on microscopy maintenance, no post-training monitoring has been done. Since this is also being provided by the National Tuberculosis Program (NTP) for the LGUs, there is a need to harmonize said assistance to avoid overlaps and minimize redundancies in the provision of technical assistance to concerned LGUs.

(5) Some regions suffer from insufficient sets of panel of slides causing delay in sending to and getting them back from the microscopists. Validation forms are also inadequate.

(6) Supervision is constrained by inadequate number of trained validators brought about by limited training slots and conflict of schedules. Movements of some CHD validators are hampered by administrative bureaucracy and multi-tasks and hospital medtechs cannot be tapped due to their high volume lab work. Municipal medtechs as validators is not feasible as their services are confined only within their designated catchment. Lack of transportation and communication support also limits supervision of BMMCs.

(7) Feedback of validation results to concerned microscopists in some areas, especially in Category C provinces is weak. Feedback is sometimes not done or more often delayed, thus setting back also the implementation of corrective measures. Mentoring microscopists who did not meet the 80% accuracy level is most of the time not possible due to conflict of schedule of microscopist and validator.

(8) There have not been any organized fora to feedback the results of QA efforts at the provincial, regional or national level where various stakeholders such as the academe, training institutions, PhilHealth, etc) could participate. Write-up on QA results has not been done even GF project sites) for publication.

(9) There has been difficulty in collecting reports on the results of QAS validation undertaken in various provinces including information with regards to the capacity, adequacy and functionality of diagnostic centers in terms of space, equipment, laboratory and validation logistics as well as the ratio of validator to microscopist ratio.

D.2 Quality Assurance of Anti-Malarial Drugs

Status

Results of the Facility Based Survey conducted in 2009 on Treatment Compliance[31] in selected Global Fund sites showed that treatment protocols are not completely followed. Treatment compliance was defined in the survey to be those cases given the right medicine to the right infection or species of the parasite. Based on the results, only half (50.9%) of cases were treated according to the 2002 Treatment Guideline. Of the 16 severe cases that were diagnosed, only 3 (18%) were treated according to DOH treatment protocol. Compliance to treatment also varied from one hospital to another. The provinces of Apayao (100.0%) and Sulu (98.8%) recorded highest percentage in treating cases in accordance to the treatment guideline while Palawan registered the lowest with only 28.8% of cases treated accordingly. Only three fourths (74.4%) of treatment compliance was registered by Tawi-Tawi. Please refer to Appendix 8 for the detailed results of the survey. It must be noted however that all anti-malarial drugs procured through DOH/GF/RBM followed the technical specifications by DOH and undergo appropriate testing upon delivery.

[31] Facility Based Survey on Compliance to 2002 Malaria Treatment Protocol in Five Provinces Covered by Global Fund Round 5 Malaria Component

Efforts Undertaken

The DOH in partnership with RITM performs Technical Efficacy Tests on a regular basis in selected sentinel sites. Based on the series of these tests, the Treatment Guide for malaria cases was updated in 2009 and issued officially under AO No. ___ 2009.

Challenges and Gaps

(1) Based on the external evaluation undertaken on RBM, there are indications in the local level where anti-malarial drugs are being sold in sari-sari stores.

(2) There were also reports of repackaging done at the local level of some anti-malaria drug. Mislabeling and repacking of anti-malaria drugs were also noted by RITM.

(3) To date, no mechanism exists how compliance of local procurement with DOH/FDA recommended anti-malarial drugs is monitored and guidelines regarding sanctions to be imposed in case of violations is also non-existent.

D.3 Quality Assurance of Vector Control Measures

Status

The quality of vector control activities requires the regular conduct of entomological activities particularly the bio-assay test to assess the efficacy and durability of long lasting insecticidal nets or LLINs (e.g. Olyset nets) and insecticide susceptibility of *Anopheles* mosquitoes. The three elements that need to be considered for the assessment of the durability of the (LLINs) LNs are net survivorship, fabric integrity and insecticidal activity (bio-efficacy). These components of durability are determined partly by factors intrinsic to the construction of the net (netting material, yarn strength, insecticide content, LLIN technology), and partly by extrinsic factors causing wear and tear.

Bioassay tests on both ITNs and LLINs were conducted by selected provinces, and nets with below 80% mosquito mortality were recommended for enhancement. The RBM supported the deployment of a research assistant in maintaining the insectary in CHD 11. Insecticides procured using GOP-DOH funds and GF assistance meet the requirements of the DOH-FDA and WHOPES.

Efforts Undertaken

(1) The DOH through Global Funds supported the training and conduct of bioassay tests and susceptibility tests in several provinces.

(2) The DOH has began to introduce Integrated Vector Management (IVM)[32] is an effective strategy because in vector control. This uses two or more vector control methods, with each method targeting a setting most susceptible to that intervention. Although IRS, ITN/LLIN, and environmental management are all effective individually, they complement each other and have a synergistic impact

[32] IVM involves a "rational decision-making process for the optimal use of resources for vector control". It requires reconsidering the combination of vector control methods over time, as the environment, epidemiology, and resources change. IVM is not limited to controlling malaria. In 2004, the World Health Organization recommended IVM globally for the control of all vector-borne diseases.

when used together[33]. In streams populated with *An. flavirostris,* opportunities exist to introduce automated flushing systems downstream from the Wawa Dam spillways, and WHO is well placed to advise the provincial Public Works Department on necessary infrastructure modification.

Gaps and Challenges

(1) No focus has been accorded to the regular conduct of bioassay tests with only a few areas undertaking said quality assurance. The susceptibility tests that must also be undertaken regularly by CHDs with RITM has not been complied with due to other priorities by CHD-MCP Coordinators and lack of RITM staff assigned for this purpose.

(2) Data on the useful life (i.e. physical integrity and retention of insecticidal activity) of LLINs under field conditions in the Philippines are currently lacking, meaning that procurement of large quantities of nets continues to be based on non-performance criteria such as cost, availability, color and size. A detailed, multi-centre evaluation of the useful life of a range of different LLINs under realistic field conditions is urgently required. This will provide essential data for selection of appropriate LLINs for future cycles of net procurement and distribution.

(3) In planning for universal and long term coverage with ITN/LLINs, MCP need information on the comparative durability of different LLIN LN products in local settings, for the following reasons: (i) the national programme and development agencies have to choose which products they should procure and whether or not in the local settings, particular products are likely to perform better than others; (ii) knowledge of the expected rates of loss over time of LLIN after distribution is needed in order to estimate the necessary rate of replacement through continuous distribution systems and the appropriate interval between campaigns.

(4) Operational research related to LLINs and regional capacity to undertake entomological research and studies of the durability and bio-efficacy of LLINs and other long lasting insecticidal materials are required.

(5) As one of the guiding principles of IVM is inter-sectoral collaboration, MCP should investigate and consider supporting study tours to relevant water authorities in Malaysia (where similar problems of malaria vector breeding related to dam run-offs have been successfully managed), and facilitate obtaining appropriate technical advice for the provincial Public Works Department.

(6) There is no assurance however of quality of the locally procured insecticides. There are also insecticide products in the local market which are not in the list of FDA and WHOPES approved insecticides.

[33] Okech BA, et al: Use of integrated malaria management reduces malaria in Kenya**.** *PLoS One* 2008, 3:e4050.

V. Summary of MCP Achievements and Gaps

The following summarizes the MCP accomplishment in the past 5-8 years including the gaps and challenges**.**

A. Summary of Program Achievements by Goal and Objectives

MCP Performance Achievements

- Malaria has been eliminated in 22 of the 58 endemic provinces, retaining the status in former 13 malaria-free provinces and declaring additional 9 areas from 2008 to 2010
- Category A Provinces achieved targeted morbidity reduction at 76.8% (2002, 2008 FHSIS) and malaria mortality reduction at 52.7/100,000 pop (2002 PHS and 208 MCP Reports)
- Category B provinces achieved targeted morbidity reduction at 78.2% (2002, 2008 FHSIS) and mortality reduction at 72.3% (2002 PHS and 2008 MCP Reports)
- Category C provinces achieved targeted morbidity reduction at 78.9 (2002, 2008 FHSIS) and mortality reduction by 90.0% (2002 PHS and 2008 MCP Reports)

Outstanding Gaps in MCP Performance

Malaria still remains though a public health problem in more than two thirds of endemic provinces. Trends of malaria morbidity and mortality from 2005 to 2009 based on MCP Reports showed that:

- Not all Category A and B provinces met the reduction target in morbidity or in mortality or both and some provinces had even registered higher morbidity or mortality or both in 2009 than in 2005
- Several provinces have fluctuating cases or deaths from 2005 to 2009 while several chartered cities had higher malaria cases in 2008 than in 2005
- Several provinces with still large malaria cases and deaths (e.g. Palawan, Sulu, Tawi-Tawi, Cagayan, Isabela, etc.)
- equivalence of newly stratified barangays and areas between Categories A B C and D with stable, unstable, malaria prone and malaria free areas.

B. Summary of Achievements by Strategy

On Diagnosis and Treatment

Strengths

- Diagnostic services expanded through establishment of BMMCs/RDTs
- Treatment protocols upgraded
- Anti-malarial drugs made available in most health facilities
- development of integrated microscopy module in progress

Gaps

- Operations of diagnostic centers difficult to sustain
- Poor compliance to treatment protocols despite training
- Some health facilities still without anti-malarial drugs
- Participation of private facilities/ practitioners still low

- The changing role of diagnosis and treatment in malaria prone and malaria free areas

On Vector Control

Strengths

- ITN/LLIN ownership quite high
- Population sleeping under ITN/LLIN ranged from 48% (2006) to 91.2% (2009)
- Under 5 year old sleeping under ITN/LLIN ranged from 54%(2006), to 95.6% (2009)
- ITN/LLIN prioritized for < 5 y. o.
- LLINs minimized issue re treatment/re-treatment of ITNs

Gaps

- Only few provinces met at least 80% ITN population coverage
- Desired ratio of 1 net to 2 persons not met
- There is no clear mechanism in place to sustain LLINs/ITNs after external funds
- ITN treatment/re-treatment not standard
- NMCP has to choose which LLIN product or brand it should procure and whether or not particular products are likely to perform better over time than others
- Information on the durability of LLINs after distribution is needed in order to estimate the necessary rate of replacement through continuous distribution systems and the appropriate interval between campaigns and, where necessary, to plan for disposal of old nets.
- Lack of experience of delivery of LLINs through mass immunization campaigns and /or ante-natal services to reduce the risk factors associated with reduced lifespan of LLINs.
- IRS application, timing, training not standard
- Policy directions of LLINs in malaria-free and malaria-prone area

On Demand for MCP Services

Strengths

- Majority aware of malaria as a problem and with generally correct knowledge of cause, transmission mode, prevention and most prefer to consult health centers
- Compliance to treatment is high

Gaps

- Few still have misconceptions re mode of transmission and prevention measures
- Adherence to net maintenance protocols far from desired
- Results of KAP studies undertaken not comparable

On MCP Planning and Targeting of Vulnerable Groups

Strengths

- MCP has defined goals, targets and strategies in 2005-2010 DOH-NOH
- Stratification by pattern of transmission at barangay levels have started
- Intervention package for pregnant women available, and malaria drug preparation for under five children available
- IEC materials adapted for IPs
- Border operations conducted in several areas

Gaps

- No MCP strategic plan developed in the past 5 years, hence the link of national-regional-local MCP plans are not clearly defined nor the GOP-RB-GF funded activities integrated into one plan at all levels. Integration of local MCP plans to PIPH very low
- Intervention approaches for other high risk groups (e.g. military) not yet defined
- Stratification still to be completed and to be applied correctly in some regions
- Border operations difficult to sustain

On Malaria Disease Surveillance in Malaria-Free Areas

Strengths

- PIDSR functional in all CHDs and 22 provinces
- Most malaria-free provinces practice zero reporting

Gaps

- Many LGUs still without functional surveillance units and participation of private health facilities in surveillance is very much wanting
- Some malaria - free provinces fail to submit report regularly and no mapping of breeding sites done
- No standard guides/criteria in assessing and declaring malaria-free provinces
- Lab referral system not in place in most malaria-free provinces
- No preparation has been made to reorient tasks/functions of diagnostic center staff
- There is lack of strategic direction and package of technical assistance designed for malaria-free provinces as guide in sustaining their status
- Time to consider the integration of surveillance and response capacity for malaria with that needed for other vector-borne diseases, especially dengue, within the framework of Integrated Vector Management.

On Organizational Support and Management Systems

Strengths

- MCP organizational support structure in place at all levels
- Multi-sectoral collaboration most palpable at national level and also present in some regions/LGUs
- PhilMIS designed and operational in Category A and some Category B provinces
- M and E indicators exist and clearly defined with data collection schemes in place
- Logistics management improved with the standardization of DOH supply forms and provision of training on the same.

Gaps

- Limited regular staff to manage/ implement MCP at different levels; some provinces highly dependent on field staff provided by the regions
- No standard mechanism how DOH/CHDs transfer full malaria program management and implementation to the LGUs
- Participation of private sector, other members of civil society especially at regional and local level not fully harnessed

- Collection, submission, use and dissemination, PhilMIS, FHSIS and PIDSR stand further refinements and strengthening
- No overall MCP M and E Framework and Guide; measurements of some key outputs/process not in place;
- Procurement of anti-malarial drugs, ITNs, supplies and have not been timely – with about 1.5 year delay in procurement.

On MCP Financing

Strengths

- Presence of external funds (GF and RBM) gave impetus to significant reduction of malaria morbidity and mortality
- DOH MCP budget increased from Php 3.0 M to Php 150.0 M
- PhilHealth MCP Outpatient Benefit Package launched

Gaps

- MCP highly dependent on external funding
- LGU financing for MCP nil or lacking in most LGUs
- External and DOH funds continue to finance consumables and operating costs
- Slow and low uptake by LGUs of PhilHealth Benefit Package (both In-Patient and Outpatient Packages)
- Some salient components of the MCP not given priority funding (e.g. research, monitoring and evaluation, etc.)
- assessment and comparison of the marginal costs and benefits of pursuing malaria elimination with the alternative of continuing control. The rationale is that elimination may still be an attractive investment through the production of additional economic benefits.
- sustaining elimination need a step change in malaria financing from the present so-called quick win approach to one of routine expenditures and benefits, such as that for immunization.

On MCP Regulations

Strengths

- Quality Assurance for microscopy in place in several regions/LGUs
- QAS validators available in most areas and follow recommended validation scheme
- some regions/LGUs continue bioassay and susceptibility tests for efficacy of ITNs
- all DOH/GF/RBM-procured malarial drugs follow DOH recommended specifications
- all DOH/GF/RBM-procured insecticides are part of WHOPES recommended list

Gaps

- QAS operations hampered due to limited supplies, validator, etc.
- difficulty in collecting reports on results of validation and information on the capacity, adequacy and functionality of diagnostic reflects lapses in the QAS
- presence of non-DOH recommended drugs in local stores and insecticides may have compromised quality
- only a few LGUs conducting bioassay tests

C. Summary of Strategies That Worked and Interventions for Enhancement

Strategies That Worked Well

- *Strategy on the provision of early diagnosis, prompt management and treatment and referral of malaria cases* have largely contributed to the improved MCP performance in the past 8 years as it entailed the expansion of microscopy centers and RDT sites nationwide, continuous availability of anti-malaria drugs to endemic areas, training of health staff, update of the Malaria Diagnosis and Management Policy and Guide and the operationalization of the QAS for microscopy services and anti-malarial drugs;

- *Strategy on the promotion of the effective and regular use of ITNs including universal coverage* has provided increased protection to families from the infection. The introduction of the LLINs has been seen to be a breakthrough in enhancing vector control measures at the community level;

- *Strategy in mobilizing resources from external resources for anti-malaria interventions* implementation at the local level especially among the highly endemic provinces in the country was a major input that curbed the rise of malaria cases and deaths in the country. Without these external funds (GF and RBM), the country would not have reached the reduced levels of malaria morbidity and mortality;

- *Strategy to stratify endemic areas by rate of transmission down to the barangay level* provided a sound basis for better targeting and prioritization of assistance. It has also led to tailor-fit package of interventions appropriate for each stratified area;

- *Strategy 3 on increasing the demand for anti-malarial services* helped raise the awareness of community members about malaria transmission and prevention and their compliance of clients to treatment protocols and the use of ITNs/LLINs as protective measures.

