

TRENDS IN THE HEALTH AND NUTRITION OF FILIPINO CHILDREN (0-19 YEARS) IN THE DECADE 1973 TO 1983

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ABSTRACT

A ten-year survey of the health and nutrition of Filipino children, from birth to 19 years old for the decade 1973 to 1983, is presented to determine the attainments and achievements of agencies and organizations in and out of government and look into current problems and possible solutions.

Of the total population in 1983, the sector below 20 years old (52.9%), showed a Life Expectancy of 62.5 years, an Infant Mortality Rate of 59.3 per 1000 live births and a Literacy Rate of 87.7. The nutritional status of preschoolers with weights higher than 75% of Filipino standard weight has improved to 8% in 1983. The morbidity and mortality rates have declined particularly for the immunizable diseases. Maternal Death Rate was 1.0 or a decrease of 28.6.

In general the basic health and development indicators have show improvement but these are still far from significant or satisfactory, even as compared to countries around the Philippines.

Introduction

All over the world there has been an encouraging and laudable increase in concern and attention given the health and well being of children. This is not only because the young continue to constitute the greater proportion of the population particularly in developing countries, but also because many adverse factors have occurred in recent years such as the economic recession, social unrest, population pressures and soaring prices.

Interest in child health was highlighted during the International Year of the Child (IYC) in 1979. This event served as an impetus for new or innovative or revitalized programs, projects and activities for children. The theme of the IYC celebration, MANKIND OWES TO THE CHILD THE BEST IT HAS TO GIVE, and a continuous reminder that children are tomorrow's future, have provided incentives that encouraged countries to persist in the care of children.

The historical global Alma Ata Conference (1978) or Primary Health Care influenced changes in the focus, directions, targets, strategies and policies in child health care. Impressive and significant priorities have been given to devel-

oping countries, particularly the underserved and unreached through the use of low-cost, simple and unsophisticated procedures and methods, the shift from hospitals to community-based activities, emphasis given to breakthroughs that are affordable, accessible, acceptable and their practical implementation. Training and recruitment of health manpower have undergone changes from highly technical professionals and experts to paraprofessionals and even lay persons, thus allowing delivery of services more readily than in the past, to remote and difficult areas.

Yearly, the United Nations Children's Fund (UNICEF) through its Executive Director, presents a vivid and comprehensive analysis and report of the *STATE OF THE WORLD'S CHILDREN* which includes what have been accomplished or achieved in different regions or in individual countries. There have served as inspiring and encouraging models to all. The International Pediatric Association as an organized body or through its regional members has also reported on the status of children in Asia, Europe and other sectors. Other international or national groups have commendably followed suit.

In the Philippines, health surveys have been sporadically prepared. The present survey has gathered information and data for the decade (1973-1983), from various sources as the Department of Health (DOH), the National Economic Development Authority (NEDA), the National Census and Statistics Center, as well as Annual reports of different health and nutrition organizations and centers and situational studies of government and private concerns particularly that of the Council for the Welfare of Children (1974 and 1985). Problems in gathering and coordinating the different findings are due to the fact that some are actual figures while others are estimates or projections.

Besides available statistics, the authors have looked into government policies related to health and nutrition and strategies for action to meet needs and problems that would operationalize such policies.











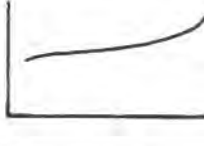
Objectives

It is the purpose of this survey to determine the health and nutrition status of children and their trends in a developing country, the Philippines, where many unfavorable and even unexpected events and factors have affected and played a part in the overall situation of the young.

Although improvements have been noted following the universal trend, these have not been significant nor impressive in the Philippines. In fact, notwithstanding concerted efforts on the part of the government and private concerns to give our children the best they deserve comparable to those of developed countries, situational health studies of the Philippines show there is much to be desired.

