

BHW Effectiveness in Malaria Control: Lessons from Five Municipalities

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The role of the barangay health workers (BHWs) whose responsibilities primarily consist of health promotion and disease control in lieu of professional health service delivery persons warrants attention. Their capabilities and competence in carrying out their tasks should be seriously considered. There is a need, therefore, to look into the various factors that may affect the effectiveness of the barangay health worker, such as recruitment, selection and replacement policies, duration and content of training programs, supervision of BHWs, motivational schemes and incentives, logistical support, and community support. This study attempts to address this need by assessing the BHW program of the Department of Health, zeroing in on the effectiveness of the BHW in malaria control.

Introduction

The Department of Health (DOH) included malaria control as one of five impact programs. This means that its prevention and treatment is a priority health activity all over the Philippines. A separate budget is allocated to malaria although it is considered by the Malaria Control Service as inadequate. As such, the barangay health workers (BHWs) are encouraged to participate in a wide range of malaria control activities. These activities include case finding, collection of blood film, drug administration and environmental measures.

Barangay health workers are a very valuable resource in the community. They are tasked to make Primary Health Care (PHC) acceptable, affordable and accessible to the people. With such great responsibility, their mandate becomes a crucial issue. Policymakers have been concerned with apparent uneven quality in the performance of BHWs and have raised the basic question on what accounts for the effectiveness of some BHWs. Some researchers have addressed this issue to a certain extent. For example, Bautista (1988) found a positive relationship between BHWs' performance and the following variables: length of training, readership of printed materials, educational attainment, and length of service as BHW. Thus, DOH recognizes the need to provide a three-tiered type of training (basic, advanced, and special) for BHWs to make them more effective and to prepare for the possible institutionalization of BHW service in the Department (HAIN 1988).

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The specific objectives of the study are as follows:

- (1) To assess the BHW Program of the DOH focusing on the following: (a) recruitment, selection and replacement; (b) training; (c) supervision; (d) motivational schemes and incentives; (e) logistical support; and (f) community support.
- (2) To describe the extent of utilization of health services by the community provided by BHWs.
- (3) To determine the association between the effectiveness of the BHWs and compliance with DOH procedures and policies governing BHWs.
- (4) To relate the effectiveness of the BHWs' performance with selected personal attributes, e.g., age, education, occupation and income.
- (5) To assess the BHWs' perception of their role in the community.

This study is concerned with establishing data on the effectiveness of the BHWs in performing their defined tasks, with emphasis on malaria control activities. BHWs' household members, community leaders and DOH personnel were surveyed to generate comprehensive and accurate information regarding the nature and extent of work that the BHWs are doing. Further, guidelines set forth by the DOH on the BHW program is assessed in light of the actualization of these policies in field situations.

Conceptual Framework

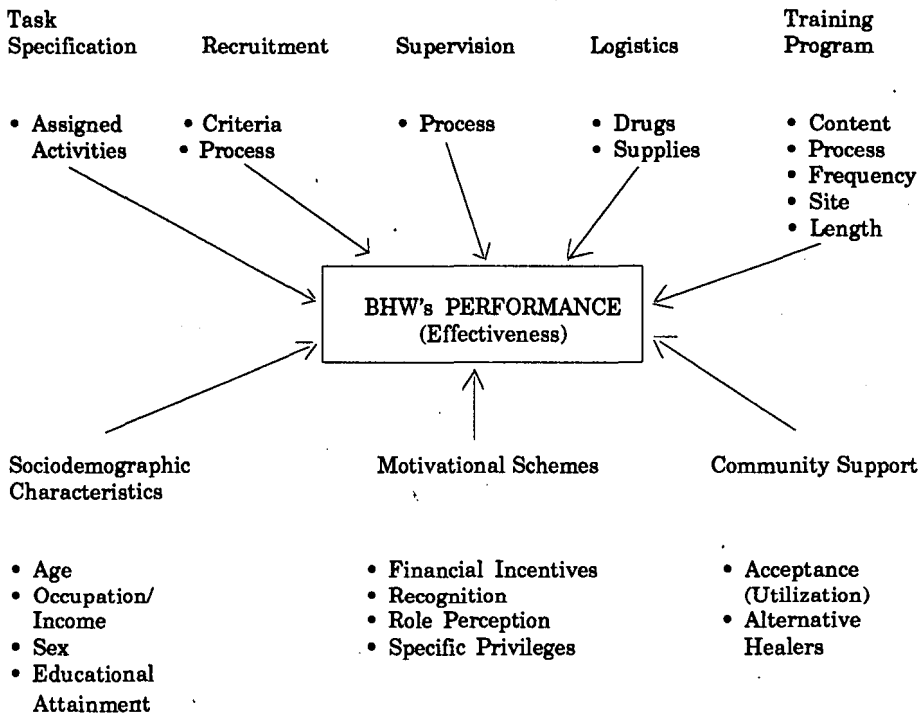
In the Philippines, there are two major studies focusing on the BHW. Feranil's study (1989) compared three types of integrated population, health and nutrition outreach workers in relation to the delivery of various health concerns. The second which was conducted by Bautista (1988), assessed the primary health care program and provided a profile of BHWs and a description of their performance of their functions. These two studies together with the cross-country study sponsored by WHO (1989) were reviewed using the various areas of concern of the present study as a framework for discussion. From the review of literature, the following framework was derived. The framework guided the development of the questionnaire and interview guides as well as the identification of the various types of respondents.