Interventions/Measures That Need Enhancement

Critical issues and bottlenecks that remain to hamper universal access to quality anti-malarial services and slowing down the country's achievement of its vision of malaria-free Philippines include the following:

- Inefficiency in the design and implementation of some known effective interventions and measures slowed down progress in elimination of the disease:

  - non-compliance of service providers to treatment protocols, delayed procurement, poor inventory and distribution of anti-malarial drugs and supplies leading to stock outs and non-monitoring of staff performance after training;

  - limited procurement, poor inventory, non-focused distribution of LLIN/ITN supplies and compounded by clients' cultural practices and preference failed to achieve desired net to population ratio; non-monitoring of the proper use and application of IRS failed to establish its effectiveness as a complimentary vector control;

- Poor targeting of LGUs for assistance and special population groups to be assisted

  - focusing the assistance only to highly endemic areas has weakened MCP performance in low to moderate endemic provinces;

- lack of guidelines and tailor-fit interventions to address malaria among population groups with special needs and in extra-ordinary situation

- Delayed establishment of functional management support systems

  - slow establishment of functional malaria surveillance system resulted to malaria outbreaks in selected sites

  - absence of an overall M and E Plan to direct tracking of MCP progress and status

  - slow harmonization process of PhilMIS, PIDSR and FHSIS including inaccuracies in data collection and delayed report submission hampered more effective and efficient implementation of program interventions

  - surveys/researches not designed for comparability of outcomes

  - limited dissemination of information/reports thus minimizing their use for planning and decision making

- Lack of policies and guidelines on the following

  - absence of an overall program strategic direction to shift major key players from disease control orientation towards elimination of the disease
  - no clear-cut strategies and approaches to sustain malaria-free status in malaria-free and malaria-prone areas

- Weak foundation for sustainability of program efforts and outcomes
  - lack of ownership among LGUs of the MCP
  - no holistic strategic plan by each LGU how to address malaria elimination in their respective localities
  - local implementation being highly dependent on external funds and DOH budget
  - weak coordination of externally-funded project initiatives (GF and RBM) limit the maximization of benefits for the whole program

- Dearth of personnel to manage/coordinate and implement MCP at all levels of operations limit the actions towards malaria elimination

VI. Recommendations

Given the results of the assessment, the following are recommended to be pursued in the next 5 years:

<u>Service Delivery</u>

(1) Focus attention and intensify assistance to the following provinces/areas regardless of current category:

   a. those with higher morbidity and/or mortality reported in 2008 than in 2002
   b. those with fluctuating trends in malaria cases and deaths from 2005-2008
   c. those with still considerably high number of malaria cases and deaths

d. those that are slow in reducing mortality and morbidity or those unable to achieve the desired reduction targets
e. chartered cities with considerably high morbidity cases

(2) Design and establish an MCP package of interventions and approaches responsive to needs of identified high risk groups: MCP in the military, MCP in areas hosting active industrial activities, MCP among displaced populations, etc.

(3) Continue/sustain operations of the diagnostic and management/treatment service outlets for early diagnosis and prompt treatment in areas with stable and unstable transmission: sustain BMMC and RDT site operations, train more private practitioners, provide drugs/supplies to private health facilities, fast track efficacy study and QA of RDT;

(4) Scale up and sustain coverage of vector control interventions specifically on LLIN coverage to meet 1 net : 2 persons ratio or 1 net:<2 persons ratio and replacement strategies for expired LLINs;

(5) Strengthen health promotion to improve knowledge, health seeking behavior and practices of targeted clients and to generate support from concerned stakeholders.

Governance

(6) Step up actions in supervision and monitoring of compliance by health facilities, practitioners, or local health offices to MCP policy, guides and protocols to ensure quality malaria diagnostic and treatment services, maintenance of ITNs specifically LLINs and appropriate application of IRS, etc.

(7) Establish sustainable support system for malaria-free areas to prevent re-introduction of infection: surveillance system, malaria personnel transition plan, health promotion. Establish sustainable support system of successful border operations inter/intra-provincial and municipal levels

(8) Fine tune the design and strengthen the operationalization of management support systems: planning, MIS, M and E, logistics management, multi-sectoral collaboration, program-project management coordination.

(9) Pursue stratification of areas down to barangay level, reclassify categorization of provinces accordingly and adopt the 4-phase malaria elimination process.

(10) Develop an operational malaria elimination strategy focusing on identification and elimination of foci of infections through both passive and active methods of case detection combined with targeted vector control.

Financing

(11) Build up internal funding to sustain MCP operations for eventual end of external assistance by advocating for national and local government budget increases for the malaria program and step up step up facility accreditation to MCP Outpatient Benefit Package

(12) Institute guidelines for a more rationale use of external funds and establish a reasonable cost-sharing mechanism between the national and local government in support to MCP.

Regulations

(13) Strengthen QAS for microscopy services and use of RDT

(14) Institute supervision guide in each facility to ensure compliance to treatment protocol.

(15) Continue the conduct of entomological studies for efficacy of nets, and monitoring local procurement of malarial drugs and insecticides and other operations research to establish quality of vector control measures

Appendices

Appendix 1. Category of Provinces In 2002 and 2008

Category A	2002	2008/2009		Category B	2002	2008/2009
1	Agusan Norte			1	Abra	
						1.Agusan Norte
						2. Agusan Sur
						3. Apayao
2	Agusan del Sur			2	Aurora	4. Aurora
3	Apayao			3	Bataan	
						5. Basilan
						6. Bukidnon
4	Basilan			4	Bulacan	
5	Bukidnon			5	Camarines Norte	
6	Cagayan	1. Cagayan		6	Camarines Sur	
						7. Compostela Valley
						8. Davao Norte
						9. Davao Oriental
						10. Davao Sur
7	Com Valley			7	Ilocos Norte	
						11. Kalinga
8	Dava Norte			8	Laguna	
9	Davao Sur			9	Lanao Norte	
10	Davao Oriental			10	Lanao Sur	
11	Ifugao			11	Maguindanao	12. Maguindanao
						13. Mindoro Occidental
12	Isabela	2. Isabela		12	Mindoro Oriental	14. Mindoro Oriental
						15. Misamis Oriental
						16. Mt. Province
13	Kalinga			13	North Cotabato	17. North Cotabato
14	Mindoro Occ			14	Nueva Ecija	
15	Misamis Oriental			15	Nueva Vizcaya	18. Nueva Vizcaya
16	Mountain Province			16	Pangasinan	
						19. Quezon
						20. Quirino
17	Palawan	3. Palawan		17	Rizal	21. Rizal
18	Quezon			18	Romblon	
						22. Saranggani
						23. Shariff Kabunsuan
19	Quirini			19	South Cotabato	24. South Cotabato
20	Saranggani			20	Sultan Kudarat	25. Sultan Kudarat
						26. Surigao Sur
21	Sulu	4. Sulu		21	Tarlac	
22	Surigao Sur			22	Zambo del Norte	
						27. Zambales
23	Tawi-Tawi	5. Tawi-Tawi				28. Zambo Sur
24	Zambales					
25	Zambo del Sur					
26	Zambo Sibugay					

Category C	2002	2008/2009		Category D	2002	2008/2009
		1.Abra				
1	Albay			1	Catanduanes	1.Catanduanes
2	Antique	2.Antique		2	Iloilo	2. Iloilo
		3. Bataan				
3	Batanes	4. Batanes		3	Aklan	3. Aklan
4	Batangas	5. Batangas		4	Guimaras	4. Guimaras
5	Benguet			5	Capiz	5. Capiz
		6. Bulacan				
		7. Camarines Sur				
		8. Camarines N.				
		9. Dinagat Island				
6	Cavite			6	Bohol	6. Bohol
7	Eastern Samar			7	Cebu	7. Cebu
		10. Ifugao				
8	Ilocos Sur	11. Ilocos Sur		8	Siquijor	8. Siquijor
		12. Ilocos Norte				
		13. Laguna				
		14. Lanao Norte				
		15. Lanao Sur				
9	La Union	16. La Union		9	Northern Samar	9. Northern Samar
10	Marinduque			10	Northern Leyte	10. Northern Leyte
11	Masbate			11	Southern Leyte	11. Sothern Leyte
12	Misamis Occ	17. Misamis Occ		12	Biliran	12. Biliran
13	Negros Occ	18. Negros Occ		13	Camiguin	13. Camiguin
14	Negros Or	19. Negros Or				14. Benguet
		20. Nueva Ecija				
15	Pampanga	21. Pampanga				15. Cavite
		22. Pangasinan				
		23. Romblon				
16	Sorsogon					16. Marinduque
17	Surigao Norte					17. Masbate
		24. Tarlac				
18	Western Samar					18. Albay
		25. Zambo Norte				19. Sorsogon
		26. Zambo Sibugay				20. Western Samar
						21. Eastern Samar
						22. Surigao Norte

Appendix 2. Summary of Performance by Category of Provinces and Chartered Cities Against 2005-2010 NOH Targets

Provinces	Malaria Cases/Morbidity		Malaria Deaths/Mortality		Performance Vis0A-Vis Morbidity and Mortality Reduction Targets
	Pattern of Cases from 2005 to 2008 MCP Reports	≥ 70% Reduction of Malaria Morbidity Rate, FHSIS 2002-2008	Pattern of Deaths from 2005 to 2008 MCP Reports	≥ 50% Mortality Rate Reduction , 2002 PHS and 2008 MCP	
Category A					
1. Agusan Norte	< 2008 w/ steady decline	100,0	< 2008 w/ steady decline	100.0	achieved both
2. Ifugao	< 2008 w/ steady decline	94.6	< 2008 w/ steady decline	100.0	achieved both
3. Davao Sur	< 2008 w/ steady decline	78.2	< 2008 w/ steady decline	100.0	achieved both
4. Quirino	< 2008 w/ steady decline	100.0	Maintained 0 death	0	achieved both
5. Surigao Sur	< 2008 w/ steady decline	93.5	< 2008 w/ steady decline	84.6	achieved both
6. Apayao	< 2008 w/ steady decline	99.5	< 2008 but fluctuating	100.0	achieved both but fluctuating mortality
7. Davao Or	< 2008 but fluctuating	98.1	< 2008 but fluctuating	100.0	achieved both but both were fluctuating
8. Agusan Sur	< 2008 but fluctuating	93.0	Maintained zero death	0	achieved both but fluctuating morbidity
9. Kalinga	< 2008 but fluctuating	90.7	< 2008 but fluctuating	100.0	achieved both but both were fluctuating
10. Z. Sibugay	< 2008 but fluctuating	87.8	< 2008 but fluctuating	100.0	achieved both but both were fluctuating
11. Mt. Province	< 2008 but fluctuating	86.3	< 2008 w/ steady decline	0.0	achieved both but with fluctuating morbidity
12. Isabela	< 2008 w/ steady decline	69.2	< 2008 but fluctuating	95.7	achieved mortality only but fluctuating
13. Cagayan	< 2008 w/ steady decline	65.6	< 2008 but fluctuating	93.5	achieved mortality only fluctuating
14. Misamis Or	< 2008 w/ steady decline	39.1	< 2008 but fluctuating	100.0	achieved mortality only but fluctuating
15. Coma Val	< 2008 but fluctuating	55.4	Steady decline	100.0	achieved mortality only but fluctuating morbidity
16. Quezon	< 2008 but fluctuating	23.4	Maintained zero death	0.0	achieved mortality only and fluctuating morbidity
17. Palawan	< 2008 but fluctuating	64.8	< 2008 but fluctuating	57.6	achieved mortality only but fluctuating

Provinces	Malaria Cases/Morbidity		Malaria Deaths/Mortality		Provinces Performance of Targeted Morbidity and Mortality Reduction
	Pattern of Cases from 2005 to 2008 MCP Reports	70% Reduction of Malaria Morbidity Rate, FHSIS 2002-2008	Pattern of Deaths from 2005 to 2008 MCP Reports	50% Mortality Rate Reduction , 2002 PHS and 2008 MCP	
18 Bukidnon	Higher morbidity	-60.8	< 2008 w/ steady decline	100.0	achieved mortality only and higher morbidity
19. Sarangani	Higher morbidity	-279.2	< 2008 w/ steady decline	100.0	achieved mortality only and higher morbidity
20. Zambo Sur	Higher morbidity	-270.0	< 2008 w/ steady decline	0.0	achieved mortality only and higher morbidity
21. Occ Mindoro	Higher morbidity	-221.9	< 2008 but fluctuating	88.9	achieved mortality only and higher morbidity
22. Davao Norte	Higher morbidity	-0.6	< 2008 but fluctuating	100.0	achieved mortality only and higher morbidity
23. Sulu	< 2008 but fluctuating	99.9	Higher mortality	-50.0	achieved morbidity only but higher mortality
24. Zambales	Higher morbidity	-275.8	< 2008 but fluctuating	42.9	did not meet any reduction target
25. Tawi-Tawi	No data	nd	Higher mortality	-109.1	Incomplete data
26. Basilan	No data		No data		No data
Category B					
1. Lanao del Sur	Sustained 0		Sustained 0 death	0	achieved both
2. Abra	< 2008 but fluctuating	100.0	0 death with steady decline	100	achieved both but fluctuating morbidity
3. Cam. Norte	< 2008 but fluctuating	100.0	Sustained 0 death	0	achieved both but fluctuating morbidity
4. Laguna	< 2008 but fluctuating	99.0	0 death with steady decline	100	achieved both but fluctuating morbidity
5. Nueva Vizcaya	< 2008 but fluctuating	98.3	0 death w/ steady decline	100	achieved both but fluctuating morbidity
6. Ilocos Norte	< 2008 but fluctuating	57.5	0 death with steady decline	100	achieved both but fluctuating morbidity
7. Bulacan	< 2008 but fluctuating	50.0	0 death with steady decline		achieved both but fluctuating morbidity
8. Lanao Norte	0 morbidity but fluctuating	0	0 death w/ steady decline	100	achieved both but fluctuating morbidity
9. Romblon	0 morbidity but fluctuating	0	0 death but fluctuating	100	achieved both but fluctuating morbidity

Provinces	Malaria Cases/Morbidity		Malaria Deaths/Mortality		Provinces Performance of Targeted Morbidity and Mortality Reduction
	Pattern of Cases from 2005 to 2008 MCP Reports	70% Reduction of Malaria Morbidity Rate, FHSIS 2002-2008	Pattern of Deaths from 2005 to 2008 MCP Reports	50% Mortality Rate Reduction , 2002 PHS and 2008 MCP	
10. Cam. Sur	< 2008 but fluctuating	100.0	0 death but fluctuating	100	achieved both but fluctuating morbidity
11. Pangasinan	< 2008 but fluctuating	100.0	0 death but fluctuating	100	achieved both but fluctuating morbidity
12. Or. Mindoro	< 2008 but fluctuating	83.3	0 death but fluctuating	100	achieved both but fluctuating morbidity
13. N. Cotabato	< 2008 but fluctuating	63.2	0 death but fluctuating	100	achieved both but fluctuating morbidity
14. Nueva Ecija	No reduction, and fluctuating	0	0 death with steady decline	100	achieved mortality target only but not morbidity
15. S. Kudarat	< 2008 but fluctuating	67.4	No reduction and fluctuating	0	Achieved morbidity target only but not mortality
16. Aurora	Increased morbidity	-31.4	0 death but fluctuating	100	Achieved mortality reduction only but with increased morbidity
17. S. Cotabato	Increased morbidity	-45.7	0 death but fluctuating	100	Achieved mortality reduction only but with increased morbidity
18. Bataan	Increased morbidity	-100.0	0 death but fluctuating	100	Achieved mortality reduction only but with increased morbidity
19. Zambo Norte	Increased morbidity	-400	0 death but fluctuating	100	Achieved mortality reduction only but with increased morbidity
20. Rizal	Increased morbidity	-3200	0 death but fluctuating	0	Achieved mortality reduction only but with increased morbidity
21. Tarlac	Increased morbidity	-1100	Increased mortality	-8.0	Did not meet any of the target
22. Maguindanao	No data	nd	0 death with steady decline	100	No data

