



**Management Services
Report No. 2002 -07B
Sectoral Performance Audit**

Polio Immunization Program

KALOOKAN CITY





Republic of the Philippines
Commission on Audit
MANAGEMENT SERVICES
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March 25, 2004

Honorable Reynaldo O. Malonzo
Mayor
Kalookan City

Sir:

We are pleased to transmit the report on the sectoral performance audit of the Polio Immunization Program of the government. The audit was conducted in compliance with COA Assignment Order Nos. 2002-514 and 514A dated November 14 and 26, 2002, respectively, and Memorandum dated February 13, 2003. The results of the audit were discussed with the concerned officials and employees of the City on November 6, 2003 in exit conference conducted for the purpose.

The audit covered the implementation of polio immunization program through routine immunization for 2001 and 2002. The agencies included in the audit are the Department of Health - Central Office and National Capital Region, and the City Governments of Manila, Quezon, Kalookan and Valenzuela.

The audit focused on the evaluation of existing policies and procedures in the implementation of the program to sustain the polio-free status of the Philippines taking into consideration the identification of eligible population, management of oral polio vaccines, and monitoring and evaluation of the implementation of the program.

We look forward to the proper implementation of the recommendations and we would appreciate being informed on the actions taken thereon within one month from receipt hereof.

We acknowledge the cooperation and assistance extended to the audit team by the officials and staff of the City especially the City Health Office.

Very truly yours,

By Authority of the Chairman:

ILUMINADA M.V. FABROA
Director IV

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Part I

Executive Summary

BACKGROUND

The Department of Health (DOH) was mandated under Presidential Decree No. 996 dated September 16, 1976 to provide free basic immunization to eligible population. To operationalize this function, parents, guardians or persons having custody of the infant or child are duty-bound to present the child for basic immunization at the time and place specified by the DOH.

Recognizing the importance of immunization to address preventable diseases, the DOH, even before the passage of this decree, had launched the Expanded Programme on Immunization (EPI) on July 12, 1976. The program covers immunization for BCG (for extrapulmonary tuberculosis), DPT (Diphtheria, Pertussis and Tetanus), oral polio vaccine (OPV) (for poliomyelitis), Hepatitis B (for hepatitis infection), and measles (for measles infection). The DOH is assisted by the Local Government Units (LGUs) and government hospitals in the implementation and administration of this program.

The immunization program is intended to reduce the morbidity and mortality of children nationwide against the seven (7) vaccine-preventable diseases nationwide through the following strategies:

- Routine immunization services or in combination with supplementary immunization activities in all areas nationwide covering 95% of eligible population;
- Disease surveillance to the extent that the impact of immunization interventions can be evaluated, outbreaks rapidly identified, investigated and controlled, epidemics predicted and prevented, and importations rapidly identified and controlled;
- Special immunization on declared national immunization days (NIDs) covering the entire country or in cases of reported outbreak of disease covering selected areas where the polio virus outbreak was suspected; and
- Maintenance of high level preparedness to various derived polio virus or wild polio virus importation.

In view of these initiatives, in October 2000, the Philippines was certified by an international certifying body authorized by the World Health Organization (WHO) as a polio-free country.

For the continuous implementation of the program, a total of ₱683,511,000 was allotted from January 2001 to December 2002, of which ₱132,555,500 was allocated for the procurement of OPVs. From this allocation, 1,614,817 vials equivalent to 32,296,340 doses of vaccines were procured and received within the year for distribution to the different DOH Regional Offices/LGUs.

Another 229,400 vials equivalent to 4,588,000 doses of vaccines were received during the period out of previous years procurement. Of these vaccines, 999,543 vials equivalent to 19,990,860 doses were distributed during the period under audit leaving 844,674 vials in the custody of the DOH Central Office as of December 31, 2002. For the City of Kalookan, the DOH issued 10,310 vials equivalent to 234,460 doses in 2001 and 8,435 vials equivalent to 168,700 doses in 2002.

The quantity of vaccines to be procured is determined on the basis of the targeted eligible polio population which is equivalent to 3% of the total projected population of the National Statistics Office (NSO). For CYs 2001 and 2002, the DOH targeted 2,271,096 (excluding ARMM) and 2,398,914 eligible polio population and reported that 1,632,652 and 1,729,229 children, respectively, were immunized with three doses of OPV, both equivalent to 72%.

In the City of Kalookan, of the total eligible population of 36,732 and 37,690 for CYs 2001 and 2002, 86% and 81% were reported immunized with three doses of the same vaccine during the period, respectively. The City of Kalookan is composed of 36 Health Centers distributed throughout the City.

AUDIT OBJECTIVE

The audit was conducted to determine whether existing policies and procedures implementing the Polio Immunization Program were adequate and effective to sustain a polio-free status of the Philippines taking into consideration the following:

- Identification of eligible population ;
- Management of vaccines; and
- Monitoring and evaluation of the implementation of the program.

AUDIT SCOPE AND METHODOLOGY

The audit covered the implementation of the Polio Immunization Program of the government through routine immunization undertaken from January 2001 to December 2002. The implementing agencies included in the evaluation are the following:

- DOH Central Office
- National Capital Region (NCR)
- Selected Cities and Health Centers within Metro Manila
 - Manila
 - Quezon
 - Kalookan
 - Valenzuela
- Selected Hospitals within Metro Manila
 - Jose R. Reyes Memorial Medical Center
 - Quezon City General Hospital
 - Valenzuela General Hospital

The audit was confined to selected cities and hospitals within Metro Manila due to limited audit period.

The performance of the implementing agencies was assessed using the following criteria:

- Sound identification of eligible population
- Efficient management of vaccines
- Effective performance monitoring and evaluation system

During the audit, the team performed the following procedures, among others:

- Reviewed existing policies and procedures on the identification of eligible population, management of OPVs, and monitoring and evaluation of accomplishment / program;
- Interviewed personnel involved in the implementation of the program;
- Obtained and reviewed records, accomplishment reports, work plans and other relevant records and reports pertaining to the implementation of the program;
- Reviewed and evaluated the roles and responsibilities of agencies involved in the implementation of the program;

- Inspected selected health centers and district health centers within the jurisdiction of the LGUs covered in the audit; and
- Assessed the extent of the achievement of the program objectives.

For validation of program implementation, the team visited the Health Centers of Torres Bugallon, Grace Park Puericulture, Bagong Silang Phases 1 & 4 and Cielito & Parkland, all under the jurisdiction of the City of Kalookan.

The audit was conducted from November 18, 2002 to March 31, 2003 pursuant to COA Assignment Order No. 2002- 514 and 514A dated November 15, and 26, 2002, respectively, and Memorandum dated February 13, 2003. The results of the audit were discussed with the concerned officials and employees of Kalookan City and NCR on November 6, 2003.

AUDIT CONCLUSION

Generally, the existing policies and procedures for the implementation of the Polio Immunization Program can be considered adequate. However, these were not effectively implemented by the City Government of Kalookan resulting in overall accomplishments for CYs 2001 and 2002 of only 86% and 81%, respectively, out of the targeted 95% coverage. This condition would affect the government's objective of sustaining the polio-free status of the country.

The deficiencies in the implementation were manifested in the following cases:

- The target setting of eligible polio population was not revised to a more realistic projection as required under the EPI Manual. The DOH maintained the historical 3% projection at all levels. Based on this projection, however, the reported accomplishment per Health Center in Kalookan City ranged from as low as 22.84% to as high as 111.48%. Had projections been revised, the reported accomplishments could be properly assessed which would warrant the determination of whether or not the targeted coverage is achieved. The identification of eligible population is crucial not only in attaining the targeted coverage but also in determining the quantity of vaccines to be procured and distributed to Regional Offices and LGUs to effectively sustain the implementation of the program.
- The distribution of vaccines to the Health Centers of Kalookan City was not based on needs. Vaccine distribution to Health Centers which should be 167% of the basic requirements was equivalent to as low as 37% of the total vaccine requirements to as high as 221%. These vaccines were, however, not fully utilized by the end-users. There

were Health Centers with vaccine utilization of only 54% to 97% of the total vaccines received. This practice exposed the vaccines to outright expiration before the same were effectively utilized. As of December 2002, about 1,003 vials equivalent to 20,060 doses reportedly expired in the City of Kalookan.