It is expected that this particular review of a decade may give a picture of the present health status of children (0-19 years) in the Philippines. This may

STATUS OF FILIPINO CHILDREN (0-19 YEARS)
1973 - 1983

	POPULATION OF CHILDREN (0-19 YEARS) INCREASED FROM 21,426,000 TO 27,017,135 26.1% INCREASE
	CRUDE BIRTH RATE INCREASED FROM 26.1 TO 29.0 11.1% INCREASE
	CRUDE DEATH RATE DECREASED FROM 7.0 TO 6.3 10.0% DECREASE
	INFANT MORTALITY RATE DECREASED FROM 76.7 to 59.3 22.5% DECREASE
	NEONATAL MORTALITY RATE DECLINED FROM 30.2 TO 17.4 42.4% DECREASE
	MATERNAL DEATH RATE DECREASED FROM 1.4 TO 1.0 28.6% DECREASE
	* COMMUNICABLE DISEASES DEATH RATE DECREASED FROM 297.7 TO 212.6 28.6% DECREASE
	TUBERCULOSIS MORTALITY RATE DECREASED FROM 64.7 TO 55.0 15.0% DECREASE
	CARDIOVASCULAR DISEASES DEATH RATE DECREASED FROM 8.03 TO 8.01 0.94% DECREASE
	MALIGNANT NEOPLASM DEATH RATE INCREASED FROM 1.04 TO 5.07 387.5% INCREASE
	LIFE EXPECTANCY INCREASED FROM 61 YEARS TO 625 YEARS 2.4% INCREASE

serve as a basis for the identification of past and current problems, to clarify future action and direction in the formulation of policies and recommendations and to assist in the development of programs and in the implementation of projects which may benefit our children.

Specifically, this study aims to: a) provide information and indicators to measure the progress and impact of the delivery of services for children; b) to identify the sources and statistical areas of concern and provide corresponding recommendations; c) to broaden awareness of various agencies engaged in child development on roles each agency can play; d) to assist funding and supporting agencies to plan and program proper allocation of resources for children.

General Considerations

Demographic trend among children (0-19 years old)

In the Philippines, there has been a 26.1% increase in the 0-19 age group from 1973, an increase which more or less parallels that of the total population (29.2%). This age group comprises more than half of the total population (Fig. 2), reflective of the pyramidal structure of the population in developing countries. In 1975, they comprised 55.74% of the total population but by 1980 this age group comprise about 53% of the total population (Table 1). The gradual decline in the percentage of this group may be due to a gradual decrease in the crude birth rates which was noted in 1980 up to 1983. The proportion of male to female births was 1 male for every 1.1 female as of 1983.

Table 1. Actual children population (0-19-years) Philippines

<i>Age group</i>	<i>1975</i>		<i>1980</i>		<i>1984</i>
All Ages	42,070,660	100.0	48,098,460	100.0	100.0
Under 1	1,213,577	02.88	1,742,912	03.62	3.56
1 - 4	5,267,189	12.51	5,923,285	12.31	12.31
5 - 9	6,330,637	15.09	6,605,446	13.73	13.74
10 - 14	4,950,580	11.76	5,255,641	10.93	10.93
Under 1 to 19	23.43 M	55.74	25.45 M	52.96	52.9

While the Philippine population program had reduced the growth rate from 3.0%, in the 1960's to 2.45% in 1980-83, the child sector continues to be sizeable. Since 1977 about 1.5 million are born every year.

The pyramidal shape of the population graph implies a substantial burden of dependency imposed on those who work. The 1978 census shows that the country's dependency ratio was 88 dependents per 100 persons of working age. This

trend exerts tremendous pressure on the productive sectors of the economy to provide the basic needs of a predominantly young population.

With a total land area of 300,000 square kilometers the population density of the country is 140 per one (1) sq. km. In 1975 around 58 out of 100 Filipinos belonged to the age category below 21. On the average therefore there are about 81 children for every 3 square kilometers in the country.

National budget

It will be noted that in the Philippine allocation for health has always been the lowest among four services and considering that the population increases by 1.2 to 1.5 million yearly, it is not surprising that health services are correspondingly impaired.