Provinces	Malaria Cases/Morbidity		Malaria Deaths/Mortality		Provinces Performance of Targeted Morbidity and Mortality Reduction
	Pattern of Cases from 2005 to 2008 MCP Reports	70% Reduction of Malaria Morbidity Rate, FHSIS 2002-2008	Pattern of Deaths from 2005 to 2008 MCP Reports	50% Mortality Rate Reduction , 2002 PHS and 2008 MCP	
Category C					
1. Benguet	Sustained 0 case	0.0	Sustained 0 death	0	Achieved both morbidity and mortality targets
2. W. Samar	Sustained 0 case	0.0	Sustained 0 death	0	Achieved both morbidity and mortality targets
3. E. Samar	Sustained 0 case	0.0	Sustained 0 death	0	Achieved both morbidity and mortality targets
4. Batanes	Sustained 0 case	0.0	Sustained 0 death	0	Achieved both morbidity and mortality targets
5. Batangas	Sustained 0 case	0.0	Sustained 0 death	0	Achieved both morbidity and mortality targets
6. Cavite	Sustained 0 case	0.0	Sustained 0 death	0	Achieved both morbidity and mortality targets
7. Marinduque	Sustained 0 case	0.0	Sustained 0 death	0	Achieved both morbidity and mortality targets
8. Masbate	Sustained 0 case	0.0	Sustained 0 death	0	Achieved both morbidity and mortality targets
9. Albay	< 2008 but fluctuating	100.0	Sustained 0 death	0	Achieved both targets but w/ fluctuating morbidity
10. Sorsogon	< 2008 but fluctuating	100.0	Sustained 0 death	0	Achieved both targets but w/ fluctuating morbidity
11. Antique	< 2008 but fluctuating	50.0	Sustained 0 death	0	Achieved both targets but w/ fluctuating morbidity
12. Negros Occ.	< 2008 but fluctuating	100.0	Sustained 0 death	0	Achieved both targets but w/ fluctuating morbidity
13. Negros Or.	< 2008 but fluctuating	100.0	Sustained 0 death	0	Achieved both targets but w/ fluctuating morbidity
14. Misamis Occ.	< 2008 but fluctuating	100.0	Sustained 0 death	0	Achieved both targets but w/ fluctuating morbidity
15. Surigao Norte	< 2008 but fluctuating	100.0	Sustained 0 death	0	Achieved both targets but w/ fluctuating morbidity

Pattern of Cases from 2005 to 2008 MCP Reports	70% Reduction of Malaria Morbidity Rate, FHSIS, 2002-2008		Pattern of Deaths from 2005 to 2008, MCP Reports		50% Reduction of Malaria Mortality Rate, PHS 2002 and MCP,2008
	Pattern of Cases from 2005 to 2008 MCP Reports	70% Reduction Malaria Morbidity Rate, FHSIS 2002-2008	Pattern of Deaths from 2005 to 2008 MCP Reports	50% Mortality Rate Reduction , 2002 PHS and 2008 MCP	
16. Ilocos Sur	< 2008 but fluctuating	100.0	Fluctuating w/ 0 death	100.0	Achieved both targets but w/ fluctuating morbidity and mortality
17. Pampanga	Increased morbidity	-30.0	Sustained 0 death	0	Achieved mortality but w/ increased morbidity
18. La Union	Increased morbidity	- 10.0	Sustained 0 death	0	Achieved mortality but w/ increased morbidity

Chartered Cities	2008 Malaria Cases FHSIS	Pattern of Cases from 2005 to 2008	50% Malaria Morbidity Rate Reduction 2002-2008, FHSIS	Priority Cities for Focused Assistance
1. Baguio	0	sustained 0 case	0.0	Priority 4
2. Dagupan	0	sustained 0 case	0.0	Priority 4
3. Naga	0	sustained 0 case	0.0	Priority 4
4. Iligan	0	sustained 0 case	0.0	Priority 4
5. Lapu Lapu	0	sustained 0 case	0.0	Priority 4
6. Cagayan de Oro	0	zero case with steady decline	100.0	Priority 4
7. Butuan	0	zero case in 2008 but fluctuating	100.0	Priority 3
8. Quezon	0	zero case in 2008 but fluctuating	100.0	Priority 3
9. Valenzuela	0	zero case in 2008 but fluctuating	100.0	Priority 3
10. Makati	0	zero case in 2008 but fluctuating	100.0	Priority 3
11. Iloilo	0	zero case in 2008 but fluctuating	0.0	Priority 3
12. Santiago	0	zero case in 2008 but fluctuating	0.0	Priority 3
13. Mandaue	0	zero case in 2008 but fluctuating	0.0	Priority 3
14. Olongapo	1754	lower cases in 2008 but fluctuating	95.3	Priority 2
15. Puerto Princesa	107	lower cases in 2008 but fluctuating	31.1	Priority 2
16. Davao	2	lower cases in 2008 but fluctuating	20.4	Priority 2
17. Cotabato	0	lower cases in 2008 but fluctuating	9.6	Priority 2
18. Cebu	1	higher cases in 2008 and fluctuating	-10.0	Priority 1
19. Kalookan	3	higher cases in 2008 and fluctuating	-20.0	Priority 1
20. Marikina	1	higher cases in 2008 and fluctuating	-20.0	Priority 1
21. Zamboanga	26	higher cases in 2008 and fluctuating	-37.0	Priority 1
22. Angeles	2	higher cases in 2008 and fluctuating	-60.0	Priority 1
23. Bacolod	1	higher cases in 2008 and fluctuating	-100.0	Priority 1
24. General Santos	159	higher cases in 2008 and fluctuating	-854.3	Priority 1

Appendix 3. Summary of KAP and Net Utilization Survey Results

3.1 Awareness/Knowledge About Malaria, 2005 and 2009 KAP Surveys

Knowledge/Awareness About Malaria	2005 KAP Survey on IPs	2009 KAP Survey		2008 COMBI Evaluation	
		IP	Non-IP	Palawan	Quirino
1. Recognition of malaria as a problem/Heard about malaria	86.5	61.2	31.48	100	100
2. Most Common Identified Symptoms					
• fever	69.0	70.9	67.6	80-100	80-100
• chills	70.2	60.3	51.2	40-50	80-100
• headache	58.1	54.8	61.0	60-70	80-100
• body aches/joint pains	20.3/10	7.2	4.8	40-50	40-50
• convulsions/seizures	7.8	7.9	2.7	40-50	< 30
• profuse sweating	6.0	7.9	4.1	40-50	-
3. Mode of Transmission					
- mosquito bite alone	46.1	63.7	57.6	80-100	80-100
- mosquito bite and other means	34.8	10.7	14.2		
- Other means of transmission				acquired from unclean/ stagnant water, "pasma", weak resistance;	drinking dirty water; dirty surroundings or trash; blood transfusion
▪ Drinking dirty water	62.8	10.1	12.9		
▪ Dirty surrounding	80.6	8.9	9.9		
▪ Sleeping beside malaria patient	51.1				
▪ Too much work	45.1	53.2	2.7		
▪ Inadequate sleep/rest	45.0	-	-		
▪ Not eating on time	43.7	-	-		
▪ Intake of fruits	21.3	-	-		
▪ Inadequate food intake	44.2	-	-		
4. Prevention of Malaria					
- Use mosquito net	20.4	76.3	65.1	80-100	80-100
- Create smoke	43.3	53.3	44.2	40-50	-
- Use mosquito net and create smoke	18.1	-	-	-	-
- appropriate clothing	-	9.3	2.4	<30.0	<30.0
- have blood smears taken	-	-	-	40-50	-
- have nets treated	-	-	-	40-50	-
- have household sprayed	-	-	-	60-70	-
- clean surroundings/canal	-	-	-	40-50	80-100

3.2 Health Seeking Behaviour of Targeted Population, KAP Surveys 2005 and 2009

Health Seeking Behavior	2005 KAP Survey on IPs	2009 KAP Survey		2008 COMBI Evaluation	
		IP	Non-IP	Palawan	Quirino
1. Consult Immediately (w/n 1-2 days)	41.7	24.9	24.5	80-100	-
2. Utilization of Health Centers	84.3	77.1	81.4		80-100
3. Reasons for not consulting					
- Distant health center	43.3	-	-	-	-
- No Health Center	2.4	-	-	-	-
- No health personnel	9.8	-	-	-	-
- No medicine	12.2	-	-	-	-
- Self medicate	13.7	44.4	39.7	-	-
- no need to consult	-	10.2	16.6	-	-
- no money	-	39.0	23.0	-	-
4. Preferred Health Service Provider					
- Health center	71.3	-	-	80-100	80-100
- hospital	14.9	-	-	-	-
- Traditional healers	7.4	-	-	-	-
- Self medicate	12.0	-	-	-	-
Health Seeking Behavior	**2005 KAP Survey on IPs**	**2009 KAP Survey**		**2008 COMBI Evaluation**	
		IP	**Non-IP**	**Palawan**	**Quirino**
5. Treatment Compliance	89.3	95.0	93.0	-	-

6. Reasons for not completing treatment					
- patient already got well	49.6%	72.7	63.4	-	-
- Keep for next illness	5.4	-	13.6	-	-
- Gave to others	3.1	-	-	-	-
- Have side effects	4.7	-	-	-	-
- Taste bad	8.5	20.4	-	-	-

3.3 Practices on Net Utilization, Retreatment and Maintenance

Practices on ITN/LLIN	2005 KAP Survey on IPs	2006 Survey (12 Cat A)	2006 Survey Palawan	2007 Survey (21 Cat A)	2009 KAP Survey (5 Cat A)		2008 COMBI Evaluation	
					IP	Non-IP	Palawan	Quirino
1. Sleeping under mosquito net	81.8	98	100	97%			80-100	80-100
2. Reasons for not sleeping under mosquito net								
- Warm inside the mosquito net	46.0	-	-	-	6.1	9.9	-	-
- No mosquito	26.4	-	-	-	1.3	1.0	-	-
- Not enough mosquito net/no mosquito net	10.3/ 3.2	-	-	-	13.9	8.9	-	-
- No mosquito net and warm inside	5.8	-	-	-	-	-	-	-
- Not accustomed to using mosquito net	3.0	-	-	-	-	-	-	-
3. Maintenance of Net								
3.1. Washing of Nets	-	93	94	94	-	-	100	100
3.2 Frequency								
- Weekly	31.7	-	-	-	41.5	28.5	-	-
- Every 2 weeks/ twice a month	1.3	-	-	41	21.6	23.8	-	< 30
- Monthly	20.4	-	-	59	25.7	27.6	80-100	<30
- Every 2 months	5.2	-	-	-	4.8	8.0	60-70	
- Every 3 months	3.1						40-50	80-100
- twice a year	-	30.0	13	-	-	-	-	-
- No regular period	16.5							
3.3. Use of bar soap in washing nets	92.8	63	59	64	81.5	75.3	-	-
3.4 Use of bleaching agent In washing nets	34.3	-	-	-	11.5	7.5	-	-
3.5. Direct Sun Exposure	46.2	-	-	-	83.0	94.7	-	-
3.6 Condition of the mosquito nets								
- Intact	59.2	-	-	-	-	-	-	-
- with < 10 holes	26.4	-	-	58%; 50% stitched	34.0	36..0	-	-
- with ≥ 10 holes	6.7	-					-	-
3.7 Storage of Nets	-	-	-	50% in closed container	-	-	-	-

Appendix 4. Malaria Endemic Provinces with PIPH Reflecting MCP Activities, 2010 BLHD Reports

Region/Province	PIPH Batch	PIPH With MCP Activities				Region/Province	PIPH Batch	PIPH With MCP Activities		
		2007	2008	2009				2007	2008	2009
CAR						**CHD 7**				
• Ifugao	Initial F1	/	X	/		▪ Negros Occ.	Remaining			X
• Mt. Province	Initial F1	/	X	X		▪ Antique	Remaining			X
• Benguet	Roll-Out		X	X		▪ Aklan	Remaining			X
• Abra	Remaining			/		**CHD 7**		1	0	1
• Apayao	Remaining			/		• Negros Oriental	Initial F1	/	X	/
• Kalinga	Remaining			/		▪ Bohol	Remaining			X
CHD 1		0	0	0		▪ Squijor	Remaining			X
• Pangasinan	Initial F1	X	X	X		▪ Cebu	Remaining			X
• Ilocos Norte	Initial F1	X	X	X		**CHD 8**		0	0	0
▪ Ilocos Sur	Remaining			X		• Biliran	Initial F1	X	X	X
▪ La Union	Remaining			X		• Southern Leyte	Initial F1	X	X	X
CHD 2		1	2	2		• Eastern Samar	Initial F1			X
• Nueva Vizcaya	Initial F1	/	/	/		• Northern Leyte	Remaining			X
• Isabela	Roll-Out		/	/		▪ N. Samar	Remaining			X
▪ Batanes	Remaining			X		▪ Western Samar	Remaining			X
▪ Cagayan	Remaining			X		**CHD 9**		0	0	1
▪ Quirino	Remaining			X		Zambo Norte	Roll-Out		X	/
CHD 3		0	0	0		Zambo Sur	Roll-Out		X	X
▪ Bulacan	Remaining			X		Zambo Sibugay	Roll-Out		X	X
▪ Pampanga	Remaining			X		**CHD 10**		0	0	0
▪ Zambales	Remaining			X		• Misamis Occ	Initial F1	X	X	X
▪ Nueva Ecija	Remaining			X		• Lanao Norte	Roll-Out		X	X
▪ Aurora	Remaining			X		• Misamis Or	Remaining			X
▪ Bataan	Remaining			X		• Camiguin	Remaining			X
▪ Tarlac	Remaining			X		▪ Bukidnon	Remaining			X
CHD 4-A		0	0	0		**CHD 11**		0	0	1
▪ Cavite	Remaining			X		▪ Com Valley	Roll-Out		X	/
▪ Laguna	Remaining			X		▪ Davao Oriental	Roll-Out		X	X
▪ Batangas	Remaining			X		▪ Davao Norte	Remaining			X
▪ Quezon	Remaining			X		▪ Davao del Sur	Remaining			X
▪ Rizal	Remaining			X		**CHD 12**		0	0	0
CHD 4-B		0	0	1		• South Cotabato	Initial F1	X	X	X
• Romblon	Initial F1	X	X	X		• North Cotabato	Initial F1	X	X	X
• Or. Mindoro	Initial F1	X	X	/		• Sarangani	Roll-Out		X	X
Marinduque	Remaining			X		• Sultan Kudarat	Roll-Out		X	X
Occ. Mindoro	Remaining			X		**CARAGA**		1	1	0
Palawan	Remaining			X		• Agusan Sur	Initial F1	/	/	X
CHD 5		**0**	**0**	**0**		• Surigao del Sur	Roll-Out		X	X
▪ Albay	Roll-out		X	X		▪ Agusan Norte	Remaining			X
▪ Masbate	Roll-Out		X	X		▪ Surigaol Norte	Remaining			X
▪ Catanduanes	Roll-Out		X	X		▪ Dinagat Island	Remaining			X
▪ Sorsogon	Roll-Out		X	X		**ARMM**		0	0	0
Camarines Norte	Remaining		X	X		▪ Maguindanao	Roll-out		X	X
Camarines Sur	Remaining		X	X		▪ Basilan	Roll-out		X	X
CHD 6		0	0	0		▪ Sulu	Roll-out		X	X
• Capiz	Initial F1	X	X	X		▪ Tawi-Tawi	Roll-out		X	X
▪ Iloilo	Remaining			X		▪ Lanao del Sur	Roll-out		X	X
▪ Guimaras	Remaining			X		**Total**		**5/16**	**3/36**	**10/80**