- The performance of the participating agencies was not effectively monitored. It was noted that the required monitoring and evaluation process were not undertaken. The LGU then does not have an opportunity to assess the progress of the implementation of the program in the Health Centers and to address the risks associated in the implementation of the program.

The audit further disclosed that in CYs 2001, the overall EPI accomplishments of Kalookan City was not accurately reported. The number of fully immunized children in 7 Health Centers exceeded the highest accomplishment per antigen for the same period.

The inaccurate reporting affects the validity of the report and the results of the evaluation of the program implementation which is crucial in sustaining the country's status as a polio-free country.

As the Polio Immunization Program is a continuing activity of the Government and deficiency in program implementation would have a great impact on the health of the constituents, the team recommended measures to address these concerns for consideration by the City of Kalookan.

MANAGEMENT'S REACTION TO AUDIT OBSERVATIONS

The team forwarded the audit highlights to the City Mayor of Kalookan for comments on September 22, 2003. For clarification of certain issues, exit conference with the concerned officials and staff of the City and NCR was conducted on November 6, 2003.

Generally, the City recognized the existence of the problems raised in the report and resolved to initiate appropriate steps to improve its performance. The concerned City officials submitted explanations and constraints surrounding the implementation of the program which were incorporated in the report, together with the team's rejoinder.

Part II

Polio Immunization Program

INTRODUCTION

Poliomyelitis is an infectious disease caused by the polio virus. The disease can strike at any age, but typically affects children under three. The virus is passed through poor or careless hygiene, entering the body through the mouth, then multiplying inside the throat and the intestines. Once established, the polio virus can enter the bloodstream and invade the central nervous system, spreading along nerve fibers. As it multiplies, the virus destroys the motor neuron that activate the muscles. The nerve cells cannot be regenerated and the affected muscles no longer function. Polio paralysis is almost irreversible.

During the pre-vaccination era, a total of 6,891 poliomyelitis cases were detected. From 1967 to 1969, Sabin vaccine was used in the Philippines for the first time in a two-round vaccination campaign targeting children of four months to three years of age from the metropolitan area, Central Luzon (Region III) and some other cities. The decrease in the number of cases for this age group after the campaigns was remarkable.

To further reduce the morbidity and mortality of children against this disease, polio immunization was included in the EPI launched by DOH in 1976. A child should be vaccinated three times with total of three doses of OPV at a minimum age of 6 weeks with minimum intervals of 4 weeks in between in order to acquire maximum immunity from the polio virus.

From 1976-1979, the reported number of polio cases was 4,148 averaging 1,037 cases per year. A significant reduction was observed from 1980 to 1983. Only a total of 1,519 polio cases were reported with an average of 380 cases per year. This was further reduced from 1986-1989 to 1,185 polio cases with an average of 292 cases per year.

Poliomyelitis is affecting not only our country but the whole world. Thus, in May 1988, the World Health Assembly, governing body of the World Health Organization, resolved to eradicate polio from the world by year 2000. However, the deadline was moved to year 2005 in view of a number of recorded polio cases.

In support to the worldwide polio eradication, the DOH accelerated immunization in 1990 by targeting vaccination of 80% of the country's infants against this immunizable disease. As a result, from 1990 to 1993, only 125 cases of polio occurred.

From 1993 to 1997, the government launched massive National Immunization Days giving children aged 0 to 59 months polio vaccines. This program resulted in zero (0) polio occurrence from 1998 to 2000. Hence, **in October 2000**, the **Philippines was certified as Polio-free** by an international certifying body authorized by the World Health Organization.

However, due to the decline in accomplishment of routine OPV of infants in the recent years specifically during 1999 to 2000, the virus was able to transform itself into another strain that behaves like the wild polio virus. Thus, in 2001, there were three confirmed cases of the occurrence of polio virus - one each in Cavite, Laguna and Cagayan de Oro City.

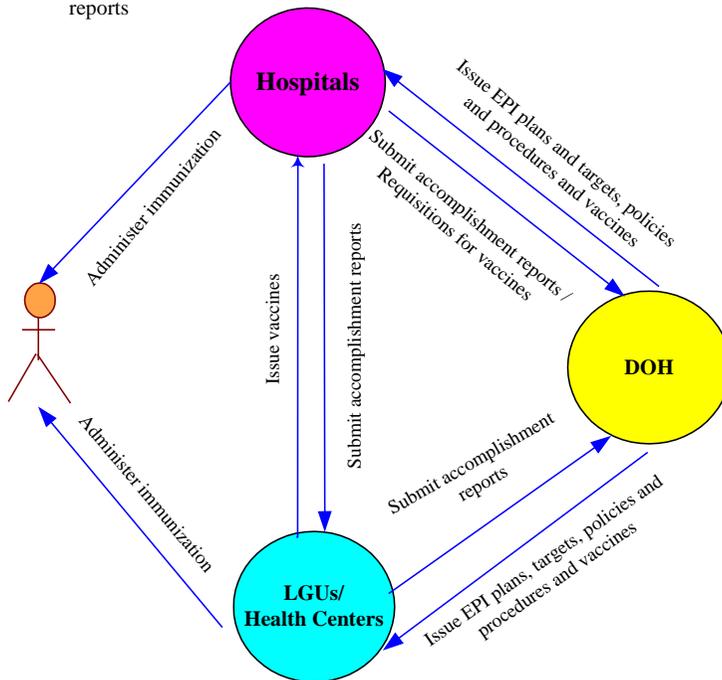
This condition then necessitates the continued commitment of the government in enhancing the program implementation to sustain its polio-free status and protect the interest of the people. This would also support the World Health Organization's objective of eradicating polio virus globally by CY 2005.

AGENCIES INVOLVED IN THE PROGRAM

The program is participated by the DOH as the lead agency and the LGUs and Hospitals as the administrators. Their specific functions and relationships are depicted in the context diagram shown on the next page:

Chief of Hospital /
Hospital Immunization Officer
EPI Nurse Coordinator
Health Centers

- Responsible for the conduct of immunization sessions and preparation and submission of reports



Provincial/City/Municipal Health Office

- Responsible for the preparation, implementation and evaluation of the approved EPI plan, provision of regular feedback to Local Executives on the progress of the program, conduct disease surveillance actions, management of vaccines issued and maintenance of EPI records.

DOH Central Office

- Responsible for the overall planning, coordination and evaluation of the implementation of the immunization program including development of plans, policies, programs and strategies on disease prevention and control, promotion of health, education and communication, regulating health facilities and services and procurement and logistic management.

Offices Involved:

- National Immunization Committee
- National Center for Disease Prevention and Control
- National Epidemiology Center
- National center for Health Promotion
- National Center for Health Facility Development
- Health Human Resource Development Bureau
- Bureau of Local Health Development
- Bureau of Health Facilities and Services
- Procurement and Logistics Service

DOH Regional Offices

- Responsible for the management of immunization programs including revision of EPI plans, preparation and analysis of EPI reports, maintaining inventory of vaccines and other supplies and overseeing the Supplemental Surveillance System for Polio eradication.