Table 2. National budget (in millions of pesos)

	1970	1975	1978	1983
Total	4,053	19,049	27,808	53,729
Economic Services	1,283	8,672	11,272	15,587
% of Total	(21.6%)	(45.5%)	(40.5%)	(29.0%)
Defense	615	3,932	4,542	6,521
% of Total	(15.1%)	(20.9%)	(16.3%)	(12.1%)
Education	1,133	2,212	3,582	6,381
% of Total	(27.9%)	(11.6%)	(12.8%)	(11.2%)
Health	226	785	962	2,525
% of Total	(5.5%)	(4.1%)	(3.4%)	(4.6%)

Health and nutrition manpower resources

The 1973 Health Manpower Resource of the MOH showed that there were 17,417 health professionals including sanitary health inspectors. Of this number 23.6% were nurses, 18.7% physicians, and 4.5% dentists. Also 2,980 were midwives who in the Ministry of Health are the mainstay of services in most communities. Regionwise, the survey registered:

Physicians	13,107
Nurses	8,283
Midwives	6,915

Of the 1,506,356 births registered in 1983, 853,011 (56.6%) had the benefit of medical attendance, an increase of 6.2% over that of 1973. Majority (52.1%) were attended by midwives, 44.9% by physicians and 3% by nurses. A total of 653,345 birth (43.4%) were attended by either non-medical personnel or none at all. There were 1,130,157 births delivered in the homes and 375,199 delivered