Appendix 5. Assessment of Functional Provincial Epidemiology and Surveillance Unit, NEC Reports, August 23, 2009

Region	Province	Functional			Region	Province	Functional	
		Yes	No				Yes	No
Region I	Ilocos Norte		/		Region VII	Bohol	/	
	Ilocos Sur		/			Cebu	/	
	La Union		/			Negro Oriental		/
	Pangasinan		/			Siquior		/
Region II	Batanes		/		Region VIII	North Leyte	/	
	Cagayan		/			South Leyte	/	
	Isabela		/			Biliran	/	
	Quirino		/			West Samar	/	
	N. Vizcaya		/			East Samar	/	
C A R	Abra		/			North Samar	/	
	Apayao		/		Region IX	Zambo Norte		/
	Benguet		/			Zambo Sur		/
	Ifugao		/			Zambo Sibugay		/
	Kalinga		/		Region X	Bukidnon		/
	Mt. Province		/			Camiguin		/
Region III	Bulacan	/				Lanao Norte		/
	Nueva Ecija	/				Misamis Or	/	
	Pampanga		/			Misamis Occ		/
	Bataan	/				Compo Valley		/
	Zambales		/		Region XI	Davao Norte		/
	Tarlac		/			Davao del Sur		/
Region IV-A	Cavite		/			Davao Oriental		/
	Laguna		/		Region XII	N.Cotabato	/	
	Batangas		/			S. Cota bato		/
	Rizal		/			Sultan Kudarat		/
	Quezon		/			Saranggani		/
Region IV-B	Mindoro Occ.	/			ARMM	Lanao del Sur		/
	Mindoro Or.	/				Maguindanao		/
	Marinduque		/			Basilan		/
	Romblon	/				Tawi-Tawi		/
	Palawan	/				Sulu		/
Region V	Albay		/		CARAGA	Agusan Norte		/
	Camarines N		/			Agusan Sur		/
	Camarines S		/			Surigao Norte		/
	Catanduanes		/			Surigao Sur		/
	Masbate		/			Dinagat Island		/
	Sorsogon		/					
Region VI	Aklan		/					
	Antique		/					
	Capiz	/						
	Guimaras	/						
	Iloilo	/						
	Negros Occ	/						
Total		**11**	**32**				**10**	**26**

Appendix 6. Provinces Assisted by Global Fund and RBM Partnership

Region	Province	Global Fund Project					RBMP	
		Round 2 Batch 1 2003-2007	Round 2 Batch 2 2004-2007	Round 5 2006-2011	Round 6 2007-2012	RCC/ CCF 2008-2011	RBM (2004-2007)	RBM 2008-2011
CAR	1. Apayao	/		/				
	2. Ifugao	/			/			
	3. Kalinga	/			/			
	4. Mt. Province		/		/			
	5. Abra					/		
1	6.Pangasinan					/		
2	7. Cagayan		/		/			
	8. Quirino		/	/				
	9.Isabela	/			/			
	10.Nueva Vizcaya					/		
3	11.Zambales		/		/			
	12.Tarlac					/		
	13. Bataan					/		
	14. Nueva Ecija					/		
	15. Aurora					/		
	16. Bulacan					/		
4A	17. Quezon	/			/			
	18. Rizal					/		/
4B	19. Palawan	/		/				
	20. Mindoro Or.				/	/		
	21. Mindoro Occ.	/		/				
9	22.Zamboanga Sur		/		/		/	/
	23. Zambo Sibugay		/		/			
	24. Zambo Norte				/		/	/
10	25. Misamis Or.		/		/		/	/
	26. Bukidnon		/		/		/	/
	27. Lanao Norte							/
11	28. Compo Valley	/			/		/	/
	29. Davao Norte	/			/		/	/
	30. Davao del Sur	/			/		/	/
	31. Davao Oriental		/		/		/	/
	32. Saranggani		/		/		/	/
	33. Sultan Kudarat				/			/
	34. South Cotabato				/			
	36. North Cotabato				/			
CARAGA	37. Agusan Sur	/			/		/	/
	38. Agusan Norte		/		/		/	/
	39. Surigao Sur		/		/		/	/
ARMM	40. Basilan		/		/			
	41. Sulu		/	/			/	/
	42. Tawi-tawi		/	/			/	/
	43. Lanao del Sur							/
	44. Maguindanao							/
TOTAL		**11**	**15**	**5**	**25**	**10**	**14**	**19**

Appendix 7. PhilHealth Financing for Malaria

7.1 Reimbursements Under the In-Patient Benefit Package, 2009 PhilHealth Report

Description	No. of Claims	Total Philhealth Payments
Plasmodium falciparum malaria	770	2,138,538.00
Plasmodium vivax malaria	97	513,405.00
Plasmodium malariae malaria	6	27,953.00
Other parasitologically confirmed malaria	1	15,450.00
Unspecified malaria	284	1,234,561.00
Total	**1,158**	**3,929,907.00**

7.2 List of PhilHealth-Accredited Health Facilities Under the Malaria Outpatient Benefit Package

Region/Provinces	Category	No. of MCP Accredited Health Facilities
Region 1		
- Ilocos Sur	C	1
- Pangasinan	B	1
Region 3		
- Aurora	B	3
- Bataan	C	5
- Bulacan	C	1
- Nueva Ecija	B	2
- Pampanga	C	1
- Tarlac	B	3
- Zambales	B	2
Region 4A		
- Mindoro Occidental	A	3
- Mindoro Oriental	B	1
- Palawan	A	2
Davao Region		
- Davao del Sur	A	1
- Davao Norte	A	1
Region 12		
- North Cotabato	A	1
- Saranggani	A	2
- South Cotabato	A	8
- Sultan Kudarat	A	5
CARAGA		
- Agusan del Norte	C	1
- Surigao del Sur	C	4
ARMM		
- Tawi-Tawi	A	2
Total		**50**

Appendix 8. Results of the Facility Based Survey on Compliance to 2002 Malaria Treatment Protocol in Five Provinces Covered by Global Fund Round 5 Malaria Component

A. Proportion of Treatment in Accordance to Treatment Guideline by Species

Specie of parasite	In accordance to 2002 Treatment Guideline		Not in accordance to 2002 Treatment Guideline		Total	
	No.	%	No.	%	No.	%
P f*alciparum*	168	48.0	182	52.0	350	100.0
P *vivax*	65	6.8	42	39.2	107	100.0
P *malariae*	-	-	1	100.0	1	100.0
Mix Infection	4	50.0	4	50.0	8	100.0
Total	237	50.9	225	49.1	466	100.0

B. Provincial Comparison of Treatment Compliance

Province	In accordance to 2002 Treatment Guideline		Not in accordance to 2002 Treatment Guideline		Total	
	No.	%	No.	%	No.	%
Apayao	3	100.0	0	0	3	100.0
Palawan	84	28.8	208	71.2	292	100.0
Sulu	92	98.9	1	1.1	93	100.0
Tawi Tawi	58	74.4	20	25.6	78	100.0
Total	237	50.9	229	49.1	466	100.0

Annex 2. Classification of Provinces and Cities Based on the Results of the Stratification

A. Definition

Indicator/Term	Definition/Assumptions		
A. Population at Risk	The population exposed to certain diseases		
B. Endemic Population	The number of individuals living in malarious barangays/sitios with stable, unstable and sporadic transmission		
C. Malaria Control	Reducing the malaria disease burden to a level at which it is no longer a public health problem		
D. Malaria Elimination	Permanent reduction to zero of the incidence infection caused by a specific agent in a defined geographical area as a result of deliberate efforts		
E. Malaria Free Area	A province/city or a set of contiguous provinces where there is no on-going local mosquito-borne malaria transmission, and the risk of acquiring malaria is limited to introduced cases only		
F. Malaria-Prone	An area of no indigenous malaria case for the post 5 years even in the presence of a malaria vector		
G. Area	A province or a chartered city. A chartered city is independent from the province and is a separate administrative		
H. Classification of LGUs (province/ chartered city) by Risk and Endemicity	**Classification by Risk:** Stable Risk : Control Area with at least 1 stable barangay. Stable barangay has a continuous presence of at least one indigenous malaria case in a month for 6 months or more at any time during the past 3 years Unstable Risk: Elimination Area with at least 1 unstable barangay and no stable barangay. Unstable barangay has a continuous presence of at least one indigenous malaria case in a month for less than 6 months at any time during the past three years Low Risk : Pre-Elimination Area with at least 1 sporadic barangay and no stable and unstable barangay. Low risk barangay has a presence of at least one indigenous malaria case at any time in the past 5 years	**Classification by Endemicity:** High endemic Area: ≥ 1,000 average no. of cases from 2007-2009 Moderate endemic Area: 100 to < 1000 average no. of cases from 2007-2009 Low endemic Area : 1 to < 100 average no. of cases 2007 - 2009	**Classification of Areas By Level of Risk and Endemicity:** Stable Risk- High Endemic Area = with at least 1 stable barangay and with ≥ 1000 average no. of cases from 2007 to 2009 Stable Risk- Moderate Endemic Area = with at least 1 stable barangay and with 100 to < 1000 average no. of cases from 2007-2009 Stable Risk-Low Endemic Area = with at least 1 stable barangay and with < 100 average no. of cases from 2007 to 2009 Unstable Risk Area = with at least 1 unstable barangay and no stable barangay regardless of average no. of cases from 2007-2009 Epidemic-Risk Area = with at least 1 sporadic barangay and no stable/unstable barangay regardless of average no. of cases from 2007 – 2009 Malaria Prone Area = with zero indigenous case in less than past 5 years Malaria-Free Area = with zero indigenous case in the past 5 years

B. Classification of Provinces and Cities Based on the Results of Stratification by Provinces, 2010

Stable Risk-High Endemic Provinces/Cities			Stable Risk-Moderate Endemic Provinces/Cities			Stable Risk-Low Endemic Provinces/Cities			Unstable Risk Provinces/Cities			Epidemic Risk Provinces/ Cities			Maria-Free Areas
Province/ City	Ave. No. of Cases 2007-09	No. of Stable Municipality	Province/ City	Ave Cases 2007-09	No. of Stable Municipality	Province City	Ave Cases 2007-09	No. of Stable Municipality	Province/ City	Ave Cases 2007-09	No. of Un-stable Municipality	Province/ City	Ave Cases 2007-09	No. of Sporadic Municipality	1. Benguet
															2. Cavite
1. Palawan	12,181	18/19	1. Cagayan	694	10/31	1. Tarlac	91	1/17	1. Quirino	110	2/6	1. N. Ecija	76	9/27	3. Batangas
			2. Rizal	658	2/14	2. Com Valley	75	1/11	2. Apayao	281	6/7	2. Bataan	53	4/11	4. Marin-duque
2. Tawi-Tawi	3,347	Nd	3.Sultan Kudarat	533	6/12	3. Davao Sur	70	1/16	3. Misamis Oriental	140	2/25	3. Z Sibugay	36	3/16	5. Albay
3. Zambales	1,431	1/14	4.Saranggani	505	3/7	4. Aurora	103	4/8	4. Davao Oriental	123	2/11	4. N. Vizcaya	27	11/15	6. Catanduanes
4. Sulu	1,226	nd	5.Isabela	366	2/37	5. Bulacan	35	1/21	5. Panga Sinan	23	2/44	5. Pampanga	24	4/20	7. Sorsogon
5. Mindoro Occidental	1,143	6/11	6.Basilan	342	Nd	6. Agusan Norte	355	2/12	6. Ifugao	22	Nd	6. Misamis Occidental	11	nd	8. Masbate
A. Puerto Princesa			7.Davao Norte	339	3/11	A. Caloocan			7. Antique	38	1/18	7. La Union	11	1/19	9. Iloilo
B. Olongapo City			8.Quezon	337	2/41	B. Davao City			8. Zambo Sur	161	1/28	8. Camarine S ur	6	Nd	10. Guimaras
			9.Agusan Sur	315	2/14	C. Butuan City			9. Zambo Norte	49	3/27	9. Negros Occidental	6	1/19	11. Capiz
			10. South Cotabato	207	1/11				10. Laguna	91	1/26	10, Ilocos Norte	5	1/22	12. Aklan
			11. Maguindanao	221	2/18				A. Zambo City			11.Ilocos Sur	3	1/32	13. Cebu
			12. N. Cotabato	213	3/14							12. L. Norte	4	Nd	14. Bohol
			13. Surigao Sur	183	3/19							13. Negros Oriental	3	1/20	15. Siquijor
			14. Kalinga	163	Nd							14. Romblon	0	0	16. W.Samar
			15. M. Province	161	Nd							15. Abra	0	Nd	17. E. Samar
			16. Oriental Mindoro	148	1/15							16. Dinagat Island	0	0	18. N.Samar
			17. Bukidnon	129	2/22							17.Batanes	0	0	19. N. Leyte
			18. Camari nes Norte	107	1/12							18. Lanao Sur		nd	20. S. Leyte
			A. Santiago									A. Angeles			21.Biliran
			B. Gen. Santos									B. Iligan			22. Camiguin
			C. Cotabato												23. Surigao N.
Prov: 5			Prov: 18			Prov: 6			Prov.: 10			Prov: 18			Prov: 23
City: 2			City: 3			City: 3			City : 1			City : 2			
Total 7:			Total: 21			Total: 9			Total: 11			Total 20			

C. Stratification Data by Province/City as Basis for Classification

	Provinces and Cities	No. of Malaria Cases						Number of Barangays by Transmission Classification					2010 Classification (Baseline)	Targets	
		2007	2008	2009	Total 2007-2009	Ave. 2007-2009	Level of Ende micity	Total	Stable	Un stable	Epidemic/ Sporadic	Malaria Prone		2013	2016 t
	A. Stable Risk - High Endemic (Control)														
1	Palawan	17,088	11,385	8,071	36,544	12,181	high	351	193	103	59	59	Stable High	Stable High	Stable High
2	Occidental Mindoro	911	964	1554	3,429	1,143	high	156	19	27	22	88	Stable High	Stable Moderate	Stable Moderate
3	Zambales	1182	769	2341	4,292	1,431	high		3	35	35	-	Stable High	Stable High	Stable Moderate
4	Tawi Tawi	5,062	2,794	2,186	10,042	3,347	high						Stable High	Stable high	Stable High
5	Sulu	2,113	1,096	792	4,001	1,334	high						Stable High	Stable high	Stable high
6	Puerto Princesa					0		c/o Palawan					Stable High	Stable high	Stable High
7	Olongapo City					0		c./o Zambales					Stable High	Stable high	Stable moderate
	Subtotal	**26,356**	**17,008**	**14,944**	**58,308**	19,436							**7- stable high**	**6-stable high 1- stable moderate**	**4 - stable high 3 - stable moderate**
	B. Moderate Endemic(80% reduction by 2015)														
1	Cagayan	852	690	541	2,083	694	moderate	813	15	73	241	48	Stable Moderate	Stable- Low	Unstable
2	Isabela	635	310	154	1,099	366	moderate	1,047	6	27	56	958	Stable-Moderate	Stable- Low	Unstable
3	Quezon	195	404	412	1,011	337	moderate	47	2	21	24	-	Stable-Moderate	Stable-Moderate	Stable Low
4	Rizal	1210	604	161	1,975	658	moderate	50	10	27	13	-	Stable-moderate	Stable Low	Stable Low
5	Oriental Mindoro	237	104	104	445	148	moderate	426	1	12	16	402	Stable-Moderate	Stable Low	Unstable
6	Camarines Norte	16	232	72	320	107	moderate	12	1	1	1		stable moderate	Stable low	Unstable
7	Sultan Kudarat	423	256	921	1,600	533	moderate	250	17	37	46	150	Stable - Moderate	Stable Low	Unstable
8	Saranggani	720	428	368	1,516	505	moderate	140	6	7	46	81	Stable-Moderate	Stable-Low	Unstable
9	North Cotabato	119	298	222	639	213	moderate	557	3	12	38	506	Stable-Moderate	Stable-Low	Unstable