The conceptual framework recognizes that the BHW's performance is a function of several major variables, each of which could be analyzed in greater detail. While the main interest of the present study is to analyze BHW effectiveness in malaria

control, it looks at the broader context of the BHW's role in the delivery of health services. The allocation of time, skills and resources has to be viewed within the totality of such services.

DOH policies and procedures cover task specification, recruitment, supervision, logistics and training programs. However, factors such as sociodemographic characteristics, motivational schemes and community support are likely to affect worker effectiveness. Thus, these are included in the framework for analysis.

DOH Policies and Processes



Methodology

The research site is composed of five municipalities of Quezon province. The province is 150-200 kms. south of Manila. It is one of the largest provinces in the country with a topography characterized by a rugged terrain. The Sierra Madre range runs almost the entire length of the province.

Predominantly rural, Quezon has made little strides toward urbanization. Population density is around 120 persons/sq. km. and 70 percent of the population

reside in rural areas. More than three-fifths of gainful workers are engaged in agriculture, forestry, fishing and hunting. Only more than two-thirds of the population have completed elementary education. More than half of the households in the province reside in dwelling units with light roofing (such as cogon/nipa/anahaw) and walling (bamboo/sawali or cogon/nipa).

The five municipalities covered by the study were chosen on the basis of the following criteria: endemicity of malaria, presence of BHWs, similarity of environmental (geographic) characteristics, similarity of sociodemographic profile and health services, absence of ongoing intervention measures apart from the current DOH malaria control activities, willingness of the community to cooperate, and accessibility to the research teams. As a result of the application of such criteria, the following study sites were included: Tayabas, San Antonio, Candelaria, Pagbilao and Sariaya.

The respondents included in this study are: barangay health workers (n = 657), mothers (n = 140), barangay captains (n = 167), municipal health officers (n = 4), and midwives (n = 38).

Several approaches were applied in addressing the main purpose of this study. A survey questionnaire was used for the BHWs, a structured interview for the doctors and midwives, and focused group discussions for the barangay captains and the mothers. Data on the participation of BHWs in the five impact programs of the DOH were gathered from clinic records and were analyzed.

All the instruments were pretested and revised prior to the full scale use in the field. Interviewers were trained for the individual interviews while the focused group discussions were conducted by the researchers themselves with assistance from the research associate. Preliminary meetings to establish rapport with regional and municipal health officers were conducted before the data gathering phase.

Results and Discussion

The data obtained from various data gathering activities showed some clear trends and convergence on some points. Divergent views also emerged in certain areas. Both the data on convergence and divergence will be discussed in the succeeding sections.

On Recruitment, Selection and Replacement

There was a lack of written document on the DOH policy on BHW recruitment. To put together the substance of such policy, information was procured from the regional office and barangay captains. (See Appendix.) The DOH Regional Office required the following minimum criteria for a BHW: (1) must be between 18 to 60

years; (2) has the ability to read and write; and (3) possesses good moral character. The midwives were quite down-to-earth with their selection criteria, citing as most important the criterion that BHWs should have time for their work and not have young children. In operationalizing the DOH criterion on ability to read or write, the midwives preferred those who were at least high school graduates. Interest in the work of BHWs and having a good reputation in the community were likewise seen as important considerations in choosing volunteer health workers. As for personality traits, the midwives described the ideal BHW as one who is approachable, kind, hardworking, calm, fair and just and physically healthy. The barangay captains who were mostly men, believed that the best BHWs were single women, or married women without young children. They agreed that BHWs should have a good reputation as well as the time and willingness to work for the community even without financial incentives.

Some of the criteria set by the regional office, the midwives and the barangay captains were noted by the mothers who were the direct beneficiaries of volunteer health workers. But the mothers emphasized that being male or female, single or married was not important. Instead, being energetic, active and competent were the most important considerations in choosing a BHW. Being approachable and having good interpersonal relations with the rest of the community were likewise seen as vital considerations in the recruitment and selection of BHWs.