There are 36 Health Centers operating within the City located in the following places:

Health Centers	Target	2001	
		Accomplishment	
		OPV ₃	%
Bagong Barrio Z 1	1,332	1,273	95.57
Bagong Barrio Z 11	1,072	1,159	108.11
Bagong Barrio Z 111	323	303	93.81
Bagong Barrio Central	787	294	37.36
Baesa	1,539	1,065	69.20
Talipapa	370	202	54.59
Bagumbong	1,447	1,339	92.54
Deparo	1,427	1,294	90.67
Camarin	1,542	1,089	70.60
Cielito & Parkland	1,256	1,111	88.46
Bgy. 178	1,738	1,526	87.80
Amparo	1,524	1,636	107.35
Tala	1,680	1,840	109.52
Malaria			
Bagong Silang Ph 1 & 4	1,018	1,094	107.46
Bagong Silang Ph 2	1,301	1,442	110.84
Bagong Silang Ph 7	905	879	97.13
Bagong Silang Ph 8	962	958	99.58
Bagong Silang Ph 9	679	671	98.82
Bagong Silang Ph 10	792	625	78.91
Torres Bugallon	1,026	896	87.33
Julian Felipe	919	668	72.69
Bgy. 12	882	621	70.41
Central People	946	956	101.06
Bgy. 14	514	573	111.48
Bgy.18	868	446	51.38
ANA	1,389	1,473	106.05
A.A. Zapa	1,189	988	83.09
Marulas	1,217	278	22.84
Asuncion	918	730	79.52
Calaanan	952	658	69.12
Francisco	890	720	80.90
Grace Park	958	619	64.61
E. Rodriguez	763	629	82.44
Barrio San Jose	466	231	49.57
Bagbaguin	<u>1,046</u>	<u>1,164</u>	111.28
Total	<u>36,732*</u>	<u>31,736</u>	

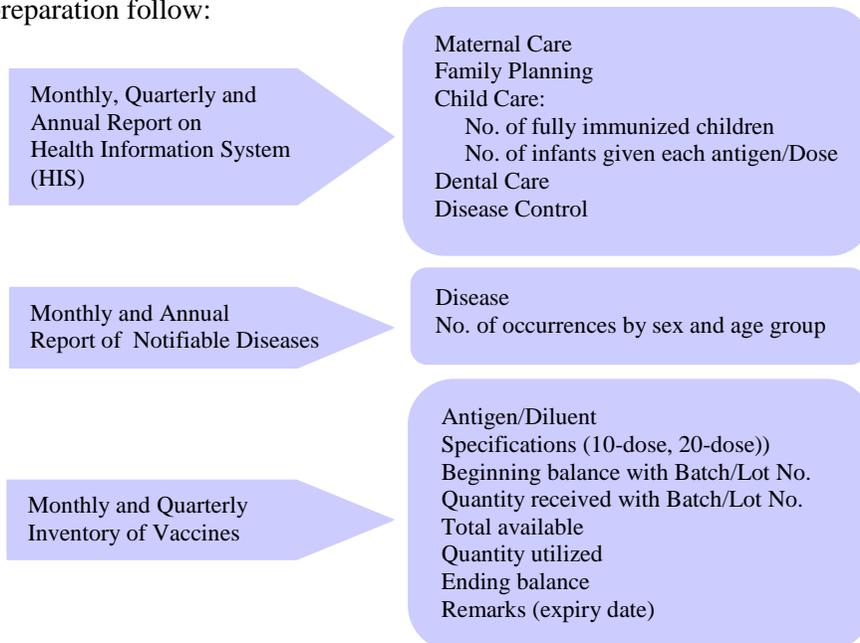
*Per CHO Accomplishment Report. However, per computation the figure should be 36,637.

For CYs 2001 and 2002, to attain its objective, the City of Kalookan was issued 18,745 OPV vials equivalent to 403,160 doses as tabulated below:

Date	Quantity	Dose	Total
2001			
1 st Quarter			
Feb. 2, 2001	4,988	10	49,880
2 nd Quarter			
April 4, 2001	1,246	20	24,920
May 4, 2001	1,246	20	24,920
May 4, 2001	1,415	20	28,300
June 13, 2001	<u>1,415</u>	20	<u>106,440</u>
SubTotal	<u>10,310</u>		<u>234,460</u>
2002			
1 st Quarter			
Feb. 20, 2002	1,696	20	33,920
2 nd Quarter			
April 24, 2002	1,645	20	32,900
3 rd Quarter			
July 17, 2002	94	20	1,880
4 th Quarter			
Oct. 23, 2002	<u>5,000</u>	20	<u>100,000</u>
Sub Total	<u>8,435</u>		<u>168,700</u>
Grand Total	<u>18,745</u>		<u>403,160</u>

REPORTS TO BE RENDERED

The DOH requires the City Health Offices and Health Centers to prepare reports on the implementation of EPI. These reports, their contents and frequency of preparation follow:



Part III

Audit Observations and Recommendations

Chapter I

Sound Identification of Eligible Population

INTRODUCTION

Setting targets is an essential aspect in ensuring an effective planning and implementation of any program. The targets serve as the parameter in measuring the extent of accomplishment of a particular program. In the case of the polio immunization program, the government targeted to cover 95% of eligible population to sustain the country's status as a polio-free country. The identification of eligible population from where the target is based is therefore important. The identified eligible population is also used as a basis in determining the quantity of oral polio vaccines to be procured. The eligible population for routine immunization are children ages 0 to 11 months.

As prescribed under various DOH regulations, the target population for routine immunization services is set at 3% of the NSO's projected population. Based on the 1986 EPI Manual, this target can be revised into a more realistic figure upon recommendation of the District/Provincial Health Office. Based on 3% projection, the eligible polio population nationwide was set at 2,337,779 and 2,398,914 for CYs 2001 and 2002, respectively. The NSO has projected the population of the City of Kalookan to be 1,224,413 and 1,256,329 during the period, respectively. At 3%, the eligible population for routine immunization for these years were 36,732 and 37,690, respectively.

It is also indicated in the 1995 EPI Manual that nurses or midwives, as the case maybe, assigned at any health facility shall maintain a Target Group List (TGL) which will include all eligible children from birth for immunization against the seven immunizable diseases (now includes hepatitis). The list shall be updated in the following cases:

- Everytime a child receives an immunization dose;
- When a delivery of pregnant woman on the Target Client List for pre-natal is made;
- When a natality report is made; and
- When the records of birth at the Civil Registry is used to cross-check the list.

It further provides that continuous updating of the list is the responsibility of the midwife in the Barangay Health Station (BHS)/Barangay Health Center (BHC) and the nurse/midwife in the Rural Health Unit (RHU)/Main Health Center (MHC). Trained Barangay Health Workers (BHWs)/ traditional birth attendants (TBAs) or volunteers can also be given the responsibility of reporting births within their areas of responsibility or catchment area.

The team noted that the estimated polio population was not revised to a more realistic projection as required under the EPI Manual. The DOH maintained the historical 3% projection at all levels. Based on this projection, however, the reported accomplishment of the Health Centers within Kalookan City ranged from only 22.84% to 111.48% in CY 2001 resulting in an overall accomplishments of only 86% and 81% coverage in CYs 2001 and 2002, respectively. These accomplishments are below the 95% coverage target for the year.

This condition manifests deficiencies in target setting and in monitoring the performance of the Regional Offices, LGUs and Health Centers in the implementation of the program.

OBSERVATION

- 1. The DOH's target eligible polio population of 3% of the NSO's projected population per LGU and Health Center was not revised to a more realistic projection as required under the 1986 EPI Manual. In view of unrealistic target, however, the performance of the Health Centers within Kalookan City ranged from 22.84% to 111.48% in CY 2001 resulting in an overall accomplishments of only 86% and 81% for CYs 2001 and 2002, respectively. These accomplishments are way below the target immunization coverage of 95%.*

In targeting the eligible population for routine polio immunization, the DOH prescribed under the 1986 EPI Manual and 1995 Revised EPI Manual the following policies and procedures:

1986
EPI
Manual

Target setting for the eligible population of infants for EPI in a barangay, municipality, district, province/city and region should be based on 3% of the total population.

The use of 3% is based on a crude birth rate of 30 per 1,000 population. Births have been under reported and under registered in the health system, and the adoption of a nationwide standard of 3% will avoid underestimating the eligible population.

Some areas have an eligible population that is lower or higher than 3% of the total population. A more accurate birth rate can be used for a given area if the birth rate was determined by an actual house-to-house survey before scheduled immunization sessions. Any deviation from 3% must be recommended by the District Health Office and/or the Provincial Health Office for the approval of the Regional Health Director and verified by the Deputy Minister of Public Health.