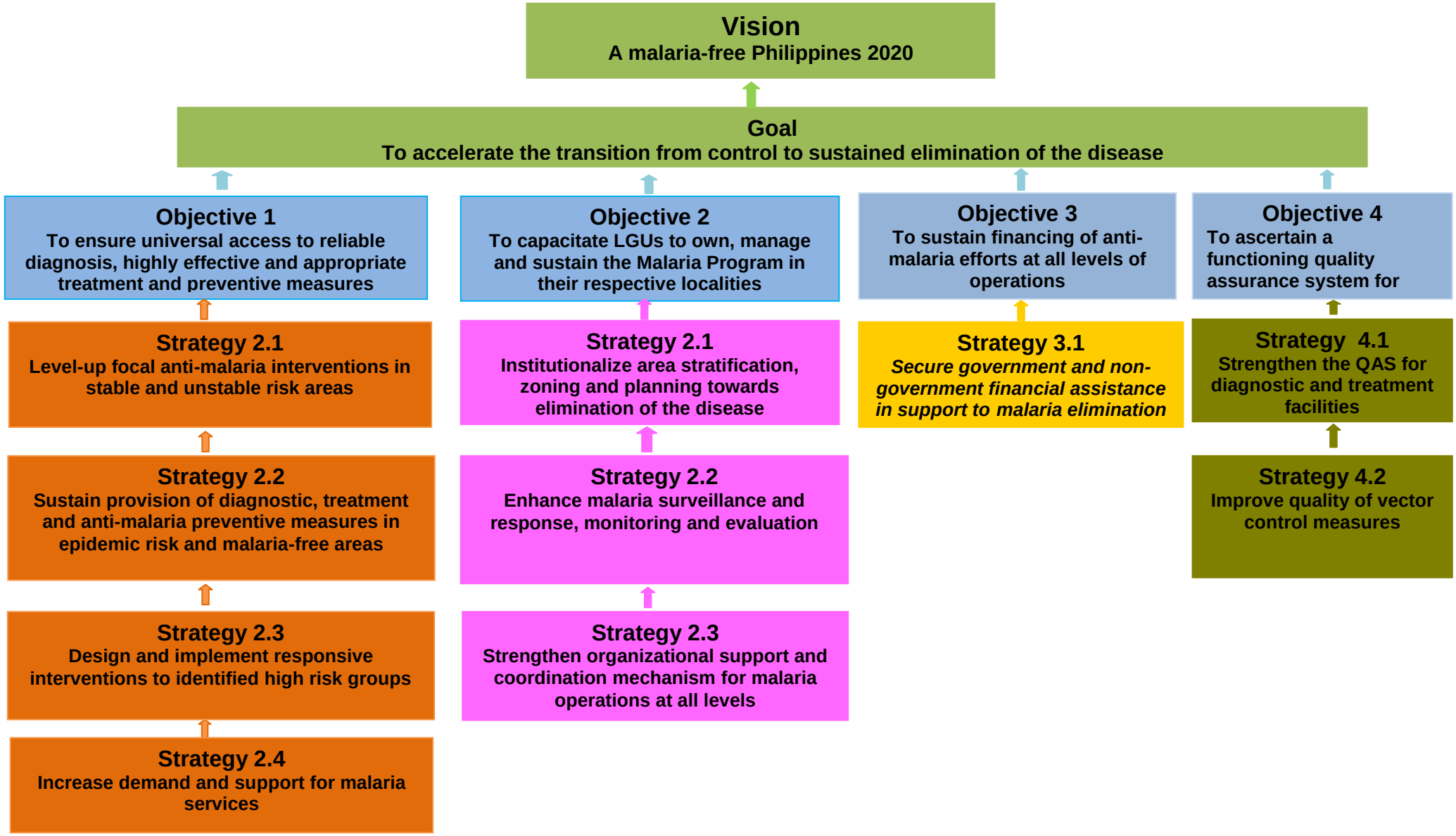
	Provinces and Cities	No. of Malaria Cases						Number of Barangays by Transmission Classification					2010 Classification (Baseline)	Targets	
		2007	2008	2009	Total 2007-2009	Ave. 2007-2009	Level of Endemicity	Total	Stable	Unstable	Epidemic/Sporadic	Malaria Prone		2013	2016
10	South Cotabato	286	325	10	621	207	moderate	199	1	12	19	167	Stable-Moderate	Unstable	Low-Risk
11	Kalinga	248	185	55	488	163	moderate	152	2	24	52	175	Stable-Moderate	Stable - Low	Low-risk
12	Mt Province	244	160	78	482	161	moderate	144	1	8	2	133	Stable--Moderate	Unstable	Low-Risk
13	Bukidnon	145	161	82	388	129	moderate		5	17	36	405	Stable Moderate	Stable low	Low Risk
14	Davao Norte	341	555	121	1,017	339	moderate	20	6	4	10	129	Stable Moderate	Stable - Low	Unstable
15	Agusan Sur	548	211	187	946	315	moderate	317	3	29	82	203	Stable Moderate	Stable Low	Low-Risk
16	Surigao Sur	322	156	72	550	183	moderate	310	4	29	48	151	Stable Moderate	Unstable	Low-risk
17	Maguindanao	260	160	244	664	221	moderate						Stable moderate	Stable moderate	Stable moderate
18	Basilan	547	219	259	1,025	342	moderate						Stable Moderate	stable moderate	stable moderate
19	General Santos						c/o Sranggani						stable moderate	stable-low	unstable
20	Santiago City						c/o Isabela						stable moderate	stable-low	unstable
21	Cotabato City						c/o Maguinadanao						stable moderate	Stable moderate	Stable moderate
	Subtotal	**9,355**	**7,466**	**6,072**	**16,869**	**5,623**							**21- stable moderate**	**4 - stable moderate 14 -stable low 3 - unstable**	**3 - stable moderate 2 - stable - low 10 - unstable 6 - low-risk**
	C. Stable Risk - Low Endemic														
1	Tarlac	74	79	121	274	91	low	513	4	7	5	478	Stable Low	Low Risk	Low Risk
2	Compostella Valley	129	77	20	226	75	low	14	1	5	8	230	Stable Low	stable low	unstable
3	Davao Sur	73	55	82	210	70	low	21	1	10	10	198	Stable Low	stable low	unstable
4	Aurora	120	109	79	308	103	low (?)	151	1	5	37	108	Stable Low	Low Risk	Low Risk
5	Agusan Norte	149	66	77	292	97	low	166	1	9	23	156	Stable-Low	Stable-Low	Low Risk
6	Bulacan	24	27	94	145	48	low	569	1	5	6	557	Stable Low	Unstable	Low Risk

	Provinces and Cities	No. of Malaria Cases						Number of Barangays by Transmission Classification					2010 Classification (Baseline)	Targets	
		2007	2008	2009	Total 2007-2009	Ave. 2007-2009	Level of Endemicity	Total	Stable	Unstable	Epidemic/Sporadic	Malaria Prone		2013	2016
7	Davao City	16	107	2				9	2	5	2	16	Stable Low	stable low	unstable
8	Butuan City							86	0	0	0	79	Stable-Low	Stable-Low	Low Risk
9	Caloocan												Stable Low	Unstable	Low Risk
	Subtotal	**585**	**520**	**475**	**1455**	**485**							**9 - stable low**	**5 -stable low 2 - unstable 2 - low risk**	**3 - unstable 6 - low-risk**
	D. Unstable Risk														
1	Quirino	32	10	5	47	16		131	0	4	36	91	Unstable	Low Risk	MPA
2	Apayao	250	38	11	299	100		134	0	24	51	61	Unstable	Low-Risk	MPA
3	Ifugao	12	13	5	30	10		175	0	1	15	163	Unstable	Low-Risk	MPA
4	Pangasinan	39	13	16	68	23		467	0	3	4	460	Unstable	Low-Risk	MPA
5	Antique	14	140	18	172	57		18	0	2	0	16	Unstable	Low-Risk	MPA
6	Zambo Norte	55	72	19	146	49		36	0	3	33	362	Unstable	Low-Risk	Low Risk
7	Zamboanga Sur	82	26	11	119	40		19	0	2	17	172	Unstable	Low-Risk	Low Risk
8	Misamis Oriental	116	32	28	176	59		696	0	9	24	217	Unstable	Low Risk	MPA
	Isabela City							2	0	0	2	33			
9	Davao Oriental	38	6	4	48	16		10	0	4	6	173	Unstable	Unstable	Low-risk
10	Laguna	256	9	7	272	91		5	1	3	1		Unstable	Low Risk	MFA
11	Zambo City	269	6	144				12	0	0	0	45	Unstable	Low-Risk	Low Risk
	Subtotal	**1,163**	**365**	**268**	**1,377**	**459**							**11 - Unstable**	**1- unstable 10 - low risk**	**4 - Low Risk 6 - MPA 1 - MFA**
	D. Epidemic Risk/Low-Risk Areas														
1	Abra	0	1	0	1	0		303	0	0	2	301	Low-Risk	MPA	MFA
2	Ilocos Norte	7	2	5	14	5		57	0	0	1	56	Low-Risk	MPA	MFA
3	Ilocos Sur	3	6	1	10	3		108	0	0	2	106	Low-Risk	MPA	MFA
4	La Union	28	2	3	33	11		1,671	0	0	3	1,668	Low-Risk	MPA	MFA
5	Batanes	0	0	0	0	0		29	0	0	0	29	Low-Risk	MFA	MFA
6	Nueva Vizcaya	55	21	5	81	27		270	0	0	43	29	Low Risk	MPA	MFA

	Provinces and Cities	No. of Malaria Cases						Number of Barangays by Transmission Classification					2010 Classification (Baseline)	Targets	
		2007	2008	2009	Total 2007-2009	Ave. 2007-2009	Level of Endemicity	Total	Stable	Unstable	Epidemic/Sporadic	Malaria Prone		2013	2016
7	Bataan	110	38	10	158	53		237	0	0	6	231	Low Risk	Low Risk	MPA
8	Nueva Ecija	151	60	17	228	76		849	1	6	30	812	Low Risk	Low Risk	MPA
9	Pampanga	0	0	71	71	24		513	0	0	8	505	Low Risk	Low Risk	MPA
10	Romblon	0	0	0	0	0		217	0	0	0	0	Low Risk	MFA	MFA
11	Cam Sur	19	0	0	19	6							Low Risk	MFA	MFA
12	Negros Oriental	9	0	0	9	3					2	47	Low Risk	MFA	MFA
13	Negros Occ	11	2	4	17	6		0	0	0	0	0	Low Risk	MPA	MFA
14	Zam Sibugay	93	8	6	107	36		25	0	0	25	159	Low-Risk	MPA	MFA
15	Misamis Occ	1	32	0	33	11			0	0	0	39	Low Risk	MPA	MFA
16	Lanao Norte	9	2	0	11	4		462	0	0	0	83	Low Risk	MPA	MFA
17	Lanao Sur	0	0	0	0	0							Low-Risk	MPA	MFA
18	Dinagat	0	0	0	0	0							Low-Risk	MFA	MFA
19	Angeles City						c/o Pampanga						Low Risk	Low Risk	MPA
20	Iligan City						c/o Misamis Occidental						Low Risk	MPA	MFA
	Subtotal	**496**	**174**	**122**	**792**	**264**							**20 - Low Risk**	**4 - low risk 11 - MPA 5 - MFA**	**4 - MPA 16- MFA**
	Malaria-Free Areas														
1	Benguet							141	0	0	0	141	MFA	MFA	MFA
2	Batangas												MFA	MFA	MFA
3	Cavite												MFA	MFA	MFA
4	Marinduque							218	0	0	0	0	MFA	MFA	MFA
5	Albay												MFA	MFA	MFA
6	Sorsogon												MFA	MFA	MFA
7	Catanduanes												MFA	MFA	MFA
8	Masbate												MFA	MFA	MFA
9	Aklan							0	0	3	0	0	MFA	MFA	MFA
10	Capiz							0	0	0	0	0	MFA	MFA	MFA
11	Guimaras							0	0	0	0	0	MFA	MFA	MFA

	Provinces and Cities	No. of Malaria Cases						Number of Barangays by Transmission Classification					2010 Classification (Baseline)	Targets	
		2007	2008	2009	Total 2007-2009	Ave. 2007-2009	Level of Endemicity	Total	Stable	Unstable	Epidemic/Sporadic	Malaria Prone		2013	2016
12	Iloilo							0	0	0	0	0	MFA	MFA	MFA
13	Bohol												MFA	MFA	MFA
14	Cebu												MFA	MFA	MFA
15	Siquijor												MFA	MFA	MFA
16	E. Samar							569	0	0	0	569	MFA	MFA	MFA
17	W. Samar							951	0	0	0	951	MFA	MFA	MFA
18	N. Samar							569	0	0	0	569	MFA	MFA	MFA
19	N. Leyte							1,393	0	0	0	1,393	MFA	MFA	MFA
20	Bliran							430	0	0	0	430	MFA	MFA	MFA
21	S. Leyte							430	0	0	0	430	MFA	MFA	MFA
22	Camiguin												MFA	MFA	MFA
23	Surigao Norte							0	0	0	0	0	MFA	MFA	MFA
	Subtotal												**23- MFA**	**23 - MFA**	**23 - MFA**
	Total	**37,459**	**25,359**	**21,759**	**78,009**	**26,003**									
	Summary	**Stable Risk - Highly Endemic Areas (Control Phase)**											**7**	**6**	**4**
		Stable Risk- Moderately Endemic Areas (Control Phase)											**21**	**5**	**6**
		Stable Risk - Low Endemic Areas (Control Phase)											**11**	**6**	**13**
		Unstable Risk Areas (Pre-Elimination Phase)											**20**	**16**	**16**
		Epidemic Risk/Low Risk Areas (Elimination Phase)											**0**	**11**	**10**
		Malaria-Prone Areas											**23**	**28**	**40**
		Malaria- Free Areas											**82**	**72**	**89**

Annex 3. Summary of Malaria Program Vision, Goals, Objectives and Strategies



Annex 4. Basis for the Baseline and Targets of Impact Indicators

A. Impact Indicators – National Average, Baseline and Targets

Indicators	Definition	Basis/Assumptions	Baseline 2009	2013 Target	2016 Target
A. Impact Indicator at the National Average					
1. Malaria Morbidity Rate reduced by at least 80% from 2009 to 2015	Malaria Morbidity Rate = No. of Cases / Total Population X 100,000 % Case Reduction = Morbidity R(2009) – Morbidity R(2015) / Morbidity R (2009) X 100	Malaria Morbidity Rate: 2005 : 55.0/100,000 pop 2009 : 21.64/100,000 pop % Reduction: 60.7% over 5 years : 12.1.0% per year Targeted Reduction: 12.1% X 6 years = 72.8% = 70.0%	2009: 21.6/100,000 pop Source: MCP Reports	2012: 14.1/100,000 pop Source: MCP Reports	2015: 6.5/100,000 pop Source: MCP Reports
2. Malaria Mortality Rate reduced by at least 90% from 2009 to 2015	Malaria Mortality Rate = No. of Deaths / Total Population X 100,000 % Death Reduction = Mortality R(2009) – Mortality R(2015) / Mortality R (2009) X 100	Malaria Mortality Rate: 2005 : .18/100,000 pop 2009 : 0.03/100,000 pop % Reduction : 85.39 for 5 years : 17.08 per year 2015 Target : 17.080% X 6 years : 102.5% = 90%	2009: 0.03/100,000 pop Source: MCP Reports	2012: .014/100,000 pop Source: MCP Reports	2015: .003/100,000 pop Source: MCP Reports
3. Annual Parasite Incidence (API) reduced by at least 80% from 2009 to 2015	Annual Parasite Incidence = No. of malaria cases / Total pop at risk X 1000 % API Reduction = API (2009) - API (2015) / API (2009) X 100	Annual Parasite Incidence : 2005 : 4.21 /1,000 pop at risk 2009 : 1.59/1,000 pop at risk % Reduction: 62.1 for 5 years : 12.4%/year 2015 Target : 12.4% X 6 years : 74.6 = 70.0%	2009: 1.59/1,000 pop at risk Source: MCP Reports	2012: .017/1,000 pop at risk Source: MCP Reports	2015: 0.008/1,000 pop at risk Source: MCP Reports