When the BHWs themselves were asked about the important qualifications of prospective health volunteer workers, they emphasized criteria which were as practical as those mentioned by the midwives. These included the following: time to attend to their work, the competence to do the work that was expected of them, and the financial resources to support their volunteer work. It must be noted that only the BHWs pointed out the last consideration, which could be the most significant hurdle in actively participating in the BHW program. In a poor rural community, time for volunteer work is time away from food production or income generation. The BHWs also pointed out that the volunteer worker must be persevering, approachable, calm and stable, healthy and "neutral." This last point may be explained as the BHW not being perceived as favoring some residents over others in terms of services rendered or goods distributed. This is because the BHWs usually take care of distributing supplementary food or milk donated by international agencies.

On Procedure/Steps Followed in Recruitment, Selection and Replacement

The regular step-by-step procedure in recruitment and selection of BHW was explained by the Municipal Health Officers (MHOs). The procedure places the MHOs in the central role of coordinating with the local officials and the midwives. The MHOs, with the assistance of the midwives, are instrumental in organizing the Barangay Health Committees which are primarily responsible for the selection of BHWs. These

committees include the barangay officials and the midwives. However, during the focused group discussions with the barangay captains, they noted that this was not always followed. Sometimes, the midwives chose the BHWs without the consent of the barangay captains. Some barangay captains said that they alone selected the volunteer health workers. The variations in the recruitment procedures were validated by the BHWs themselves. Some claimed that they were invited by the barangay captain (15.3%) while others said that the midwives recruited them (56.3%). The rest were convinced by friends, parents or other relatives. The midwives suggested that the guidelines for recruitment be reviewed since some of the existing ones were not followed. It was noted in the review of literature on BHW that the recruitment procedure is most often pointed out as one of the major causes of ineffectiveness or high dropout rate among volunteer community workers. It is also significant to note that practically no effort is exerted in replacing BHWs who resign or drop out.

Although the DOH policy requires that there should be one BHW for every twenty households, this was not followed in most of the barangays in the five municipalities. During the focused group discussions with the barangay captains, they were hard put in naming the BHWs in their communities. Most of them mentioned one or two names, and at most three were active at the time of the study.

On Training

The contents of the training programs for BHWs, including the manuals, are provided by the DOH and are related to the five impact programs, namely: maternal and child health, prevention and control of diarrheal diseases, tuberculosis control, prevention and control of schistosomiasis, and leprosy. Malaria control is not formally included as a separate module. The local health personnel are responsible for the implementation of these programs. Specifically, the midwives are the ones who provide actual training on the following: reading of blood pressure, sputum collection, immunization, malaria service, family planning, well-child clinic, postnatal care, nutrition and environmental sanitation.

There are procedures followed in training BHWs. Initially, the MHOs attend a seminar on the BHW program together with public health nurses and midwives. After the seminar, the MHOs choose pilot barangays where the BHWs are trained. The training programs are organized by the local health personnel with the help of local officials. The main funding for the training comes from the development fund of the respective municipalities. The rest are solicited by local health personnel. But existing funds may not be enough. In Tayabas, where the barangays reached the required number of active BHWs, the MHO herself conducted the training and spent her own personal funds for it. A classroom seminar usually lasted for five days while the practicum varied from one week to one month among the five municipalities being studied.

Tayabas is the only municipality which has regular training programs. All the other municipalities used to have the same programs from 1981 to 1983 but were few and far between afterwards. Replacements, when there were any, did not have the chance to undergo the kind of training the first batch of BHWs had because there had been no training held for the last five years in these municipalities. However, some BHWs in three of the municipalities had regular monthly meetings with the midwives who supervise their work. During these meetings, they were given supplementary knowledge or practical lessons related to their work.

About 65 percent of the respondents believed that their training is sufficient to carry out their daily tasks. But the barangay captains and the mothers suggested that the BHWs undergo further training to equip them with skills to perform more than "simple clerical work" for the midwives. The mothers also pointed out that with more training, BHWs would be able to help them with their health problems and they no longer have to go to the municipal health center for consultation.

The barangay captains suggested four training areas where BHWs can be more useful. These are (1) childbirth assistance, (2) immunization, (3) reading of blood pressure, (4) detection of malaria and TB, and (4) general orientation on common ailments. In connection with malaria, installing a *botica* (small pharmacy) within the barangay was suggested to enable the BHWs perform presumptive treatment. But under the existing policy, only the midwives, public health nurses or medical doctors are allowed to dispense medication for malaria. In terms of the physical setting, the BHWs who had undergone the five-day didactic seminar found the sites being used (the Municipal Health Office, public schools or municipal halls) comfortable and conducive for learning.

On Supervision

The BHWs are under the direct supervision of the midwives. They assist the midwives in the latter's work in the barangay health station or around the barangay. In two of the five municipalities, monthly meetings with BHWs were held and were presided over by the midwives. During the meeting, additional training may be given and problems were discussed. In some municipalities, the BHW leaders were assigned to directly supervise the BHWs. The leaders received instructions from the midwife, and assigned tasks to the other BHWs.