1995
Revised
EPI
Manual

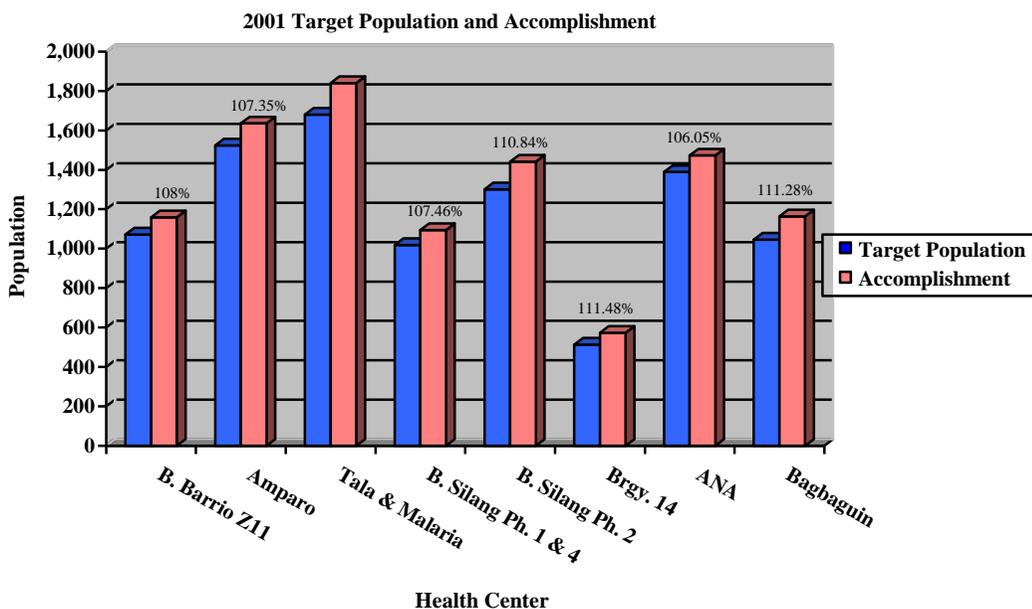
Targeting of eligibles should be based on the official projected population and the crude birth rate.

The Health Centers were required to update the Target Group List to validate the census projection of 3% of the total population.

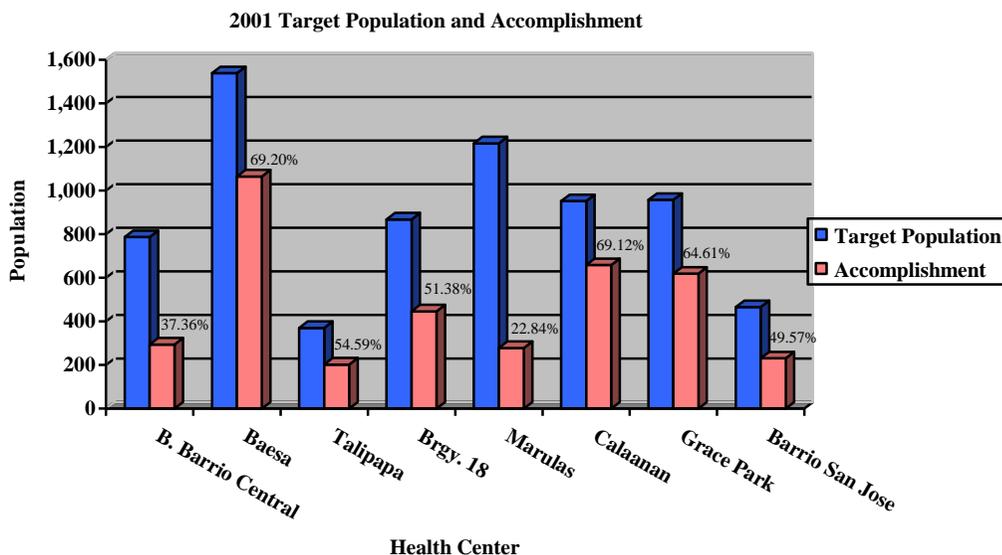
For CYs 2001 and 2002, the DOH identified the eligible population for polio vaccination in the City of Kalookan to be 36,732 and 37,690, respectively, using the 3% crude birth rate estimates.

The team, however, noted that as of audit date, the target setting remained at historical 3% of the crude birth rate at all levels. Despite policy adopted in 1986, the District/Provincial Health Offices had not recommended any amendment to this formula to revise the target to a more realistic figure. The City Health Office had not also validated the accuracy of the 3% projection from the updated TGLs of the Health Centers.

In order to assess the validity of the 3% projection, the team analyzed the target population per Health Center in relation to the actual population based on reported accomplishments (OPV₃). Analysis revealed that a number of Health Centers in Kalookan City had been reporting accomplishments way above their targeted population. This only shows that their target is no longer realistic and necessitates revision to ensure 100% coverage of eligible population. The Health Centers with excessive accomplishments are presented below:



In contrast, there were Health Centers with accomplishments ranging from only 22.84% to 69.20%. These targets also need further analysis considering that their accomplishments were being measured on the basis of these targets. A sample of these cases follow:



The failure of the Health Office to recommend adjustments on its projections to a more realistic figure deprived the DOH the opportunity to reassess its overall target and set an appropriate one that would ensure 100% coverage nationwide.

Further, in view of the unrealistic target setting, out of the projected population of 36,732 and 37,690 for CYs 2001 and 2002, only 31,726 and 30,696 representing 86% and 81%, respectively, were immunized with three doses of OPV.

The identification of eligible population is crucial not only in attaining the targeted coverage but also in determining the quantity of vaccines to be procured and distributed to LGUs/Health Centers to effectively sustain the program.

Considering that the overall performance of the City is being measured on the basis of projection, the City should be able to address the risks associated in target-setting such as:

- Failure to update the Target Group List
- Difficulty of conducting house-to-house survey
- Incapability of the Health Officers to set an accurate target
- Unreliable/incomplete records

These risks could be addressed by taking into consideration the following, among others:

- Strictly enforcing the updating of Target Group List (TGL) as envisioned in the EPI Manual. It has been noted that the current practice was merely to post in the TGL the children immunized. The TGL was intended to record all eligible children from birth for immunization against all seven immunizable diseases.
- Seeking assistance of the Barangay Officials to facilitate the conduct of house-to-house survey. Hard as it maybe, this is the best way of ensuring the accuracy of the eligible population.
- Institutionalizing the importance of setting an accurate target in ensuring the success of any project by conducting seminar-workshop involving those responsible in target setting.
- Mandating the Health Centers to ensure the availability of accurate and updated records at all times.

Unless these risks were addressed, the reported accomplishment may not be reflective of the actual condition. The City then would find it difficult to assess its accomplishment and to develop appropriate treatment to ensure the attainment of its objective.

Management's Comments

The target population to our knowledge was not realistic due to the high mobility and dense population of the city. We had observed that some areas underwent demolitions and ongoing relocations with subsequent migration to other communities but within the city boundaries. The house to house survey is already being done but not completed due to inadequate number of multi-tasked health staff. More so the daytime population differs from night population. Inaccessibility of some exclusive villages and cultural groups also affects the outcome of the survey.

Team's Rejoinder

We appreciate management's effort in obtaining a realistic target population by conducting house-to-house survey. We recommend that the City complete the survey through the assistance of barangay officials in order to establish an accurate basis for estimating targeted population.

RECOMMENDATIONS

The City should consider:

- 1. Establishing a risk management process to identify all possible risks associated in target-setting;*
- 2. Developing appropriate treatment plan for the identified risks and determining the persons responsible in executing the plan at an appropriate time; and*
- 3. Conducting a study and recommend to the DOH a more realistic target. The new target maybe based on the updated Target Group List which can be validated from results of house-to-house survey, or other methods deemed appropriate. The City could also conduct an assessment of historical data for at least three years to ascertain the changes in estimates during these years.*

The setting of target is crucial in sustaining the country's polio-free status and in providing maximum protection to the constituents.