Indicators	Definition	Basis/Assumptions	Baseline 2009	2013 Target	2016 Target
4. Annual Parasite Incidence by Classification of Provinces and Cities					
4.1 No/% of stable risk-high endemic areas with at least 80% reduction in API from 2009 to 2015	API: Total No. of malaria cases / Total No. of pop at risk X 100 % of stable risk high endemic area with at least 50% API reduction = total no. of areas w/ at least 50% API reduction from 2009 to 2015 / total no. of stable-risk high endemic areas X 100	Reduction From 2005 to 2009: 63.2% Average Reduction/Year : 12.6% Note: Except Mindoro Occ and Zambales with API higher in 2009 than in 2005 Targeted Reduction from 2010 to 2015: 12.6% X 6 years = 75.9 = 70.0% 2015 Target: 5.49 (2009 average API) X 70% = 1.65/1000	7 1. Palawan 2. Tawi-Tawi 3. Zambales 4. Sulu 5. Mindoro Occ 6. Puerto Princesa 7. Olongapo City	3/5 50% of stable risk-high endemic areas with at least 70% reduction in API from 2009 to 2012	7/7 100% of stable risk-high endemic areas with at least 70% reduction in API from 2011 to 2015
4.2 No./% of stable risk-moderate endemic areas with at least 80% reduction in API from 2009 to 2015	API: Total No. of malaria cases / Total No. of pop at risk X 100 % of stable risk moderate endemic area with at least 50% API reduction = total no. of areas w/ at least 50% API reduction from 2009 to 2015 / total no. of stable risk-moderate endemic areas X 100	Reduction from 2005 to 2009: 99.2% Average Reduction /Year : 19.8% Note: Except for Quezon, Davao Norte, Agusan Sur, Kalinga, Mt. Province, Maguindanao and Basilan with API higher in 2009 than 2005 or no data Targeted Reduction from 2010 to 2015 = 19.8% X 6 years = 119.0% = 90.0% 2015 Target: 119.0% X ,82 (2009 API) = ..08/1000 pop at risk	21 1. Cagayan 2. Rizal 3. Sultan Kudarat 4. Saranggani 5. Isabela 6. Basilan 7. Davao Norte 8. Quezon 9. Agusan Sur 10.South Cotabato 11. Maguindanao 12. North Cotabato 13. Surigao Sur 14. Kalinga 15. Mt. Province 16. Or. Mindoro 17, Bukidnon 18. Camarines N 19. General Santos 20. Santiago City 21. Cotabato City	10/21 50% of stable risk-moderate endemic areas with at least 90% reduction in API from 2010 to 2012	21/21 100% of stable risk-moderate endemic areas with at least 90% reduction in API from 20`0 to 2015
4.3 No./% of stable risk-low endemic areas with at least 100% reduction in API from 2009 to 2015	API: Total No. of malaria cases / Total No. of pop at risk X 100 % of stable risk low endemic area with at least 50% API reduction = total no. of areas w/ at least 50% API reduction from 2009 to 2015 / total no. of stable risk-low endemic areas X 100	Reduction from 2005 to 2009: 88.0 Average Reduction/Year : 17.6 Note: Except for Compostela Valley and Tarlac with API higher in 2009 than 2005 Targeted Reduction from 2010 to 2015 = 17.6 X 6 years = 105.6% = 90.0% 2015 Target: .21 (2009 API) X 90.0 = .03/1000 pop at risk	9 1. Tarlac 2. Com Valley 3. Davao Sur 4. Aurora 5. Bulacan 6. Agusan Norte 7. Davao City 8. Butuan City 9. Caloocan City	4/9 50% of stable risk-low endemic areas with at least 80% reduction in API from 2010 to 2012	9/9 100% of stable risk-low endemic areas with at least 80% reduction in API from 2010 to 2015

Indicators	Definition	Basis/Assumptions	Baseline 2009	2013 Target	2016 Target
4.4 No/% of unstable risk areas with 100% reduction of API by 2015	API: Total No. of malaria cases / Total No. of pop at risk X 100 % of unstable risk area with at least 50% API reduction = total no. of areas w/ at least 50% API reduction from 2009 to 2015 / total no. of unstable risk-areas X 100	Reduction From 2005 to 2009: 87.3% Average Reduction:/Year : 17.5% Note: Except for Misamis Or., Zambo Sur, Zambo Norte, Bulacan and Antique with API higher in 2009 than 2005 or no data Targeted Reduction from 2010 to 2015 = 17.5% X 6 years : 104.5% = 100.0% 2015 Target: .21 (2009 API) X 100.0 = 0.0/1000 pop at risk	11 1. Quirino 2. Apayao 3. Misamis Oriental 4. Davao Oriental 5. Pangasinan 6. Ifugao 7. Antique 8. Zamboanga Sur 9. Zamboanga Norte 10. Laguna 11. Zamboanga City	5/11 50% of unstable risk areas with 100% reduction of API from 2010 to 2012	11/11 100% unstable risk areas with 100% reduction of API from 2010 to 2015
4.5 All epidemic risk areas with API < 1/1000 in 2015	API: Total No. of malaria cases / Total No. of pop at risk X 100	Reduction From 2005 to 200 : 86.0% Average Reduction Per Year: 17.2% Note: Except for Ilocos Norte with API higher in 2009 than 2005 Targeted Reduction from 2010 to 2015: 17.2% X 6 years : 103.2% = 100.0 2015 Target : .08 (2009 API) X 100.0% : 0.0/1000 pop at risk	20 1. Abra 2. Ilocos Norte 3. Ilocos Sur 4. La Union 5. Batanes 6. Nueva Vizcaya 7. Nueva Ecija 8. Bataan 9. Negros Occ 10. Negros Oriental 11. Lanao Norte 12. Pampanga 13. Lanao Sur 14. Misamis Occ. 15. Zambo Sibugay 16. Camarines Sur 17. Romblon 18. Dinagat Island 19. Angeles City 20. Iligan City	10/20 50% of epidemic risk areas have < 1/1000 pop at risk	20/20 All epidemic risk areas have < 1,000 pop at risk in 2015
5. Transition from Control to Elimination					
5.1 No. of stable - risk high endemic areas reduced	With at least 1 stable barangay and with ≥ 1000 average no. of cases from 2007 to 2009		7	6	4
5.2 No. of stable - risk moderate endemic areas reduced	With at least 1 stable barangay and with 100 to < 1000 ave. no. of cases from 2007-2009		21	5	6
5.3 No. of stable risk low endemic areas reduced	With at least 1 stable barangay and with < 100 average no. of cases from 2007 to 2009		9	19	2
5.4 No. of unstable risk areas increased	With at least 1 unstable barangay and no stable barangay regardless of average no. of cases from 2007-2009		11	6	13

Indicators	Definition	Basis/Assumptions	Baseline 2009	2013 Target	2016 Target
5.5 No. of epidemic-risk or sporadic low-risk areas reduced	With at least 1 sporadic barangay and no stable/unstable barangay regardless of average no. of cases from 2007 – 2009		20	16	16
5.6 No. of Malaria-Prone Area (MPA) increased	Malaria-Prone Area: A province or a chartered city with zero case but only for less than 5 years		0	11	10
5.6 No. of Malaria-Free Areas (MFA) increased to 40 - 23 maintained and 17 newly declared	Malaria-Free Area: A province or a chartered city with zero indigenous case in the past 5 years despite the presence of a vector	Provinces With 0 Case at least 5 years before 2013: - Dinagat Island - Batanes - Romblon - Camarines Sur - Negros Oriental - Lanao Sur** Provinces With 0 Case as of 2009 - Abra - Misamis Occidental - Lanao Norte** Provinces with < 10 Cases as of 2009 - Ilocos Sur (1) - La Union (3) - Negros Occidental (4) - Ilocos Norte (5) - Nueva Vizcaya (5) - Zamboanga Sibugay (6) - Laguna (7) ** may be under-reported	23 1. Benguet 2. Cavite 3. Batangas 4. Marinduque 5. Albay 6. Catanduanes 7. Sorsogon 8. Masbate 9. Iloilo 10. Guimaras 11. Capiz 12. Aklan 13. Cebu 14. Bohol 15. Siquijor 16. Western Samar 17. Eastern Samar 18. Northern Samar 19. Northern Leyte 20. Southern Leyte 21. Biliran 22. Surigao Norte 23. Camiguin	28 23 Plus 5 new 1. Dinagat (0 case for >10 years) 2. Batanes (o case for 5 years) 3. Romblon (0 case for 3 years) 4. Cam Sur (0 case for 2 years) 5. Negros Or (0 case for 2years)	40 28 Plus 12 new 1. Abra (0) 2. Misamis Occ (0) 3. Ilocos Sur (1) 4. La Union (3) 5. Negros Occ (4) 6.Ilocos Norte (5) 7. N. Vizcaya (5) 8. Z. Sibugay (6) 9. Laguna (7) 10. Lanao N (0) 11. Lanao S (0 for 5 yrs) 12. Davao Oriental
6. No. of <u>confirmed malaria eliminated zone</u>	Confirmed Malaria-Eliminated Zone: a set of contiguous malaria-free provinces/ chartered cities with 0 indigenous case confirmed through serologic test		0	To be determined	To be determined

B. Data Used in the Computation of the Reduction and Targets

Province/City	Total cases	No. of malaria deaths	Endemic Pop	API	Total cases	No. of malaria deaths	Endemic Pop	API	Reduction 2005 to 2009	Ave. Red/ Year	Total Projected Reduction		2016 API
Stable - High													
1. Palawan	16,339	37	670,000	24.39	8,071	9	933,990	8.64	64.6	12.9	77.5		1.95
2. Occ. Mindoro	419	4	139,819	3.00	1554	5	139,818	11.11	-270.9				
3. Zambales	988	3	80,400	12.29	2341	2	74,500	31.42	-155.7				
4. Tawi-Tawi	6,202	10	358,123	17.32	2,186		360,851	6.06	65.0	13.0	78.0		1.33
5. Sulu	3,251	29	701,097	4.64	792	2	718,625	1.10	76.2	15.2	91.5		0.09
6. Puerto Princesa													
7. Olongapo City													
Subtotal	**25,792**	**76**	**1,729,220**	**14.92**	**11,049**	**11**	**2,013,466**	**5.49**	**63.2**	**12.6**	**75.9**	**70.0**	**1.65**
Total	**27,199**	**83**	**1,949,439**	**13.95**	**14,944**	**18**	**2,227,784**	**6.71**	**51.9**	**10.4**	**62.3**		
Stable Moderate													
1. Cagayan	1,593	6	677,543	2.35	541	1	572,087	0.95	59.8	12.0	71.7		0.27
2. Isabela	1,638	1	330,315	4.96	154	1	272,227	0.57	88.6	17.7	106.3		0.00
3. Quezon	594	0	nd	nd	412	0	150,967	2.73	nd				
4. Rizal	573	1	147,482	3.89	161	0	157,016	1.03	73.6	14.7	88.3		0.12
5. Or. Mindoro	417	1	240,702	1.73	104	0	262,223	0.40	77.1	15.4	92.5		0.03
6. Cam Norte	23	0	nd	nd	72	0	425,192	0.17	nd				
7. Sultan Kudarat	1,914	3	320,429	5.97	921	0	320,429	2.87	51.9	10.4	62.3		1.08
8. Saranggani	1,439	0	349,474	4.12	368	0	279,801	1.32	68.1	13.6	81.7		0.24
9. North Cotabato	125	nd	170,679	0.73	222	1	170,675	1.30	-77.6				
10. South Cotabato	441	4	305,939	1.44	10	0	704,750	0.01	99.0	19.8	118.8		0.00
11. Kalinga	987	5	106,502	9.27	55	0	177,478	0.31	96.7	19.3	116.0		0.00
12. Mt. Province	308	2	6,219	49.53	78	0	32,124	2.43	95.1	19.0	114.1		0.00
13. Bukidnon	330	1	180,658	1.83	82	0	145,640	0.56	69.2	13.8	83.0		0.10
14. Davao Norte	203	0	829,407	0.24	121	0	116,371	1.04	-324.8				
15. Agusan Sur	718	0	385,596	1.86	187	0	385,596	0.48	74.0	14.8	88.7		0.05
16. Surigao Sur	1,320	14	166,839	7.91	72	0	143,275	0.50	93.6	18.7	112.4		-0.06
17. Maguindanao	352	2	223,948	1.57	244		223,948	1.09	30.7	6.1	36.8		0.69
18. Basilan	80	nd	293,501	0.27	259		314207	0.82	-202.4				
19. Gen. Santos					37	0	129,276	0.29	nd				
20. Santiago City													
21. Cotabato City													
Subtotal	**12,030**	**40**	**3,441,646**	**3.50**	**2,977**	**2**	**3,676,594**	**0.81**	**76.8**	**15.4**	**92.2**	**90.0**	**.08**
Total	**13,055**	**40**	**4,735,233**	**2.76**	**4,100**	**3**	**4,983,282**	**0.82**	**70.2**	**14.0**	**84.2**		
Stable- Low													
1. Tarlac	65	0	23,165	2.81	121	1	23,165	5.22	-86.2				
2. ComVal	140	1	655,885	0.21	20	0	269,278	0.07	65.2	13.0	78.2		0.02