In terms of day-to-day supervision, 55.4 percent of the BHWs claimed that their supervisors visit the barangay health station (BHS) more than twice a week. About 26 percent of the BHWs were visited once a week, while 12.2 percent encountered the midwife twice a week. Regardless of interval, barangay visits by the midwives appears to be regular because 95.6 percent of the BHWs reported that the visits were done as scheduled. Although more than half (57.1%) of the BHWs claimed that they saw their supervisors only on scheduled visits, some 35.6 percent said that they met

the midwives on other days such as general meetings of the Rural Health Unit or when the midwives go around for the barangay visits.

In addition to the supervision, the midwives continue to teach the BHWs additional skills. This was reported by 17.5 percent of the BHWs. Majority (81.6%) rated their supervisors positively on this point. The specific skills which the BHWs listed most often as having been taught by the midwives are: reading blood pressure, planting and using herbal medicine, obtaining blood samples, the proper use of medicine, using the thermometer, vaccination, proper nutrition, first aid, malaria service and family planning. Malaria service was mentioned only 17 times in contrast with taking blood pressure which was most frequently mentioned at 270 times.

On Motivational Schemes and Incentives

Although the Barangay Health Worker Program is premised on volunteerism, the municipal health officers, BHWs' mothers, barangay captains and midwives were unanimous in recommending that monetary incentives be awarded to BHWs. According to all MHOs, the BHWs should be given some kind of salary allowance so as to increase their motivation to work. They pointed out that some BHWs are unable to do their tasks because they cannot even afford to pay for their fare to go to their place of work.

During the training period, the BHWs were given food and transportation allowance and it was suggested that the allowance should be continued. Sometimes the midwives provided for the fare and snacks of the BHWs from their own money. Interestingly, the BHWs revealed that they sometimes receive tips or gifts from their supervisors or the people they have helped.

Both the doctors and the midwives felt that the communities accepted the BHWs and recognized them as creditable health workers. The midwives found it very difficult to do all their work without the assistance of the BHWs and observed that the people in the community show their acceptance by asking advice about health matters, following such advice and inquiring about their schedule of services. About 95 percent of the BHWs also felt that they are accepted by the community. As proof of their acceptability, the barrio folks consult them about health matters and provide the BHWs money for transportation.

During the first year of the BHW program, the government provided privileges to the BHWs such as insurance and free hospitalization and medicine for the BHW and his/her immediate family. At present, the provincial governor provides insurance for only 20-30 BHWs per municipality. The free hospitalization and medicine are, after all, available to all whose low socioeconomic status is certified by the Department of Social Welfare and Development.

While the doctors, midwives and barangay captains emphasized the need for compensation, the BHWs pointed out nonmonetary rewards. The BHWs cited rewards such as having free medicine, being able to take care of their families' health, fulfilling their interest in caring for the sick and being looked up to in the barangay. This response by BHWs may be due to a desire to give socially acceptable responses. Nonetheless, it is still important that such desire prevail in their consciousness and that it is enhanced in future training programs.

Perceptions on the Role of the BHW

The MHOs, midwives, and the BHWs defined the role of a community health worker in more general terms than the mothers and the barangay captains. As defined by the doctors and midwives, the BHW's role is to assist the midwives in clerical or technical matters. Likewise, in tasks requiring information dissemination and following up certain health cases, BHWs are primarily relied upon.

More specific is the description of the BHWs' role in their communities by the mothers and barangay captains. They enumerated the various functions of the BHWs as follows: attending to light cases, treating wounds, obtaining blood and sputum samples, teaching about feeding and herbal medicine, weighing children, record keeping, distributing food rations, referring patients to malaria control service, announcing schedules for consultations, visiting houses for immunization and checking up on pregnant mothers.

The role perceptions about the BHW are consistent among the beneficiaries, midwives and doctors. However, the beneficiaries provided an operationalization of the doctors' and midwives' concepts of what a BHW can and should do. The BHWs defined their own role as caring for the health of the community. This is seen in their being sought for advice regarding health matters, helping out in the barangay health station, conducting census and house-to-house monitoring of cases and maintaining cleanliness in the barangay.

Logistical Support

Logistical support for BHW is practically nil. Recalling their experience at the beginning of the program, the MHOs pointed out that the first batch of BHWs were given medical kits containing medicine and basic supplies. However, the contents were never replenished nor are new BHWs given similar medical kits. Barangay health stations are usually short of supplies and medicine because these are not available at the regional level or do not come as scheduled.

The barangay captains validated the doctors' observations, saying that more often than not there is no medicine at the BHS. They also recall that in the early

eighties, they had the *botica sa barangay* which assured them of a steady supply of medicine. However, after a while, the stocks were not replenished and the project fizzled out.

The mothers were the ones most affected by the lack of supplies and medicine. Most of them gauged the performance of BHWs by their ability to dispense medicine. Without the medicine, the mothers perceived the effectiveness of BHWs as being reduced. The mothers also complained that the BHWs did not even have thermometers or sphygmomanometers.