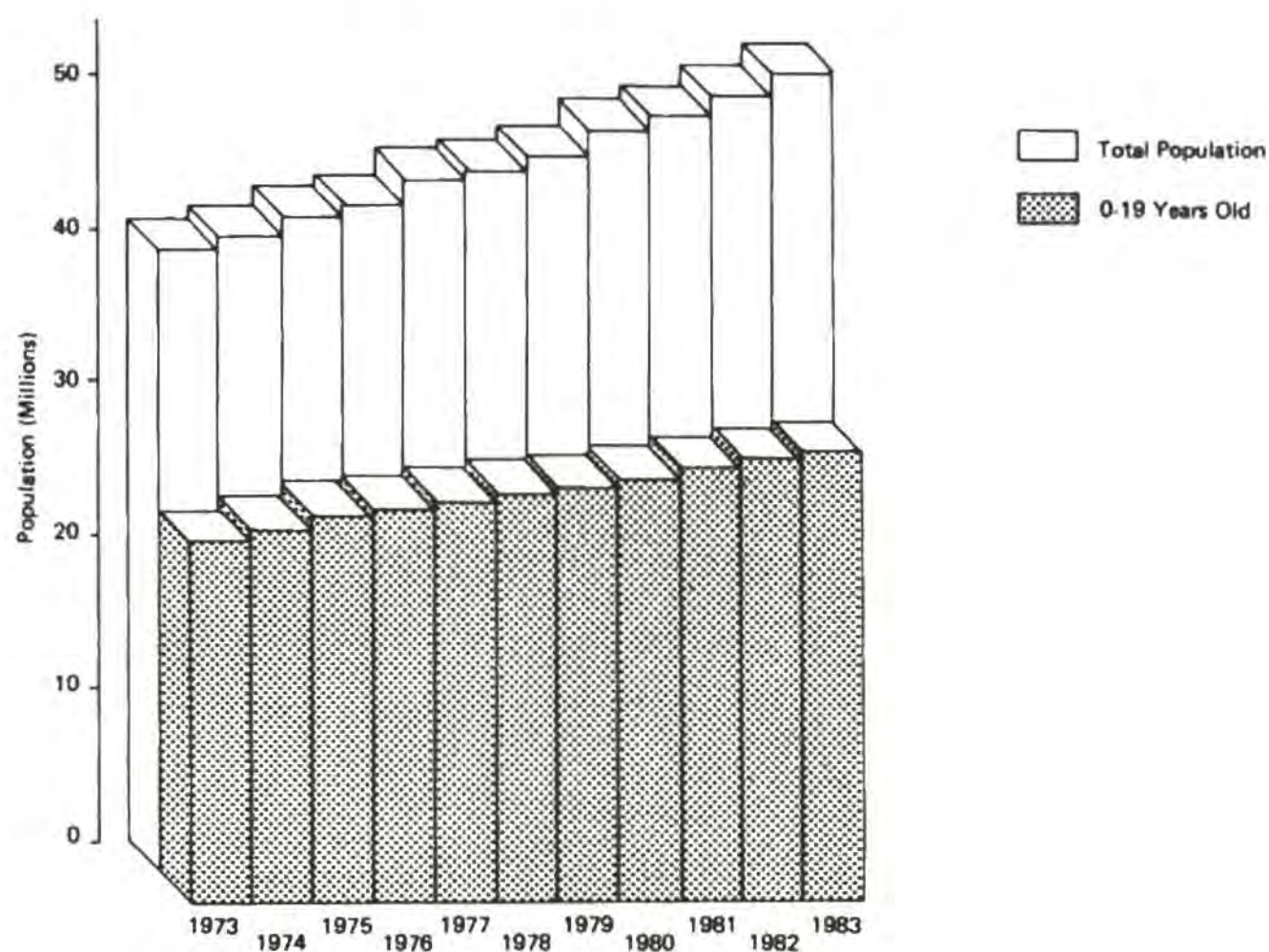


Fig. 2. Total population and the population of 0-19 years old
Philippines, 1973-1983

in the hospital representing 75% and 25% of the total respectively as depicted in Figs. 3 and 4.

Table 3. Medical manpower, Philippines (1984)