Chapter II

Efficient Management of Oral Polio Vaccines

INTRODUCTION

As provided in the EPI Manual, to ensure complete coverage and availability of vaccine at all times, the vaccine requirement should be determined based on the estimated eligible population per area plus 40% wastage allowance and 25% buffer stock. This estimate is also used as a basis for distributing vaccines to Regional Offices, LGUs, District Health Offices and Health Centers. A wastage multiplier of 1.67 is applied to the basic requirements to cover the 40% wastage allowance.

Procurement of vaccines is being undertaken at the DOH Central Office on a quarterly basis. For vaccines to remain potent, they must be properly stored, handled and transported as it requires storage in a cold chain at a desired temperature. Considering its sensitivity, vaccine issuance to LGUs/Health Centers should be based on actual requirement plus a reasonable allowance.

For LGUs within Metro Manila including Batanes, the basic vaccine requirements were issued directly by the DOH Central Office to the LGUs while the buffer stock were issued to the Regional Office.

At the regional, provincial/city, municipal, health center and barangay level, a designated EPI staff is required under the EPI Manual to prepare vaccine inventory reports periodically as a way of monitoring the status of vaccines. The Manual however did not provide instructions on the frequency of reporting, the due date for submission and to whom/which office the report is to be submitted, except in the case of Regional Offices where report is required to be submitted quarterly.

The audit disclosed that the applicability of the multiplier factor of 1.67 at all levels was not evaluated. The LGUs/Health Centers were not even required to submit wastage report to assess the actual wastage factor.

The audit further disclosed that the issuance of vaccines to the LGUs was not based on needs or vaccine requirements for the year. Within Metro Manila, there were LGUs that were issued vaccines as high as 278% of their basic vaccine requirements at the expense of other LGUs that were issued as low as 30% of their basic vaccine requirements.

The City of Kalookan was issued 142% and 148% of its basic vaccine requirements for CYs 2001 and 2002, respectively. However, these were not equitably distributed. Issuance of vaccines to Health Centers ranged from as low as 37% to as high as 221% of their basic vaccine requirements.

Moreover, a number of Health Centers that received excessive supplies were not able to fully utilize these supplies during the year. Yet, the following year, these Health Centers were again given vaccines in excess of their requirements for the year. This practice exposes the vaccines to outright expiration before the same are effectively utilized. Thus, in the case of the City of Kalookan, about 1,003 vials equivalent to 20,060 doses reportedly expired in CY 2002.

This condition could not be monitored by the DOH Central Office and the Regional Office as the City/Health Centers were not submitting vaccine inventory reports reflecting the vaccine condition as of a certain date despite requirements in the EPI Manual.

OBSERVATIONS

- 1. The Health Centers were not required to submit report on the total vaccines wasted during administration to validate the accuracy of the wastage multiplier of 1.67. Moreover, while a multiplier was set, this was not followed in the allocation of vaccines for CYs 2001 and 2002. Vaccine distribution to Health Centers in the City of Kalookan during these years ranged from 37% to 221% of the total vaccine requirements. In the absence of inventory reports indicating the vaccines' potency or report of expired vaccines, the team could not assess the accuracy of the distribution scheme. As of December 2002, about 1,003 vials equivalent to 20,060 doses of oral polio vaccines reportedly expired in the custody of the City and Health Centers.*

Under the EPI Manual, the vaccine requirement of a certain area is determined based on the targeted eligible population plus 40% wastage allowance and 25% buffer stock. In calculating the vaccine requirements in doses inclusive of 40% wastage allowance, a wastage multiplier of 1.67 is applied to the basic requirement (targeted eligible @ 3 doses per child).

The team, however, noted that the applicability of the established wastage multiplier at all levels was not yet evaluated. The LGUs/Health Centers were not even required to submit reports on the quantity of vaccines wasted during administration or vaccine utilization reports from which the percentage of wastage allowance could be computed. Interview with the administering nurses and midwives revealed that based on experience, the maximum quantity of vaccines wasted is about 25%. This is comparatively lower than the 40% wastage allowance set under the Manual.

Records further show that during these years, the distribution scheme of 167% was not followed. Vaccines distributed to the Health Centers of

EFFICIENT MANAGEMENT OF ORAL POLIO VACCINES

Kalookan City were equivalent to as low as 37% to as high as 221% of the total vaccine requirements as tabulated below:

<u>Health Center</u>	<u>CY2001</u>			<u>CY 2002</u>		
	<u>Basic Requirement¹</u>	<u>Issuance²</u>	<u>% of Vaccine Issuance</u>	<u>Basic Requirement¹</u>	<u>Issuance²</u>	<u>% of Vaccine Issuance</u>
	<u>(in dosage)</u>	<u>(in dosage)</u>	<u>(col 3/col 2)</u>	<u>(in dosage)</u>	<u>(in dosage)</u>	<u>(col 6/col 5)</u>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
Bagong Barrio Z1	3,996	5,340	134	4,101	4,000	98
Bagong Barrio Z11	3,216	3,340	104	3,300	1,220	37
Bagaong Barrio Z111	969	1,220	126	996	440	44
Bagong Barrio Central	2,361	2,590	110	2,421	1,060	44
Baesa	4,617	4,860	105	4,737	2,480	52
Talipapa	1,110	1,500	135	1,290	1,260	98
Bagumbong	4,341	7,090	163	4,455	6,040	136
Deparo	4,281	7,100	166	4,452	4,620	104
Camarin	4,626	4,980	108	4,866	5,080	104
Cielito & Parkland	3,768	7,280	193*	3,870	5,440	141
Bgy. 178	5,214	6,900	132	5,349	2,860	53
Amparo	4,572	6,580	144	4,689	4,760	102
Tala	5,040	8,850	176*	5,172	7,100	137
Malaria						
Bagong Silang Ph 1 & 4	3,054	5,380	176*	3,135	6,500	207*
Bagong Silang Ph 2	3,903	6,700	172*	4,005	4,060	101
Bagong Silang Ph 7	2,715	4,360	161	2,787	3,780	136
Bagong Silang Ph 8	2,886	5,060	175*	2,961	4,700	159
Bagong Silang Ph 9	2,037	2,940	144	2,091	4,620	221*
Bagong Silang Ph 10	2,376	3,120	131	2,439	2,100	86
Torres Bugallon	3,078	3,900	127	3,159	3,600	114
Julian Felipe	2,757	3,600	131	2,829	1,700	60
Bgy. 12	2,646	3,780	143	2,715	2,860	105
Central People	2,838	4,920	173*		1,700	
Bgy. 14	1,542	3,100	201*	1,581	1,520	96
Bgy. 18	2,604	2,840	109	2,670	2,520	94
ANA	4,167	6,310	151	4,575	3,760	82
A.A. Zapa	3,567	5,100	143	3,660	2,440	67
Marulas	3,651	2,640	72	3,750	1,420	38
Asuncion	2,754	3,060	111	3,027	1,300	43
Calaanan	2,856	3,460	121	2,931	2,340	80
Francisco	2,670	2,860	107	2,739	2,000	73
Grace Park	2,874	2,330	81	2,949	2,760	94
E. Rodriguez	2,289	3,460	151	2,349	2,300	98
Barrio San Jose	1,398	1,840	132	1,437	400	28
Bagbaguin	3,138	6,510	207*	3,261	3,540	109