The BHWs themselves enumerated the items that they need daily but are not available at the BHS: cotton, BP apparatus, thermometer, weighing scale, syringe, alcohol, glass slides, paper and pencil, and medicine for common ailments such as fever and cough.

Community Support

The mothers who benefited most from services of the BHWs rated BHWs positively with an average score of 13 out of a possible 16, indicating that some BHWs get negative ratings. Majority (87.1%) consulted their BHWs. However, for services provided at the barangay health station, BHWs appear to have a minor role. The technical aspects of the job are done by the midwives. This may be gleaned from the low frequency count of services seen by mothers as being performed by the BHWs compared to services available at the BHS. For example, only 5 percent of the mothers reported that BHWs assist in malaria service, 21.4 percent in family planning, 25.0 percent in well-child clinic, 2.1 percent in postnatal care and 10.7 percent in prenatal care.

Three alternative healers were interviewed and all of them reacted positively to the BHWs. They were not perceived as "competitors" because the types of cases brought to the healers are different (e.g. people who have sprained ankles, etc). Also, some healers serve as BHWs at the same time. The barangay captains, on the other hand, render support by providing financial incentives to the BHWs. This is in cognizance of the fact that it is difficult to cope with health problems in the barangay without the BHWs, especially those cases needing immediate attention.

Utilization of Services and Ratings of Effectiveness

The effectiveness of the BHW was further gauged by the extent services were utilized by the mothers. The first measure was the mean of scores of BHWs on four rating scales (SCORE) provided by mothers. The score for each scale ranged from 1 to 4 and the scores on the four scales were added yielding a highest possible score of 16. The second measure (SERVICE) was the number of services in the BHSs

administered by the BHWs. One point was given for each type of service rendered. All of the points were added to get the SERVICE score. Both measures were tested with (1) educational attainment of mothers; (2) nature of interaction with BHW; (3) health worker initially consulted; (4) age of respondents' children; and (5) whether mothers consult BHWs or not. Table 1 presents a summary of results on the utilization of services and ratings of effectiveness.

Table 1. Summary of Results: Utilization of Services and Ratings of Effectiveness

<i>Variables</i>	<i>Statistical Test</i>	<i>Significance</i>	
		<i>w/ SCORE</i>	<i>w/ SERVICE</i>
Educational Attainment	ANOVA	not significant	significant
Nature of Interaction with BHW	ANOVA	significant	significant
Health worker initially consulted	ANOVA	significant	not significant
Mothers who consulted BHWs first	t-test	significant	significant
Age of Children	chi-square	not significant	
SERVICE w/ SCORE	correlation	significant	

Note: significance—with .05 level of confidence

SCORE—mean score of ratings of effectiveness of BHW performance

SERVICE—total score of services offered in barangay health stations by BHWs.

Educational Attainment

The relationship between educational attainment and the number of services provided by the BHWs as perceived by the mothers was found to be significant (Table 2). Respondents who were high school graduates reported more services (3.43) provided by BHWs than those who were either just elementary graduates (2.48) or those who did not complete elementary schooling (2.24). More years in school appears to make the mothers more aware of the presence of health services and likewise more likely to utilize such services.

Nature of Interaction with BHWs

There was a significant relationship between the nature of interaction with the BHWs and the two indices of effectiveness. The respondents who had no contact with the BHWs but were aware of the services gave lower ratings (2.5; Table 2) than the respondents who had interaction with the BHWs. Among respondents who had actual contact with BHWs, home visits had the lowest rate of 9.88 compared to those who received help in the health station (12.93) and those who were attended to both at home and at the health station (13.43). This finding underlines the importance of face-to-face interaction between the mothers and the BHWs in enhancing the positive image of the community health workers.

On the other hand, the SERVICE rates differed in that mothers who were visited at home reported more services offered by the BHWs (3.38) than those who were met only in the health stations (2.0). In the Philippine traditional culture, a personal approach is highly appreciated and is fundamental in establishing rapport. A home visit from the health workers is consistent with these values.

**Table 2. Selected Data from Survey Results
Conducted for Mothers (n=140)**

<i>Items</i>	<i>(f)</i>	<i>SCORE (X)</i>	<i>SERVICES (X)</i>
Educational Attainment			
Some elementary education	25	11.8	2.24
Elementary graduate	60	11.62	2.48
Some high school education	18	10.78	3.22
High School graduate	23	13.04	3.43
Nature of Interaction with BHWs			
Visits home	8	9.88	3.38
Works only in BHS	14	12.93	2.0
Visits home and works in BHS	103	13.43	3.14
BHW not visible	4	2.5	.25
Health worker initially consulted			
Doctor	33	9.39	2.54
herbolario/hilot	8	11.88	2.25
midwife	65	12.26	2.74
BHW	31	13.58	3.22
Mothers Who Consulted BHWs First			
Mothers who did	122	12.85	3.04
Mothers who did not	11	6.54	1.18
Age of Children of Respondent			
With children less than 13 yrs. old	110	11.98	2.91
Without children less than 13 yrs. old	28	10.93	2.12