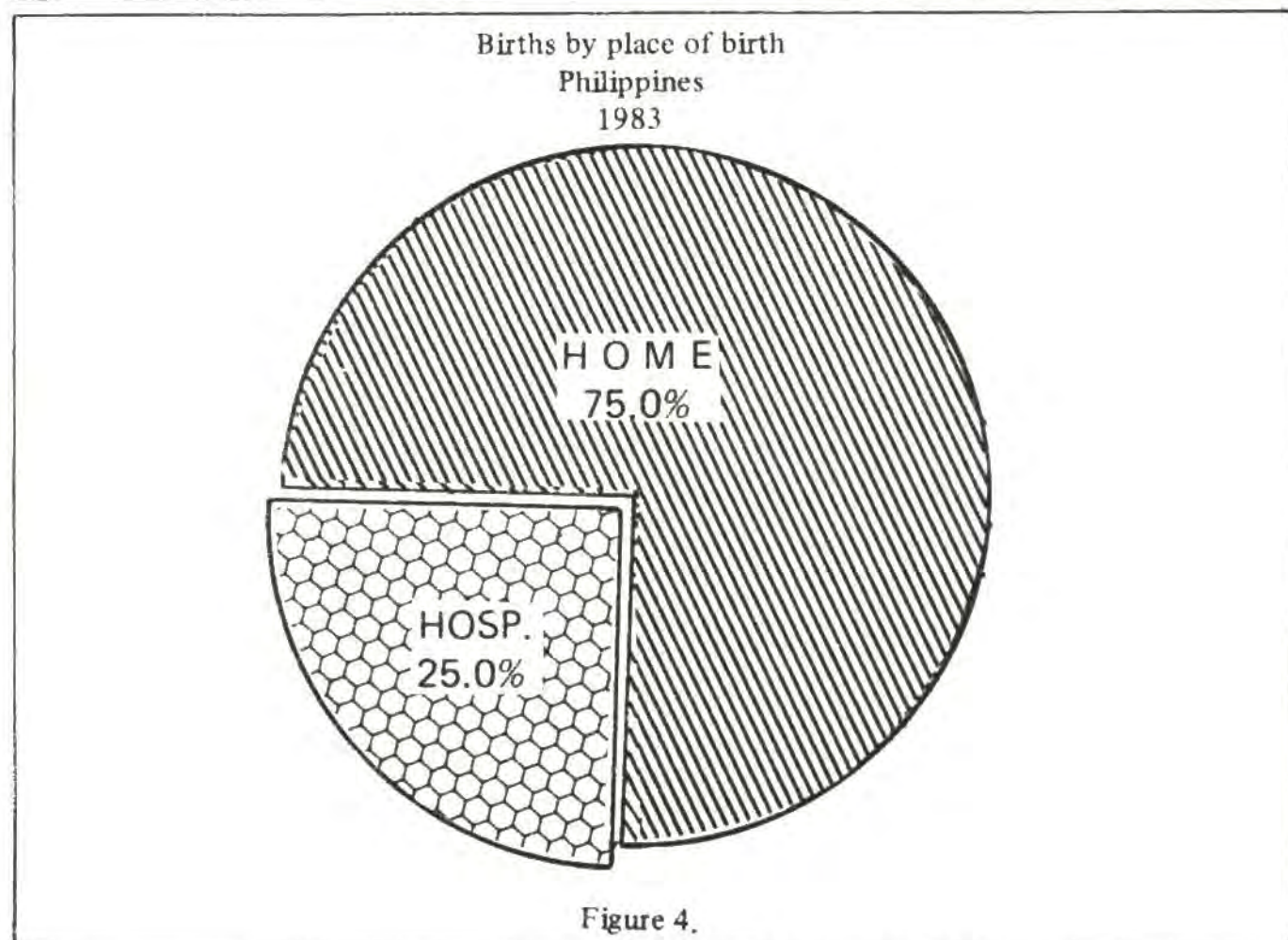
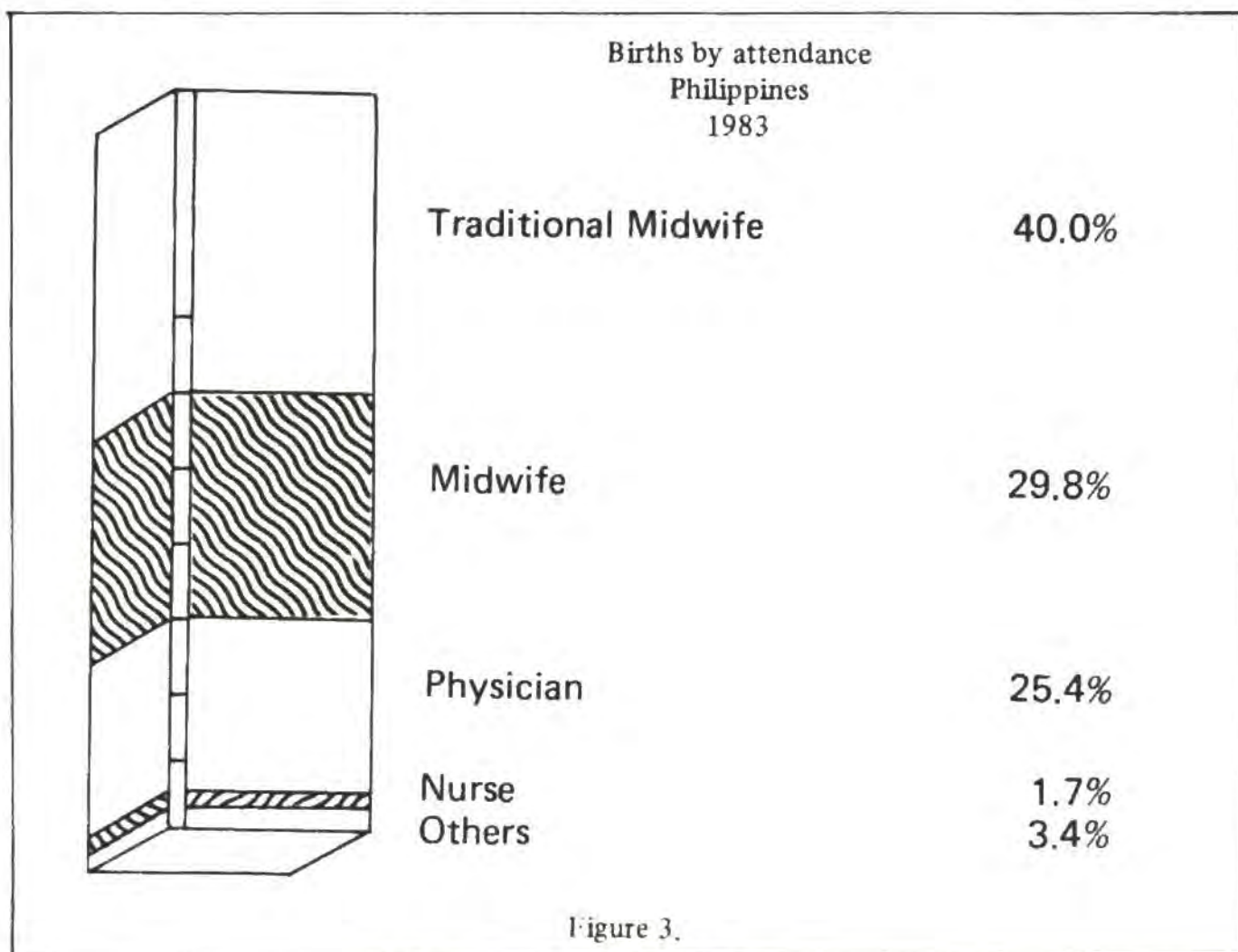
Philippine Medical Association