¹ Target Population x 3

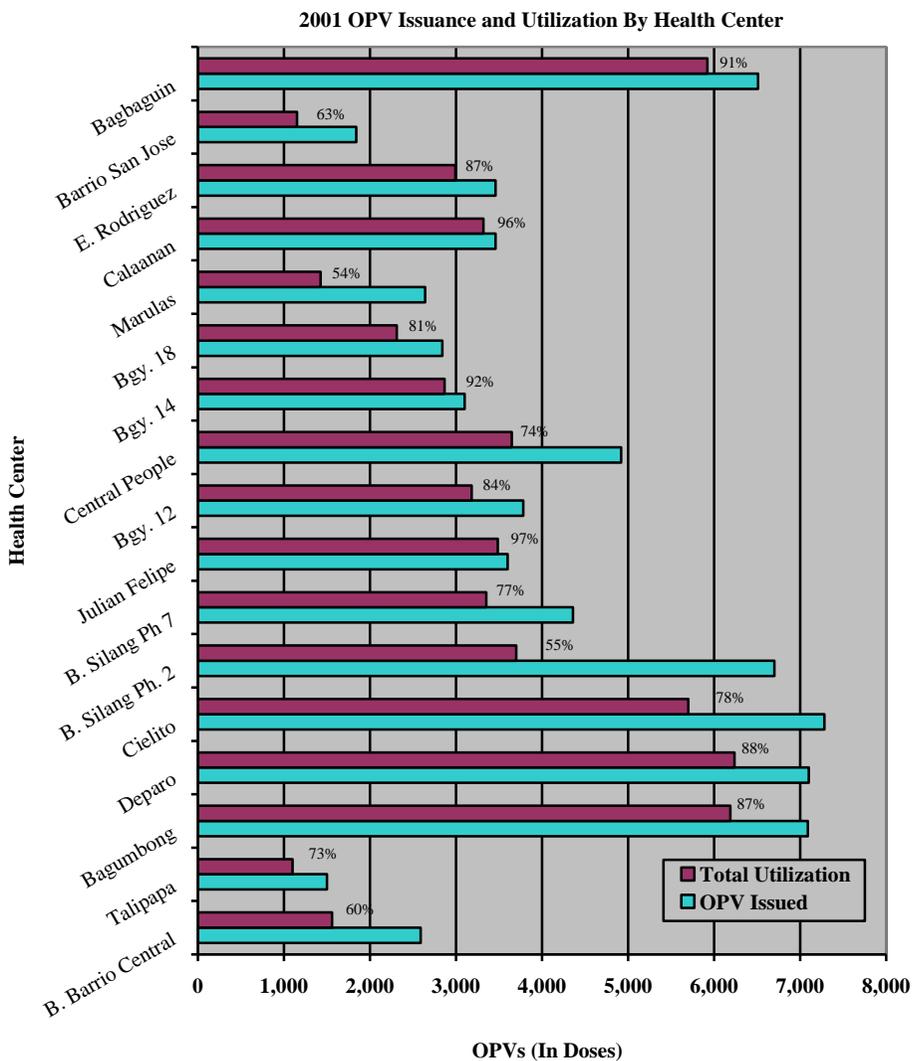
² Per CHO's Record of Distribution

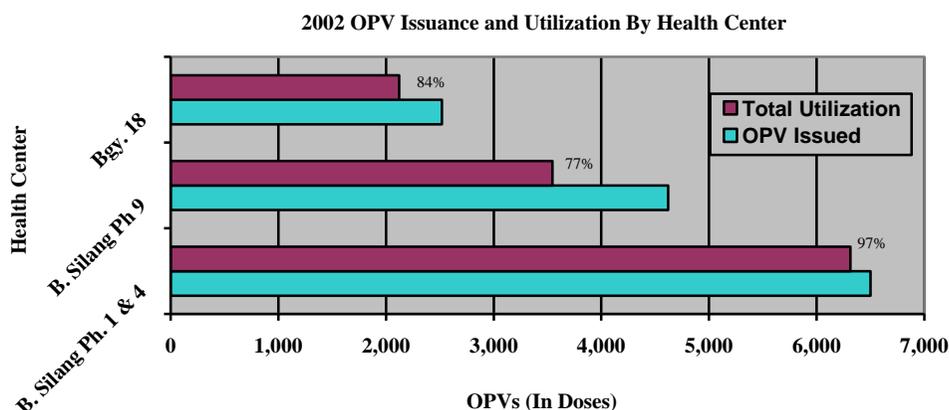
* Excess

This shows that following the 1.67 multiplier factor for determining the total required quantity, the issuance of vaccines to nine (9) Health Centers ranging from 172% to 221% exceeded the requirements.

In order to assess whether these vaccines were indeed needed where they were distributed, the team analyzed the utilization of vaccines per Health Center in CYs 2001 and 2002 using the reported actual accomplishment during these years and the wastage allowance of 40%.

Analysis revealed that vaccine utilization considering the 40% wastage allowance ranged from only 54% to 97% of the vaccines received by the Health Centers as illustrated below and on the next page:





The overissuance of vaccines in a number of Health Centers resulted in excess vaccines in CYs 2001 and 2002 ranging from 110 (A.A. Zapa) to 3,001 doses (Bagong Silang Phase 2).

Health Center	Remaining Balance
2001	
Bagong Barrio Central	1,030
Talipapa	401
Bagumbong	901
Deparo	864
Cielito	1,579
Bagong Silang Ph 2	3,001
Bagong Silang Ph 7	1,851
Julian Felipe	116
Bgy. 12	600
Central People	1,273
Bgy. 14	234
Bgy. 18	530
A.A. Zapa	110
Marulas	1,214
Calaanan	140
E. Rodriguez	466
Barrio San Jose	688
Bagbaguin	587
2002	
Bagong Silang Ph 1 & 4	187
Bagong Silang Ph 9	1,075
Bgy. 18	397

However, these computed balances could not be evaluated by the team due to the following:

- The Health Centers did not submit reports on inventory, wastage and expired vaccines.
- The Regional Office did not validate the reported accomplishments and inventory reports of the Health Centers. Hence, the possibility of errors in reporting accomplishments could not be discounted.

Records further showed that the excess vaccines in the custody of the Health Centers and the reported accomplishments as of December 31, 2001 were apparently not considered in the distribution of vaccines to the Health Centers in CY 2002. There were still Health Centers which were issued vaccines in excess of its requirements despite prior year's balances.

Health Center	Per Team's Analysis Available Balance As of 12/2001	CY 2002					
		OPV Issued (in dosage)	Total OPVs Available (in dosage)	Actual Accomplishment (OPV ₁ to OPV ₃)	40% Wastage Allowance (col 3 x .67)	Total Utilization (col 5 +6)	Remaining Balance (col 4-col 7)
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
Talipapa	401	1,260	1,661	809	542	1,351	310
Cielito	1,579	6,040	7,619	4,107	2,752	6,859	760
& Parkland							
Bagong Silang	1,851	3,780	5,631	2628	1,761	4,389	1,242
Phase 7							
Central People	1,273	1,700	2,973	1,396	935	2,331	642

The practice of issuing vaccines in excess of the Health Centers' actual requirements exposes the vaccines to expiration before these were effectively utilized. It is noted that the potency period of vaccines is only 18 months commencing from the time these were received at the Central Warehouse.

For CY 2002, the City Health Office reported that about 1,003 vials equivalent to 20,060 doses expired. This case does not demonstrate an efficient management of oral polio vaccines.

- 2. The potency period of vaccines was not properly monitored. Receipt of vaccines by the Health Centers from the City was recorded in the logbook without indicating the expiration dates. In addition, monthly inventory reports where the expiration dates of the vaccines are supposed to be indicated were also not submitted by the Centers to the City. This practice did not provide the City and the Centers the opportunity to monitor the status of vaccines in order to ensure its effective utilization before expiration. Moreover, the records of issuance and receipt of vaccines by the City and the Centers do not tally.*

The success of the polio immunization program relies heavily not only on the identification of eligible population but also on the availability of the oral polio vaccines. Since the vaccines have expiration dates, it is imperative that every level handling these vaccines should have records/reports to monitor their potency.

As provided in the EPI Manual, EPI Vaccine Inventory Report shall be prepared by the main health centers, district level, provincial, city and regional health offices. However, the dates of submission were not indicated in the manual. In addition, the cold chain managers and the nurses in health centers are required to monitor the vaccine inventory to keep track of their expiration dates.

At the City, polio vaccines were stored at -15°C to -25°C and checked morning and afternoon. The vaccines were either picked up by the different health centers or delivered by the City after recording in the Control Card. The Control card included information such as date, lot/batch no., expiry date, source (from whom received), quantity received, to whom issued, quantity issued and the balance. The City is also maintaining a logbook to record the quantity of vaccines issued to the Health Centers indicating the date of issuance and the person receiving the items.