Health Worker Initially Consulted

The barangay residents had the choice of consulting first with a doctor, a midwife, an alternative healer or with the BHW. Higher ratings of effectiveness were given by mothers who consulted first with BHWs (13.58) and those who first saw midwives (12.26) compared to those who went straight to a doctor (9.39). The ratings of the first two groups did not differ significantly from those who consulted alternative healers first. It is possible that this finding reflects the initial attitudes of the respondents—those who thought positively of BHWs are expected to consult them first

while those who felt otherwise went elsewhere for their health needs. This is further emphasized in the finding that mothers who consulted BHWs have higher ratings of effectiveness (12.85) than those who did not consult the health workers (6.54). Moreover, consulting BHWs also went with higher SERVICE score (3.04) compared with the group which did not consult BHWs (1.18).

Age of Children

Respondents with younger children (below 13 years old) reported higher SERVICE scores than those with older children. There are more services offered at the barangay health station specifically for younger children but it can likewise be inferred that seeking health services is greatest for mothers when their children are young and perceived to be more susceptible to disease.

Relationship between SCORE and SERVICE

The mean ratings of effectiveness is positively related to the number of services observed by the respondents as being done by the BHWs. In short, the more the BHW was perceived to be fulfilling his role, the more this was rated as effective.

Variables Related to Self-Ratings of Effectiveness

The sociodemographic variables significantly related to effectiveness are occupation and number of years as BHW (Table 3). BHWs who worked as day care workers had significantly higher effectiveness scores compared to others who were unemployed, dressmakers, vendors, agricultural workers and handicraft workers. The nature of day care work is of course highly similar to that of BHWs. Both involve caring for and helping others and experience in one job easily generalizes to the other. As for the length of service of BHW, the trend indicates a positive relationship between length of service and self-perceptions of effectiveness. It appears that the cumulative effect of positive experiences contributes to feelings of adequacy and a sense of competence. Another set of variables which may be labelled as job or organizational factors proved to be significantly related to effectiveness. These include perceptions on the adequacy of training duration, additional training from supervisors, frequency of supervisor's visit and adequacy of supplies. Those who believe that the duration of training was adequate tended to be those with high self-ratings of effectiveness. Moreover, those who reported that they did not receive additional training from their supervisors also claimed higher ratings of effectiveness. Additional training means training done after the initial five-day seminar. It stands to reason that those who perceived the length of training as adequate would likewise feel competent to carry on their work without additional training. These findings seem to point out that the supervisors were quite perceptive in identifying BHWs who needed to be trained further as

those with lower self-ratings of effectiveness consistently reported having undergone additional training. Involving the supervisors in planning out future training activities should therefore be seriously considered.

Table 3. Summary of Variables Significantly Associated with Effectiveness

<i>Variables</i>	<i>Statistical Test</i>	<i>Obtained Value</i>	<i>Level of Significance</i>
Occupation	ANOVA	2.11	.03
No. of yrs. as BHW	Chi-Square	13.8	.04
Adequacy of training duration	Chi-Square	11.36	.003
Additional training from supervisors	Chi-square	8.6	.004
Frequency of supervisor's visits	ANOVA	3.79	.02
Adequacy of supplies	ANOVA	4.77	.03

The frequency of the supervisors' visits also proved to be a critical factor—the BHWs who had contact with their supervisors more than once a month had significantly higher effectiveness scores than those who saw their supervisors only once a month. It may be inferred that the supervisors' motivational level and performance rubbed off on the BHWs or that a serious attitude towards the supervisor's job was sufficient to boost the BHWs' feelings of adequacy and competence. This being the case, future work could perhaps focus more deeply into the supervisor's role.

Another situational variable which was associated with higher effectiveness scores was the perception of adequacy of supplies. Those who thought they were quite effective were the ones who did not perceive a lack of supplies in the barangay health station.

Summing up the results on self-ratings of effectiveness, the BHW who perceived himself/herself as effective was one who was a day care worker and had worked as a BHW for more than a year. In addition, he/she saw the length of training as adequate, did not receive additional training from supervisors but was visited by the supervisor more than once a month and believed that supplies at the barangay health station were sufficient for his purposes.

The implications for planning out future training activities are quite clear. The initial seminar attended by the BHWs must be well-conceptualized. It appears to be one of the major sources of effectiveness and has implications for the type of supervision needed during the actual performance of duties. Frequent visits by the supervisor appears necessary for continued effectiveness. Another finding bolsters the foregoing discussion when the relationship between attendance in a BHW seminar

and frequency of visits by BHWs in the health station is analyzed. There were more BHWs who attended the seminar who likewise served at the BHS compared to those who never attended such seminars. It seems that participation in the training further reinforced the initial commitment that the BHWs had.