Province/City	Total cases	No. of malaria deaths	Endemic Pop	API	Total cases	No. of malaria deaths	Endemic Pop	API	Reduction 2005 to 2009	Ave. Red/ Year	Total Projected Reduction		2016 API
3. Davao del Sur	223	1	858,370	0.26	82	0	154,369	0.53	-104.5				
4. Aurora	451	0	168,433	2.68	79	0	171,314	0.46	82.8	16.6		99.3	0.00
5. Agusan Norte	1,338	5	138,196	9.68	77	0	140,000	0.55	94.3	18.9		113.2	-0.07
Bislig City	231	5	33,645	6.87	0	0	19,341	0.00	100.0	20.0		120.0	0.00
6. Bulacan	16	2	51,039	0.31	94	0	72,446	1.30	-313.9				
7. Davao City	24	0	88,194	0.27	2	0	58,393	0.03	87.4	17.5		104.9	0.00
8. Butuan City	179	2	45,116	3.97	0	0	51,592	0.00	100.0	20.0		120.0	0.00
9. Caloocan					39	0	16,050	2.43	0.0	0.0		0.0	2.43
Subtotal	**2,363**	**13**	**1,129,469**	**2.09**	**178**	**0**	**709,918**	**0.25**	**88.0**	**17.6**	**105.6**	**90.0**	**.03**
Total	**2,667**	**16**	**2,062,043**	**1.29**	**514**	**1**	**975,948**	**0.53**	**59.3**	**11.9**	**71.1**		
Unstable													
1. Quirino	444	0	129578	3.43	5	0	126,578	0.04	98.8	19.8		118.6	-0.01
2. Apayao	675	0	94250	7.16	11		118,053	0.09	98.7	19.7		118.4	-0.02
3. Ifugao	66	1	87879	0.75	5	0	70,445	0.07	90.5	18.1		108.7	-0.01
4. Pangasinan	30	0	227413	0.13	16	0	236,625	0.07	48.7	9.7		58.5	0.03
5. Antique	13	0	nd	nd	18	0	69,302	0.26	nd				
6 Zambo. Norte	85	0	nd	nd	19	0	370,546	0.05	nd				
7. Zambo Sur.	604	1	nd	nd	11	0	199,650	0.06	nd				
8. Misamis Or	388	0	170401	2.28	28	0	0	0.00	100.0	20.0		120.0	0.00
9. Davao Or.	398	0	484004	0.82	4	0	413,951	0.01	98.8	19.8		118.6	0.00
10. Laguna	22	0	36547	0.60	7	0	36,547	0.19	68.2	13.6		81.8	0.03
11. Zamboanga City	9	0	0	0.00	144	0	45,928	3.14	0.0	0.0		0.0	3.14
Subtotal	**2,032**	**1**	**1,230,072**	**1.65**	**220**	**0**	**1,048,127**	**0.21**	**87.3**	**17.5**	**104.5**	**100.0**	**0.0**
Total	**2,734**	**2**	**1,230,072**	**2.22**	**268**	**0**	**1,687,625**	**0.16**	**92.9**	**18.6**	**111.4**		
Low-Risk Areas													
1. Abra	8	8	159,543	0.05	0	0	102,535	0.00	100.0	20.0		120.0	0.00
2. Ilocos N.	41	0	34,481	1.19	5	1	41,059	0.12	89.8	18.0		107.7	-0.01
3. Ilocos Sur	6	0	40,790	0.15	1	0	40,790	0.02	83.3	16.7		100.0	0.00
4. La Union	3	0	64,687	0.05	3	0	65,233	0.05	0.0	0.0		0.0	0.05
5. Batanes										0.0		0.0	0.00
6. N. Viscaya	417	0	302,775	1.38	5	0	307,932	0.02	98.8	19.8		118.6	0.00
7. Bataan	44	0	23,651	1.86	10	0	21,845	0.46	75.4	15.1		90.5	0.04
8. Nueva Ecija	48	0	92,006	0.52	17	0	92,006	0.18	64.6	12.9		77.5	0.04
9. Pampanga	0	0	0	0.00	71	0	0	0.00	0.0	0.0		0.0	0.00
10. Romblon	11	0	0	nd	0	0	69,725	0.00	nd				
11. Cam. Sur	3		0	nd	0	0	453,805	0.00	nd				
12. Negros Or.	15	0	269,092	0.06	0	0	558,630	0.00	100.0	20.0		120.0	0.00
13. Neg. Occ	3	0	0	nd	4	0	38,821	0.10	nd				
14. Zambo. Sibugay	70	1	0	nd	6	0	118,021	0.05	nd				
15. Misamis Occ	2	0	0	nd	0	0	434,678	0.00	nd				
16. Lanao del Norte	0	0	21,577	0.00	0	0	153,852	0.00	0.0	0.0		0.0	0.00
17. Lanao del Sur	0	0		nd			0	0.00	nd				
18. Dinagat Island													

Province/City	Total cases	No. of malaria deaths	Endemic Pop	API	Total cases	No. of malaria deaths	Endemic Pop	API	Reduction 2005 to 2009	Ave. Red/ Year	Total Projected Reduction		2016 API
19. Angeles City													
20 Iligan City													
Subtotal	**582**	**8**	**1,008,602**	**0.58**	**112**	**1**	**1,383,882**	**0.08**	**86.0**	**17.2**	**103.2**	**100.0**	**0.00**
Total	**671**	**9**	**1,008,602**	**0.67**	**122**	**1**	**2,498,932**	**0.05**	**92.7**	**18.5**	**111.2**		
Malaria-Free Areas													
1. Benguet					0	0		0.00	0.0	0.0		0.0	0.00
2. Batangas	0	0	23,216	0.00	0	0	10,379	0.00	0.0	0.0		0.0	0.00
3. Cavite	0	0	0	0.00	0	0	14,153	0.00	0.0	0.0		0.0	0.00
4. Marinduque	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
5. Albay	3		0	nd	0	0	0	0.00	nd				
6. Sorsogon	4		0	nd	0	0	0	0.00	nd				
7. Catanduanes	0		0	nd	2	0	0	0.00	nd				
8. Masbate	0		0	nd	0	0	0	0.00	nd				
9. Aklan	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
10. Capiz	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
11. Guimaras	1	0	0	nd	0	0	0	0.00	nd				
12. Iloilo	4	0	0	nd	4	0	0	0.00	nd				
13. Bohol	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
14. Cebu	1	0	0	nd	0	0	0	0.00	0.0				
15. Siquijor	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
16. E. Samar	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
17. W. Samar	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
18. N. Samar	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
19. N. Leyte	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
20. Bliran	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
21. S. Leyte	0	0	0	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
22. Camiguin	0	0	0	0.00	0	0	127,365	0.00	0.0	0.0		0.0	0.00
23. Surigao Norte*	3	0	4,799	0.63	1	1	nd	nd	nd				
Surigao City	0	0	2,770	0.00	0	0	0	0.00	0.0	0.0		0.0	0.00
Total	**16**	**0**	**30,785**	**0.52**	**7**	**1**	**151,897**	**0.05**	**91.1**	**18.2**	**109.4 = 100.0**		**0.00**
Overall Subtotals	**42,815**	**138**	**8,569,794**	**5.00**	**14,543**	**15**	**8,983,884**	**1.62**	**67.6**	**13.5**		**81.1**	**0.31**
Overall Totals	**46,342**	**150**	**11,016,174**	**4.21**	**19,955**	**24**	**12,525,468**	**1.59**	**62.1**	**12.4**		**74.6**	**0.41**
Total Population	**46,342**	**150**	**84,241,341**		**19,955**	**24**	**92,226,600**						
Rate	**55.0**	**0.18**			**21.64**	**0.03**				**Totals**			
Reduction from 2005 to 2009	**Malaria Morbidity Rate**		**60.67**	**Malaria Mortality Rate**		**85.39**		**API**		**62.1**			
Average Reduction/ Year			**12.13**			**17.08**				**12.4**			
Total Projected Reduction		**72.80**	**70.0**		**102.46**	**90.0**			**74.6**	**70.0**		**80.0**	
2015 Target		**5.88**	**6.5**		**0.00**	**0.003**			**0.41**	**.008**		**.32**	

Annex 5. Estimated Investment to Implement the 2011-2016 MOP-MDTP

Objective/Strategy/ Performance Indicator	2011	2012	2013	2014	2015	2016	Total
Objective 1. To ensure universal access to reliable diagnosis, highly effective and appropriate treatment and preventive measures	425,982,494	589,865,223	924,581,967	490,975,633	661,031,572	753,404,822	3,845,841,712
Strategy 1.1 Level up focal interventions in stable and unstable risk areas	399,908,453	430,655,443	278,662,235	392,110,866	571,782,064	654,841,523	2,727,960,584
Performance Indicator 1.1.1 *At least 80% of stratified barangays in the 39 stable and unstable provinces and 9 chartered cities received appropriate anti-malaria preventive, diagnosis, treatment and management services*	399,908,453	411,881,243	257,062,235	383,928,366	571,782,064	654,386,523	2,678,948,884
Performance Indicator 1.1.2 *Referral network of public and private health facilities providing malaria diagnostic and treatment services established and functional in the 39 stable and unstable risk provinces and 9 cities*	0	4,066,100	21,600,000	0	0	0	25,666,100
Performance Indicator 1.1.3 *Border operations undertaken in identified stable and unstable risk provinces as appropriate*	0	14,708,100	0	8,182,500	0	455,000	23,345,600
Strategy 1.2Sustain provision of diagnostic, treatment and anti-malaria preventive measures in epidemic risk and malaria-free provinces and chartered cities	9,824,041	84,036,530	611,151,732	69,242,367	52,099,508	59,724,899	886,079,078
Performance Indicator 1.2.1 *Malaria elimination hub established in all epidemic risk and malaria free provinces and cities*	9,824,041	84,036,530	611,151,732	69,242,367	52,099,508	59,724,899	886,079,078
Strategy 1.3 Establish and implement malaria program interventions among identified high risk groups	0	12,836,850	9,876,000	6,584,000	0	0	29,296,850
Performance Indicator 1.3.1 *Malaria intervention package for 7 priority vulnerable groups with accompanying guides*	0	12,836,850	9,876,000	6,584,000	0	0	29,296,850
Strategy 1.4 Increase demand for anti-malaria prevention, diagnosis and treatment services	16,250,000	62,336,400	24,892,000	23,038,400	37,150,000	38,838,400	202,505,200
Performance Indicator 1.4.1 *Awareness of the population and participation of various groups of stakeholders in anti-malaria prevention and elimination efforts improved as evidenced by:*	16,250,000	62,336,400	24,892,000	23,038,400	37,150,000	38,838,400	202,505,200
Objective 2. To capacitate the LGUs to own, manage and sustain the Malaria Program in their respective localities	68,146,900	115,851,950	108,683,150	79,392,650	66,657,250	117,687,250	556,419,150
Strategy 2. 1 Institutionalize stratification, zoning and planning at the local level towards malaria elimination	20,213,500	18,488,200	31,046,500	3,970,000	2,970,000	40,330,000	117,018,200
Performance Indicator 2.1.1 *Malaria transmission-based stratification per barangay completed and regularly updated every 3 years in all malaria endemic provinces and chartered cities*	6,732,000	0	7,344,000	0	0	7,344,000	21,420,000
Performance Indicator 2.1.2 *100% of malaria endemic provinces and chartered cities formed into Malaria Disease Elimination Zones (MDEZ)*	0	4,598,000	6,446,500	2,970,000	2,970,000	2,970,000	19,954,500
Performance Indicator 2.1.3 *Overall criteria and process in the validation, declaration and confirmation of malaria-free areas and malaria-eliminated zones developed and applied to at least 23 malaria-free provinces and at least 2 MDE zones respectively*	432,500	13,890,200	17,256,000	1,000,000	0	30,016,000	62,594,700
Performance Indicator 2.1.4 *2012-2016 LGU Malaria Program Strategic Plans formulated in sync with the national program policy direction, strategic thrusts and funding priorities and integrated into their P/CIPH*	13,049,000	0	0	0	0	0	13,049,000

Objective/Strategy/ Performance Indicator	2011	2012	2013	2014	2015	2016	Total
Strategy 2.2 *Enhance malaria surveillance and response, monitoring and evaluation system*	27,492,000	66,948,450	47,882,450	46,778,450	36,778,450	51,281,450	277,161,250
Performance Indicator 2.2.1 *Malaria Program Monitoring and Evaluation Framework, Guide and Tool developed and disseminated*	6,696,700	0	1,720,000	0	0	1,720,000	10,136,700
Performance Indicator 2.2.2 *Malaria Program status tracked through the routine malaria information system at the national level and in all regions and malaria-endemic provinces and chartered cities*	3,262,500	12,427,400	11,278,900	3,892,400	3,892,400	4,677,900	39,431,500
Performance Indicator 2.2.3 *Periodic special surveys designed and completed with results disseminated and utilized*	0	35,702,000	17,699,500	25,702,000	15,702,000	27,699,500	122,505,000
Performance Indicator 2.2.4 *Each region, province and chartered city monitored at least once a year*	17,532,800	18,819,050	17,184,050	17,184,050	17,184,050	17,184,050	105,088,050
Strategy 2.3 ***Strengthen organizational support and coordination mechanism for malaria operations at all levels***	20,441,400	30,415,300	29,754,200	28,644,200	26,908,800	26,075,800	162,239,700
Performance Indicator 2.3.1 *Malaria program-related functions harmonized among concerned stakeholders and performed at appropriate levels of operations.*	0	6,502,000	8,235,800	3,367,000	3,367,000	3,367,000	24,838,800
Performance Indicator 2.3.2 *Supervisory guide adopted and implemented in at least 50% of the malaria service outlets*	0	820,500	2,430,000	1,320,000	880,000	880,000	6,330,500
Performance Indicator 2.3.3 *Coordination mechanism of program and project efforts and resources established and functional at the national. regional and local levels.*	20,363,400	20,813,400	20,628,400	20,628,400	20,628,400	20,628,400	123,690,400
Performance Indicator 2.3.4 *Multi-sectoral stakeholders involved in malaria program expanded at the national, regional and local levels*	78,000	2,033,400	1,200,400	1,200,400	2,033,400	1,200,400	7,746,000
Objective 3. To sustain financing of anti-malaria efforts at all levels of operations	2,148,500	8,713,200	12,079,000	10,264,000	9,137,000	310,000	42,651,700
Strategy 3.1 Secure government and non-government financial assistance in support to malaria elimination.	2,148,500	8,713,200	12,079,000	10,264,000	9,137,000	310,000	42,651,700
Performance Indicator 3.1.1 ***C****apability of national and local governments to mobilize and manage MP resources improved.*	643,500	3,255,500	1,857,000	37,000	37,000	37,000	5,867,000
Performance Indicator 3.1.2 *National and local government funds to support and sustain malaria operations increased.*	791,500	4,558,700	4,550,000	4,778,000	4,550,000	228,000	19,456,200
Performance Indicator 3.1.3 *External funds (non-government) to finance investment requirements for malaria elimination mobilized.*	713,500	899,000	5,672,000	5,449,000	4,550,000	45,000	17,328,500
Objective 4. *To ensure a functioning quality assurance system for malaria operations*	19,454,200	31,503,800	18,651,200	17,632,300	31,481,550	15,882,300	134,605,350
Strategy 4.1 Strengthen QAS for diagnostic and treatment service facilities	15,525,700	27,113,700	15,985,400	15,116,500	28,962,000	13,216,500	115,919,800
Performance Indicator 4.1.1 *All malaria diagnostic service facilities are covered and participating in the QAS for diagnostic services*	13,525,700	15,261,700	13,985,400	15,116,500	15,427,500	13,216,500	86,533,300
Performance Indicator 4.1.2 *All facilities are using DOH-recommended anti-malarial drugs and supplies*	2,000,000	11,852,000	2,000,000	0	13,534,500	0	29,386,500
Strategy 4.2 ***Improve quality of vector control measures***	3,928,500	4,390,100	2,665,800	2,515,800	2,519,550	2,665,800	18,685,550
Performance Indicator 4.2.1 *Quality of ITN/LLIN and house spraying in stable and unstable risk areas tracked*	3,928,500	3,928,500	2,481,000	2,481,000	2,481,000	2,481,000	17,781,000
Performance Indicator 4.2.2 *Susceptibility tests of insecticides using WHO standard test kit conducted every 2 years in all designated sentinel sites.*	0	461,600	184,800	34,800	38,550	184,800	904,550
Grand Total	515,732,094	745,934,173	1,063,995,317	598,264,583	768,307,372	887,284,372	4,579,517,912