At the Health Centers, the vaccines were recorded in the logbook indicating the date of receipt, type of vaccine and the quantity of vaccines received. The team, however, noted that the date of expiration of vaccines received was not indicated in the logbook. This is true in the four Health Centers covered in the evaluation. This practice, therefore, did not provide the Centers the opportunity to monitor the status of vaccines. As a result, 655 vials of oral polio vaccines expired in health centers and another 348 OPV vials expired at the City.

The team also noted that the Centers covered in the audit were not submitting their monthly inventory reports where the expiration dates were supposed to be indicated. Instead, these Centers were submitting quarterly reports. Thus, the CHO was not able to monitor the status of these vaccines.

Furthermore, reported quantity of vaccines received by the Health Centers from the CHO do not tally with the recorded issuance of the CHO as shown on the next page:

EFFICIENT MANAGEMENT OF ORAL POLIO VACCINES

Health Centers	Received		Given by City Health Office		Difference	
	2001	2002	2001	2002	2001	2002
Torres Bugallon	150 *	203	150 *	180		23
	137		120		17	
Grace Park Puericulture Center	No Inventory	83	129 *	128	-	(45)
			52			
Cielito & Parkland	Incomplete Inventory	190	122 *	272	-	(82)
			303			

* 10 doses

Management's Comments

The allocated polio vaccines received by the Kalookan health department were in near expiration. Since there was inadequate storage facilities in the city health office, the vaccines were immediately distributed to the different health centers which was more than the usual amount needed.

Team's Rejoinder

The City Health Office should make representation with the City Government for the provision of vaccine storage facilities which can accommodate the requirements of the City for OPVs and other vaccines used in the EPI and other health programs of DOH and the City Government. In this case, possible spoilage and inequitable distribution of vaccines can be avoided.

RECOMMENDATIONS

The City Health Office should consider:

- a) The actual performance of the Health Centers in the distribution of vaccines;*
- b) Requiring the Health Centers to submit inventory report at year-end before issuance of vaccine allocation for the incoming year;*
- c) Assessing the adequacy of supply in Health Centers using inventory reports and vaccine utilization reports and validating their reported accomplishments;*
- d) Requiring the submission of quarterly Wastage Report and Report on Expired Vaccines in order to assess the actual wastage allowance necessary to ensure complete coverage of targeted eligible population and actual loss due to overissuance of vaccines;*
- e) Requiring the Health Centers to maintain vaccine control cards in order to monitor the potency of the vaccines;*
- f) Ensuring the submission of an accurate monthly inventory report by conducting periodic evaluation of the Health Center's records;*
- g) Monitoring the utilization of vaccines issued to the health centers to avoid vaccine expiration; and*
- h) Reconciling its records of vaccine issuances with the records of the Health Centers.*

Chapter III

Effective Performance Monitoring and Evaluation System

INTRODUCTION

To measure the performance of a particular program and the achievement of its objective, the agency needs to monitor its operations and activities on an on-going basis. Monitoring is the process of observing and overseeing closely without biases. It covers evaluation of the performance and activities undertaken to ensure the attainment of a particular objective.

One way of monitoring progress is by requiring the submission of reports periodically. For reports, however, to be considered useful for decision making and for taking appropriate corrective measures, they should contain accurate, complete and reliable information.

Reports are considered complete if they include both qualitative and quantitative data adequate to assess the achievement of the objective. It is accurate and reliable if the information reported are free from systematic errors and biases.

The reporting system of the DOH is incorporated in the Field Health Services Information System (FHSIS). This system provides the DOH with management information on the different public health programs. It provides the basic service data generated from the municipality, province, region and national office needed to monitor activities in each program on a routine basis (weekly, monthly, quarterly or annually). The midwives and nurses assigned at the field offices have been trained in the FHSIS data collection procedures.

Aside from the DOH and LGUs, private hospitals and non-governmental organizations (NGOs) also participate in the EPI program. For this purpose, the City of Kalookan also issues polio vaccines to these agencies. In Kalookan City, the following agencies participated in the program and were issued vaccines by the City Health Officer:

Name of Hospital/NGO	No. of Vials Issued		Total Doses
	10-dose	20- dose	
2001			
Manila Central University	40	31	1,020
Dr. Tamayao Clinic	10		100
2002			
Manila Central University		15	300
Dr. Tamayao Clinic		5	100
Total	50	51	1,520

The team noted that the reported overall accomplishment of the City was not accurate as the reported number of fully immunized children in 7 Health Centers exceeded the highest number of children immunized with complete doses of the six antigens. The inaccurate reporting affected the validity of the report and the results of the evaluation of the program's implementation which is crucial in decision-making.

The reported accomplishments of 86.4% in CY 2001 and 81% in CY 2002 for polio immunization are also way below the targeted accomplishment of 95% coverage.

The below-the-target accomplishments could be attributed to the failure of the City to monitor the accomplishment of the Health Centers and the failure of the Health Workers to monitor defaulters.

These deficiencies affect the attainment of the objective of sustaining the country's polio-free status.

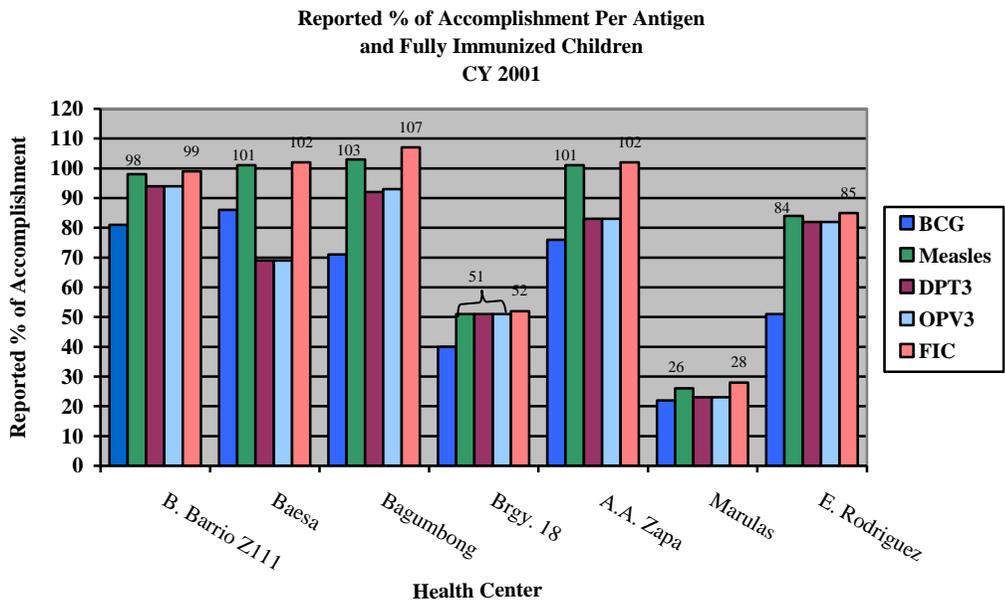
OBSERVATIONS

- 1. The overall accomplishment of the City covering six immunizable diseases in 2001 was not accurately reported. The number of fully immunized children in 7 Health Centers exceeded the highest number of children immunized with complete doses of the six antigens. The inaccurate reporting affected the usefulness of the report and the results of evaluation of the program implementation.*

The accomplishment of the City is measured on the basis of the number of fully immunized children (FIC) as against the targeted total eligible population. A child is considered FIC if he receives all the six immunizations in complete doses. Thus, the number of FICs should not exceed the highest reported accomplishment per antigen.

In assessing the total performance of the City, the individual accomplishments of the immunization program covering BCG, DPT, Polio and Measles were considered. For CY 2001, the City of Kalookan reported an overall EPI accomplishment of 89.8% coverage.