A total of 18 variables were included in regression equation using the stepwise method and the results show that 15 percent of the variance of the effectiveness score of the BHWs is accounted for by the combination of ten variables.

The variables shown in Table 4 can help predict effectiveness and show the importance of nonmonetary incentives, supervision, frequency of supervision, training by supervisor, type of occupation, home consultations, length of service as BHW and education (elementary school graduate). These results can be readily integrated into a plan for training BHWs. The specific content especially for malaria control can be based on the observations and interviews with clinic personnel. For example, blood smears were observed to have been collected but were not read because there is only one person who does this for the entire barangay.

Table 4. Variables Predicting Effectiveness

<i>Variables</i>	<i>Sig T</i>	<i>Regression Weights</i>
Nonmonetary incentives	.000	2.7
Frequency of supervisor's visit to BHS		
Twice a week	.006	1.42
More than twice a week	.003	1.04
Supervision by BHW Leader	.004	.98
Additional training by supervisors	.0001	1.57
Occupation		
Day care workers	.006	4.89
Birth attendant	.078	1.89
Consultation in home of BHW	.002	1.89
No. of years as BHW (2 yrs. to <3 yrs.)	.018	1.5
Education (Elementary graduate)	.043	.64
Multiple R	.39	Analysis of Variance
R Square	.15	
Adjusted R Square	.14	F = 11.55
Standard Error	3.94	Sig F = .0000

Clinic Records on BHW Participation

An effort was made to assess from existing clinic records the extent to which BHWs were involved with malaria services in the five study sites.

An obvious inference from the assessment is that record keeping is uneven in the five RHUs. But among those with data, malaria services seem to be more comprehensively covered in Lucban. These include clinical case detection, blood smear collection and malaria drug therapy. Clinical case detection records are available in four sites, showing a range from 7 percent in Lucban, to 24.3 percent in Sariaya, 17.9 percent in San Antonio and 9.5 percent in Pagbilao. These percentages represent the proportion of work done by BHWs relative to the total number of clinical case detection accomplished at the unit. Blood smear collection was reported in Lucban and Tayabas with 7.9 percent in Lucban and 16.4 percent in Tayabas. Interestingly, malaria drug therapy was undertaken by 10.3 percent out of 213 malaria cases by BHWs. The standing policy is that only the midwife and other regular health personnel are allowed to provide medication. However, in Lucban, even BHWs are allowed to administer medication. Unfortunately, there are no data on referrals and this is supposed to be one major area of concern for BHWs. Future training could include basic lessons on record keeping if only to show what and how much of the workload is passed on to BHWs. The most complete records in all the RHUs are on the number of children weighed and immunized.

Conclusions and Recommendations

The main findings of this study will be summarized in the succeeding sections with specific recommendations for DOH policies and procedures as well as for future research.

With respect to recruitment, selection and replacement, it was found out that there was lack of written documentation on DOH policy. Specific recommendations from the various types of participants on this study are as follows :

- (1) BHWs must at least be able to read and write and be of good moral character. The recommended age range was rather wide from 18 to 60.
- (2) As recommended by midwives, the primary criterion for selection is that BHWs should have enough time to carry out their responsibilities as a BHW.
- (3) BHWs must have a good reputation as well as good interpersonal relations with members of the community. Among the qualities mentioned by various respondents are being fair and just, approachable, and kind.
- (4) The issue of competence, interest and energy was especially emphasized by the midwives and BHWs themselves. Most of them feel a need for

additional training aside from the regular ones conducted so that possible replacements would have the necessary competence when the present BHWs vacate their posts.

Since one of the main points consistently cited by the respondents was the good reputation and character of BHWs, it appears necessary to institute procedures where the community participates in the selection and recruitment of BHWs. This can be incorporated in a manual on policy and procedures in the DOH and Malaria Control Service, and training for enhancing community participation among health personnel can likewise take place.

Procedures for Recruitment, Selection and Replacement

Ideally, the Municipal Health Officer and the midwife coordinate with the Barangay Health Committees in choosing BHWs. However, the focused group discussions clearly revealed that this procedure was frequently ignored. In a culture where personal relations and personal loyalties are important elements in ensuring the success of any endeavor, it appears necessary to review and revise the actual operational procedures for recruitment and selection. To minimize conflict between barangay captains and health personnel, the Barangay Health Committees should actively participate in the selection process. Having the community members involved from the beginning will also have important implications for monitoring and reinforcing the performance of the BHWs.

On Training

The consumers of primary health care at the barangay level consistently recommended more training for the BHWs in order to secure "better" service from them. Specific recommendations included training for immunization, childbirth, detection of malaria and TB and a general orientation for common ailments. From the focused group discussions and observations at the municipal health clinics, the researchers found out that there was only one itinerant medical technologist whose task was to read the slides taken from malaria patients. In many instances the slides remained "unread." Training of midwives and perhaps even BHWs to take and read slides for malaria is a distinct possibility which may be considered even only at an experimental basis for a start. A comprehensive training program for malaria control should likewise include the present thrusts of the Malaria Control Service so that the BHW and midwife would be in a position not only to detect malaria and assist in its treatment but to educate the community on the prevention and control of the disease as well. Thus, training content can include information on vector control (residual spraying, biological control and environmental control) and personal protection measures such as the use of mosquito nets.