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GLOSSARY OF TERMS

Anopheles	Mosquito genus that transmits the disease. Malaria parasites (*Plasmodium*) are transmitted to humans through the bite of female *Anopheles* mosquitoes.
***Anopheles*, infected**	Female *Anopheles* with oocyts of malaria parasites on the midgut wall (with or without sporozoites in the salivary glands).
***Anopheles*, infective**	Female *Anopheles* with sporozoites in the salivary glands (with or without oocyts in the midgut)
Asymptomatic Carrier	An individual that carries *Plasmodium* parasites in his/her red blood cells without manifesting any clinical symptoms.
Barangay	The smallest administrative unit of stratification sharing similar epidemiological characteristics.
Behavioral Change Communication	It is an integrated, multilevel, multi-channel interactive and systematic process aimed at developing tailored messages and approaches for various target audiences, aimed at fostering positive health behavior, promoting and sustaining individual, community, and societal behavior change, and maintaining appropriate healthy behavior.
Bioassay Test	The process of checking of mortality of a target mosquito vector exposed to the sprayed surface or ITN at intervals of weeks or months after spraying or use of nets.
Breeding Site (place)	Site where eggs, larva or pupae of mosquitoes are found
Case Definition	A set of diagnostic criteria that must be fulfilled for an individual to be regarded as a "case" of a particular disease for surveillance and epidemic investigation purposes. Case definitions can be based on clinical criteria, laboratory criteria or a combination of the two.
Case Notification	Compulsory reporting of detected malaria cases by all medical units and medical practitioners in sporadic transmission and potentially malarious areas to the municipal and provincial health offices.
Case Verification/ Investigation	Gathering enough information to allow classification of a malaria case by origin of infection. It includes, but is not limited to, administration of a standardized questionnaire to a person diagnosed with a malaria infection.
Chloroquine	An anti-malarial drug that has been used extensively for the treatment and prevention of malaria. Widespread resistance has now rendered it ineffective against *P. falciparum* infections in the country, although it still maintains considerable efficacy for the treatment of *P. vivax*, *P. ovale* and *P. malariae* infections.
Communication for Behavioral Impact	It is a dynamic approach to behavior change that utilizes strategic social mobilization and social communication to effect measurable changes in behavior. It is a methodology for planning sustained actions in communication and mobilization which focuses on measurable changes in behavior and not just changes in knowledge and attitude.
Compliance (to treatment)	Health-related behavior of the patient that abides by the recommendations of a doctor or other health care provider to complete the course as per dosage schedule
Department of Health	Is the principal government health agency. It is responsible for ensuring access to basic public health services for all Filipinos through the provision of quality health care and regulation of providers of health goods and services. DOH offices: National Center for Disease Prevention and Control (NCDPC) National Center for Health Promotion (NCHP) National Epidemiology Center (NEC)

	Health Emergency Management Staff (HEMS) Research Institute for Tropical Medicine (RITM) Bureau of Food and Drugs (BFAD) Centers for Health Development (CHD) Provincial Health Team Office (PHTO), CHD Extension Office Philippine Health Insurance (PhilHealth) – attached agency
Diagnostic Center	This may refer to a RHU, hospital, private laboratory/clinic served by a trained medical technologist or medical laboratory technician; a barangay malaria microscopy centers (BMMCs) served by a trained malaria microscopist, or an RDT center served by a trained BHW or health staff that provide malaria diagnosis services.
Dose	The number of tablets (or capsules or other solid form) taken or recommended to be taken at one given time, based on the weight or age of the patient.
Drug Resistance	The ability of a parasite strain to survive and/or multiply despite the administration and absorption of a drug given in doses equal to or higher than those usually recommended, but within the limits of tolerance of the subject (WHO, 1988)." This is detected by no clearance of malaria parasites in blood films, clinically manifested as failure to respond to a standard dose of antimalarial and poor drug compliance has been ruled out.
Effectiveness	A measure of the extent to which a specific intervention, procedure, regimen or service, when deploys in the field in routine circumstances, does what is intended to do for a specified population; a measure of the extent to which a health care intervention fulfills its objectives.
Efficiency	The extent to which a specific intervention, procedure, regimen or service produces a beneficial result under ideal conditions; the benefit or utility to the individual or population of the service, treatment regimen or intervention. Ideally, determination of efficacy is based on the results of a randomized controlled trial.
Endemic	Description applied to malaria when there is a constant measurable incidence of cases of natural transmission in an area over a succession of years.
Endemic Population	Refers to the number of individuals living in malarious barangays/sitios with stable, unstable and sporadic transmission. *See also population at risk.*
Environmental Management	The planning, organization, carrying out and monitoring of activities for the modification and/or manipulation of environmental factors or their interaction with human with a view to preventing or minimizing vector propagation and reducing human – vector-pathogen contact.
Environmental Modification	A form of environmental management consisting in any physical transformation that is permanent or long-lasting of land, water and vegetation, aimed at preventing, eliminating or reducing the habitats of vectors without causing unduly adverse effects on the quality of the human environment.
Epidemic	Description applied to malaria when the incidence of cases (other than seasonal increase) in an area rises rapidly and markedly above its usual level or when the infection occurs in an area where it was not previously present.
Epidemiology	A science that is concerned with describing the pattern of occurrence of disease in a population and determining the factors that influence its distribution.
Epidemiology and Surveillance Unit (ESU)	The unit established in the Centers for Health Development (CHD), Provincial Health Offices (PHO), City Health Offices (CHO) and Rural Health Units (RHU) that provide services on public health surveillance and epidemiology.
Facility	This may be a hospital, rural health unit or main health center, barangay health stations, school clinic or microscopy centers where a malaria patient can obtain diagnostic and treatment services.
Global Fund to Fight AIDS,	An international financing institution that invests the world's money to save lives. Since its creation in 2002, the Global Fund has become the main

Tuberculosis and Malaria	source of finance for programs to fight AIDS, tuberculosis and malaria.
Glucose-6-phosphate dehydrogenase deficiency	A genetic disorder that mainly affects red blood cells. In affected individuals, a defect in an enzyme called glucose-6-phosphate dehydrogenase causes red blood cells to break down prematurely.
Health Promotion	The process of enabling people to increase control over, and to improve their health. It requires multisectoral actions designed to enhance public awareness of health, foster healthy lifestyles and community action in support of health, and empower people to exercise their rights and responsibilities in shaping environments, systems and policies that are conducive to their health and well-being.
Health Workers/ Practitioners	These are physicians, nurses, midwives, barangay health workers and malaria microscopists trained in the diagnosis and treatment of malaria.
Household	One or more persons who occupy a dwelling; may or may not be a family. The term is also used to describe the dwelling unit in which the persons live.
Imported Case	A malaria case, the origin of which can be traced to a known malarious area outside the locality in which the case was diagnosed.
Indicator	A measure that shows whether a standard has been reached. It is us used to access and communicate the results of programs as well as the process of methods used. Indicators can be qualitative or quantitative.
Indigenous Case	A malaria case, the origin of which from local transmission cannot be disproved. It included delayed first attacks of *P. vivax* due to locally acquired parasites with a long incubation period.
Indoor Residual Spraying	The method of applying insecticide (with a hand-compression spray can) on the inner walls and ceilings or the underside of the roof and eaves of all houses in a given area, in order to kill adult mosquito vectors that land and rest on these treated walls.
Insecticide Resistance	The ability of the mosquito to survive after exposure to the recommended dosage of insecticide.
Introduced Case	A malaria case in which it can be proved that the infection is a first step (first generation) of local transmission subsequent to a proved imported cases, i.e. in which the mosquito was infected from an imported case.
Insecticide Treated Net	A mosquito net that repels, prevents blood feeding and/or kills mosquitoes after contact as a result of the presence of insecticide on the netting material, Insecticide-treated nets are either *(a) Conventionally treated net:* A mosquito net that is either made of polypropylene, polyethylene, polyester or cotton that has been treated by dipping in a recommended insecticide solution which is effective for a certain period of time. The net should be re-treated twice a year to ensure its continued insecticidal effect. *(b) Long lasting insecticide treated net (LLIN):* A factory-treated mosquito net with netting material that has insecticide incorporated within or bound around the fibers. The net must retain its effective biological activity without re-treatment for at least 20 WHO standard washes under laboratory conditions and three years of recommend use under field conditions (bioassay test result).
Integrated Vector Management	A rational decision making process for the optimal use of resources for vector control to make deliberate, evidence-based decisions to target and implement vector control operations including LLINs and in some situations IRS, larval source management and other measures.
Local Government Unit	Pertains to provincial, municipal, city and barangay level of administration

Logistics	The procurement, maintenance and transport of material personnel and facilities; management of the details of an undertaking.
Long Lasting Insecticide-Treated Net	See insecticide-treated net
Malaria Case	A person in whom, regardless of the presence of absence or clinical symptoms, malaria parasites have been confirmed by quality laboratory diagnosis.
Malaria Control	Reducing malaria disease burden to a level where it is no longer a public health problem.
Malaria Elimination	Permanent reduction to zero of the incidence of infection caused by a specific agent in a defined geographical area as a result of deliberate efforts.
Malaria Free Area	A province or a set of contiguous provinces where there is no ongoing local mosquito-borne malaria transmission, and the risk of acquiring malaria is limited to introduced cases only.
Malaria Prone Area	An area with no indigenous malaria case for the past 5 years even in the presence of a malaria vector
Malaria Transmission	Occurrence of human malaria cases that are acquired in a given area through the bite of infective *Anopheles* mosquitoes.
Malaria Treatment Failure	A patient with malaria with or without any clear symptoms who has taken the correct dosage of anti-malarial treatment, and presents with clinical deterioration or recurrence of symptoms together with parasitaemia (asexual forms) within 28 days of the start of treatment
Mass Blood Survey	The examination of blood film for malaria parasites from every person in a community, group of communities or in a specific population of an area to identify the individual cases of parasites or carriers of parasites who are not sick.
Microscopist	A medical technologist, medical laboratory technician, barangay microscopist trained by National Core Group of Trainers or other DOH accredited institutions on malaria diagnosis
Millennium Development Goals	Are a set of eight time-bound, concrete and specific targets aimed at significantly reducing, if not decisively eradicating poverty, by the years 2015. MDG (1) eradicate extreme poverty and hunger; (2) achieve universal primary education; (3) promote gender equality and empower women; (4) reduce child mortality; (5) improve maternal health; (6) combat HIV/AIDS, malaria and other infectious diseases; (7) ensure environmental stability; and (8) develop a global partnership for development.
Mixed Infection	Malaria infection with more than one species of *Plasmodium*
Mosquito Net	A device made of netting material that allows the passage of air, which, when placed over and around a sleeping person as a physical barrier, protects that person from mosquito bites.
Notifiable Disease	A disease that, by legal requirements, must be reported to the public health or other authority in the pertinent jurisdiction when the diagnosis is made. Malaria is one of the notifiable diseases.
Plasmodium	A genus of parasites causing human malaria (*Plasmodium falciparum*, *P. vivax*, *P. ovale*, *P. malariae*)
Population at Risk	The population exposed to certain diseases. *See also endemic population.*
Rapid Diagnostic Test	An antigen-based stick, cassette or card test for malaria in which a colored line indicates that plasmodial antigens have been detected.
Severe Malaria	A condition is due to the dysfunction of organ systems secondary to the combined effects of parasitemia (usually very high parasite load) with untreated infection, sequestration of infected red blood cells and anemia. The clinical syndromes of coma (cerebral malaria), respiratory distress, severe anemia, renal failure, disseminated intravascular coagulation, hypoglycemia and metabolic acidosis are present, which may also be observed in other

	local infectious diseases.
Slide Positivity Rate	The proportion of slides found positive among the slides examined.
Stable	Implies equilibrium and, on the whole, the prevalence of infection is persistently high and endemicity is relatively insensitive to environmental changes. Variation in transmission is minimal, although seasonal fluctuations do occur and transmission can continue even with very few vectors. High levels of immunity develop within the population due to regular and often continuous transmission.
Stratification	The process of classifying malaria endemic areas that share similar epidemiological characteristics into groups or strata for the purpose of (i) prioritizing areas to be assisted; (ii) identifying the appropriate interventions; and (iii) allocation and prioritization of resources.
Surveillance	The regular collection, monitoring and analysis of information in a given population or sub-population to detect the presence and any epidemiological changes of malaria
Susceptibility Test	A test to determine the proportion of the vector population that is physiologically resistant to a particular insecticide. Physiological resistance to insecticides has been defined as the ability of a population of insects to tolerate doses of insecticide which prove lethal to the majority of individuals in a normal population of the same species.
Uncomplicated Malaria	A febrile condition with any species of malaria parasites detected in a peripheral blood film and absence of severe disease and signs of multidrug-resistant *P. falciparum*. Uncomplicated malaria may be accompanied by severe headaches and chills followed by a drenching sweat.
Universal Coverage	100% of the populations at risk are covered by appropriate malaria interventions.
Unstable Transmission	Pattern of transmission characterized by great variability in space and time. Collective immunity is low and there is a propensity of epidemics to occur. The disease is also characterized by recession and recurrence, and by periods when disease incidence is low alternating irregularly with times of high incidence.
Vector	Refers to the transmitter of disease. For malaria, *Anopheles species* mosquito is the malaria mosquito vector.
Vector Control	Are measures directed against a vector of disease (*Anopheles flavirostris*, *An. maculatus, An. litoralis*, *An. balabacensis*, *An. mangyanus* mosquitoes) and intended to limit its ability to transmit the disease.
World Health Organization Pesticide Evaluation Scheme (WHOPES)	The WHO Pesticide Evaluation Scheme (WHOPES) was set up in 1960. WHOPES promotes and coordinated the testing and evaluation of pesticides for public health. It functions through the participation of representatives of governments, manufacturers of pesticides and pesticide application equipment, WHO collaborating centers and research institutions as well as other WHO programs, notably the International Programme on Chemical Safety. In its present form, WHOPES comprises a four-phase evaluation and testing program studying the safety, efficiency and operational acceptability of public health pesticides and developing specifications for pesticides as part of the International Code of Conduct on the Distribution and Use of Pesticides for quality control and international trade.

LIST OF ABBREVIATIONS AND ACRONYMS

ACD	Active Case Detection
AIDS	Acquired Immunodeficiency Syndrome
AO	Administrative Order
BCC	Behavior Change Communication
BHS	Barangay Health Station
BHW	Barangay Health Worker
BLHD	Bureau of Local Health and Development
BMMC	Barangay Malaria Microscopy Center
CESU	City Epidemiology Surveillance Unit
CHD	Center for Health Development
CHO	City Health Office/City Health Officer
COMBI	Communication for Behavioral Impact
DBM	Department of Budget and Management
DepEd	Department of Education
DOH	Department of Health
DOH Rep	Department of Health Representative
e.g.	Example given
EPI	Expanded Program for Immunization
F1	*Four*mula One for Health
FHSIS	Field Health Service and Information System
GOP	Government of the Philippines
G_6PD	Glucose-6-Phosphate Dehydrogenase
HHRDB	Human Health Resource Development Bureau
HIV	Human Immuodeficiency virus
HPDPB	Health Policy Development and Planning Bureau
IDO	Infectious Disease Office
IEC	Information, Education and Communication
ILHZ	Inter-local Health Zone
IPs	Indigenous Peoples
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Mosquito Nets
IVM	Integrated Vector Management
KAP	Knowledge, Attitudes and Practices
LCE	Local Chief Executive
LGUs	Local Government Units
LLIN	Long Lasting Insecticide Treated Mosquito Net
M and E	Monitoring and Evaluation
MBS	Mass Blood Survey
MCP	Malaria Control Program
MDGs	Millennium Development Goals
MESU	Municipal Epidemiology Surveillance Unit
MHO	Municipal Health Office/Municipal Health Officer
NCDPC	National Center for Disease Prevention and Control
NCGT	National Core Group of Trainers
NCHP	National Center for Health Promotion
NEC	National Epidemiology Center
NGO	Nongovernmental Organization

OFWs	Overseas Filipino Workers
P. falciparum/Pf	*Plasmodium falciparum*
P. malariae/Pm	*Plasmodium malariae*
P. ovale/Po	*Plasmodium ovale*
P. vivax/Pv	*Plasmodium vivax*
PCR	Polymerase chain reaction
PhilHealth	Philippine Health Insurance Corporation
PhilMAM	Philippine Movement Against Malaria, Incorporated
PhilMIS	Philippine Malaria Information System
PHO	Provincial Health Office/Provincial Health Officer
PIDSR	Philippine Integrated Disease Surveillance and Response
PIPH	Province-Wide Investment Plan for Health
PIR	Program Implementation Review
PNDF	Philippine National Drug Formulary
PPE	Personal Protective Equipment
PQ	Primaquine
PSFI	Pilipinas Shell Foundation, Incorporated
QAS	Quality Assurance System
RDT	Rapid Diagnostic Test
RHU	Rural Health Unit
RITM	Research Institute for Tropical Medicine
SPR	Slide Positivity Rate
TWG	Technical Working Group
WHO	World Health Organization
WHOPES	World Health Organization Pesticide Evaluation Scheme
WP	Wettable powder
y.o.	years old

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