In order to assess the validity and accuracy of the reported overall accomplishment, the team analyzed the individual accomplishment report of the 35 Health Centers within Kalookan City for the six immunizations covered. Analysis revealed that while the overall accomplishment of 89.8% coverage may reflect the consolidated accomplishments of the six antigens, the individual overall accomplishments of 7 Health Centers were not accurately reported as the number of FIC exceeded the highest number of children immunized with complete doses of the six antigens. The Health Centers with higher number of FICs reported as compared with their individual accomplishments are shown below:



The team was informed that Health Centers maintain records per child where all immunizations administered to each child were reflected. This record is being used to report the total number of FIC by counting the number of children with complete immunization. It could, therefore, be possible that the Health Centers were able to include previous year's accomplishments in reporting the total FIC. Since this report is the one consolidated at the Central Office thru channels, the reported FIC then no longer reflects the actual situation.

These deficiencies may be attributed to the failure of the EPI Coordinator/Team to conduct monthly analysis of reports submitted by the Health Centers which is required under the EPI Manual and to adopt a review process that would ensure that the data generated from the Health Centers which are consolidated at the City level are accurate.

The inaccurate reporting affects the validity of the reported information and the results of the evaluation of the program's implementation which are crucial in sustaining the country's status as a polio-free country.

- 2. The OPV₃ accomplishment of 81% coverage in CY 2002 is way below the targeted coverage of 95% of eligible population. This is also comparatively lower than the reported accomplishment of 86.4% in CY 2001. The unsatisfactory performance could be due to failure of the City to monitor the Health Centers' performance, failure of the Health Workers to monitor defaulters due to heavy work loads, and unrealistic target setting. This performance would not support the government's objective of providing maximum protection to the children from the polio virus.***

Records showed that the DOH was able to completely immunize only an average of about 72% of the total eligible polio population in CY 2001 (excluding ARMM). This dismal performance has not improved in CY 2002. The reported accomplishment for CY 2002 remained at 72%. This was the result of unstable performance of the Regional Offices and the LGUs.

The City of Kalookan is one of the Cities that was reporting performance below the targets. The City reported only 86% coverage of the total eligible population in CY 2001 and 81% in CY 2002. The failure of the City to attain the 95% coverage and the unsatisfactory performance in CYs 2001 and 2002 could be attributed to the following:

- a) Failure of the LGU to monitor the performance of the Health Centers and other participating hospitals as required under the EPI Manual and non-inclusion of children immunized by private practitioners who are part of the targeted eligible population;

The 1995 EPI Manual provides the following concept on monitoring and evaluation:

- Monitoring is the process of observing and overseeing closely without biases. It is a visit to a health facility to monitor program implementation. Monitoring teams are organized at national, regional, provincial and municipal level. They usually oversee the different aspects of the program which included the following, among others:
 - Immunization coverage
 - Supervision and monitoring
 - Records and reports

- This activity is being done using a monitoring checklist. The methods used during monitoring are:
 - Observation of health facility
 - Review of records and reports
 - Interview of health personnel

- The team should be properly trained in EPI management and the use of managerial indicators.

- Managerial indicators are tools for monitoring and evaluating the factors that affect program implementation. Their use improves coverage performance by highlighting ways in which strategies should be redirected and activities improved. The indicators should be defined during the formulation of EPI acceleration plans. Some examples of indicators are:
 - Number or percent of fully immunized children out of the total eligible population
 - Drop out rate
 - Vaccine utilization

- The monitoring team will be responsible for the following, among others:
 - Conducting a monthly analysis of reports (EPI and Surveillance reports)
 - Provide regular feedback to staff concerned x x x with findings and recommendations, actions taken during visits, and analysis of reports. This will be used as a tool for follow-up visits.

Despite these provisions, the implementation of the program by the Health Centers and other participating agencies were not monitored. There were no documents provided to the team that would manifest that these activities were being undertaken.

b) Number of defaulting children; and

The defaulting children are those who have not completed the required doses. As a matter of policy, the Health Workers were required to monitor the immunization schedule of children to ensure the intake of complete dosage and to minimize defaulters. However, interview with the Health Workers revealed that they were having difficulty in monitoring the whereabouts of children due to heavy work loads. In the four Cities visited in NCR, about 10% of these defaulting children have transferred to other barangays/provinces of unknown addresses.

**EFFECTIVE PERFORMANCE MONITORING
AND EVALUATION SYSTEM**

In the City of Kalookan, the defaulters represent 15% of the total eligible population in selected Health Centers as shown on the next page:

Health Center	CY 2001				
	Elig. Pop. Per TGL	Defaulters			
		OPV ₃	OPV ₂	OPV ₁	Total
Torres Bugallon	923	825	40	36	76
Grace Park Puericulture	560	457	50	32	82
Bagong Silang Ph. 1 & 4	1,711	1,280	176	163	339
Cielito & Parkland	1,313	1,068	96	89	185
Total	4,507	3,630	362	320	682

15%

- c) The possibility of inaccurate target population.

The team also recognized that another reason for a low accomplishment could be the possibility that the targeted eligible population was not accurate. It is, therefore, necessary for the DOH to establish an accurate basis of target setting for each Health Center, LGU and Regional Office.

The low immunization coverage would expose a number of the targeted eligible population to poliomyelitis thereby casting doubt on the country's ability to attain its objective of providing maximum protection from the polio virus to the constituents.

- 3. The consolidated reports of the City for CYs 2001 and 2002 did not include accomplishment reports of private hospitals/clinics participating in the immunization program rendering such reports incomplete. Likewise, there were no regulations requiring these hospitals to submit accomplishment reports for inclusion in the consolidated reports. About 101 vials equivalent to 1,520 doses were issued by the City to participating private hospitals and private clinics. In the absence of any report, the effective utilization of vaccines by these hospitals as well as their contribution in the attainment of the program's objectives could not be assessed.**

The immunization program is implemented principally by the Health Centers under the supervision of the LGUs. However, government and private hospitals operating nationwide are also requested to participate in the implementation of this program. These hospitals can draw their vaccines from the Regional Office or from their respective LGUs.

For CYs 2001 and 2002, a total of 101 vials equivalent to 1,520 doses of polio vaccines were issued by the City to Manila Central University Hospital (MCU) and Dr. Tamayao Clinic.

In the case of MCU, the team was informed that its accomplishments were consolidated in Bagong Barrio Zone 1 Health Center for CYs 2001 and 2002. For CY 2003, accomplishments of MCU Hospital were no longer included in the report of the barangay because children immunized by that hospital were not included in the catchment area/target population of Barangay Bagong Barrio Zone 1. The accomplishment of Dr. Tamayao Clinic was totally excluded from the City report as no report was submitted by the hospital.

This condition rendered the reported accomplishments of the CHO incomplete on the number of children immunized thereby affecting the accuracy of the accomplishments reported. Moreover, the effective utilization of vaccines by these hospitals as well as their contributions in the attainment of the program's objective could not be assessed.

Management's Comments

All EPI accomplished reports were accurately reported. However we will still comply with COA's recommendation to review the data available to ensure accuracy and validity.

Team's Rejoinder

As discussed in the report, the City's reported accomplishments in the quarterly reports and annual reports do not tally. Moreover, a number of Health Centers have been reporting FIC in excess of the highest accomplishment per antigen.

RECOMMENDATIONS

The City should consider:

- a. Ensuring that the overall reported accomplishments are accurate and reliable and could be used as basis for decision-making by taking into consideration the accomplishment of the Health Center per antigen;*
- b. Requiring the Health Centers to closely coordinate with the targeted beneficiaries who already received their initial and second doses to minimize defaulters and ensure full protection of the child;*
- c. Regularly monitoring the reported accomplishments of the Health Centers as required under the EPI Manual to ensure that the target coverage is attained and to address problems encountered in the process; and*
- d. Requiring hospitals and other participants to the immunization program to submit accomplishment reports of children immunized for incorporation in the CHO accomplishment report.*

Submitted in compliance with COA Office Order Nos. 2002-514 and 2002-514A dated November 15, 2002 and November 26, 2002, respectively, and Memorandum dated February 13, 2003.

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