On Supervision

The results clearly indicate that the BHWs who met more frequently and who had a one-on-one training were considered more effective than others. In this connection, it is clear that the training of BHWs for malaria has to include the participation and perhaps further training of the midwives who are their direct supervisors in the field.

Motivational Schemes and Incentives

In a cash-strapped community, the provision of monetary incentives is always welcome. All of the respondents recommended the giving of an honorarium or an allowance except the BHWs themselves. The provision of a salary would certainly take away the voluntary nature of the job. A happy compromise is the monthly travel allowance to be provided by the local government as recommended by the barangay captains. Considering the economic status of local governments, this would not be feasible in most malaria endemic areas. Highly personalized, nontangible reinforcement such as praise and recognition by the DOH and the community are the more practical recommendations which can be made at this point. In training the midwives, human relations techniques may be emphasized.

Logistical Support

Lack of supplies and equipment is likewise an indicator of the poor economic state of the communities endemic with malaria. Community mobilization or adoption of these communities by those which are economically better off may be considered as solutions to this problem. There is a need to change the perspective that everything comes from government. The NGOs can perhaps be tapped for this purpose.

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Appendix

Summary of the Policies and Procedures of the BHW Program

*Policy and Procedure**Findings of this study**Recruitment & selection*

The stated policy is to create Health Committees consisting of health personnel and barangay officers.

There is no consistency from one barangay to another. In some, the barangay captain chooses the BHWs; in others it is the midwife and in certain instances, there is coordination between the municipal health office and the barangay officials.

The criteria utilized by the midwives tended to be more practical and related to job characteristics: having time for work, being a high school graduate, no young children, interested in work, and with a good reputation. Generally, the barangay captains had the same overall criteria. The mothers, midwives and barangay captains also identified a cluster of traits as important for becoming an effective BHW: kind, hardworking, calm, healthy, approachable, and with no biases or prejudice.

Replacement

No clear policy

Generally, no replacements have been made except in one municipality where the midwives decided on the replacements.

Training

Training module is developed by the DOH for the communities. The local health personnel have the responsibility of implementing the training program. Didactic sessions are supposed to last for 5 days, with a practicum for at least a week. Funding is part of local development budgets.

This was followed during the start of the BHW program in 1980. In actual practice, the training does not have a regular schedule in most municipalities. The midwives, however, conduct on-the-job trainings for the BHWs. No funding is presently available, except when a municipal health doctor takes the initiative to provide money for snacks from personal funds.

<i>Policy and Procedure</i>	<i>Findings of this study</i>
<p data-bbox="325 400 449 422"><i>Supervision</i></p> <p data-bbox="293 452 723 527">Within the structure of the health organization, the BHWs are under the direct supervision of the midwives.</p>	<p data-bbox="753 457 1662 532">This is generally followed in all of the municipalities except in a few barangays where BHW leaders coordinate the work and report directly to the midwives. The supervisors usually visit the barangay health stations twice a week.</p>
<p data-bbox="325 557 696 580"><i>Motivational schemes and incentives</i></p> <p data-bbox="293 606 723 725">Under the law, the BHWs are volunteer workers and are therefore not entitled to financial remuneration. In the early '80s however, they were offered insurance, free medicine and hospitalization as incentives.</p>	<p data-bbox="753 611 1662 786">The Governor of Quezon revived the incentive for insurance and free hospitalization only this year. Interestingly, all of the respondents (doctors, midwives, barangay captains, and mother) recommended giving some form of financial incentive for the BHWs. This could be transportation allowance, honoraria or salaries. However, the BHWs themselves identified as sources of satisfaction nontangible rewards such as fulfilling their interest in health, helping their neighbors, being recognized and sought for health advice.</p>
<p data-bbox="325 786 510 809"><i>Logistical support</i></p> <p data-bbox="293 839 723 888">Medical kits and supplies are supposed to be provided by the DOH.</p>	<p data-bbox="753 843 1662 892">All of the respondents agree that there is a severe lack of logistical support. Medicines, supplies or equipment are hardly available at the Parangay Health Station.</p>
<p data-bbox="325 915 535 938"><i>Community Support</i></p> <p data-bbox="293 968 723 1043">The role of the community beyond participating in the choice of BHWs is not clearly defined in the guidelines.</p>	<p data-bbox="753 972 1662 1047">Doctors, midwives, mothers, barangay captains as well as alternative healers recognize the role of the BHWs in assisting the midwives, disseminating information and in following-up cases in the community.</p>