Region

Luzon	7,029 (70%)	1:3700
Visayas	1,739 (15%)	1:7000
Mindanao	1,763 (15%)	1:7200
Total MDs	11,331	1:5000
Total Population	53,673,000	

Philippine Pediatric Society (1984)

Metro Manila	554	(approx. 4 million children)
Provinces	294	(approx. 22 million children)
Total	848	pediatricians
Children 0-19 years	26,535,937	



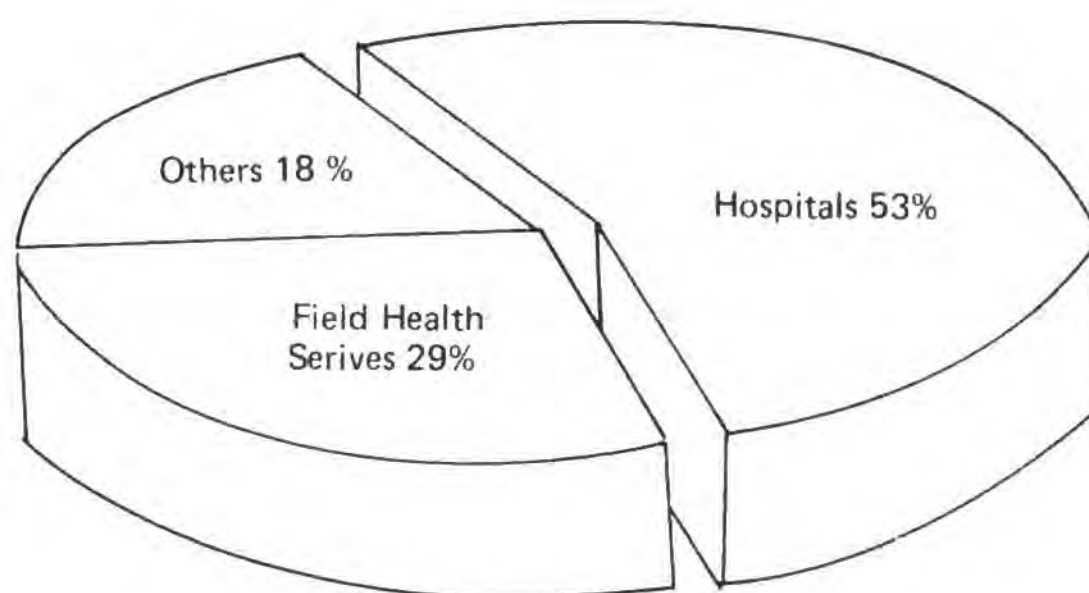


Fig. 5. Share of hospitals in health budgets

PHILIPPINES
(1982)

Source: World Bank and WHO

Table 4. Number of health facilities, Philippines 1980 and 1984

Facility	1980	1984
Hospitals*	345	367
Rural Health Units	1,991	1,991
Barangay Health Stations	7,353	7,991
Sanitaris	8	8
Chest Clinics	21	17
Skin Clinics		
Travelling	16	16
Stationary	6	6
Family Planning Clinics	1,743	1,542
Social Hygiene Clinics	32	30
Mental Hygiene Clinics	23	25
Dental Clinics	520	652
Malaria Units	33	32
Schistosomiasis Units	23	23
Filariasis Central Units	3	3
Nutriward Units	168	188

*Hospitals under the MOH only.

In the government subsystem in 1976 the health facilities are as enumerated above. Supportive are some 743 Puericulture Centers (private Maternal and Child Health facilities with Family Planning), 300 health centers, 51 maternity houses,

mobile hospitals, 8 Sanitaris and 5 static clinics. The RHUs are the basic field health units of the Ministry of Health located in municipalities with their satellite barangay (village) health stations. The latter are more accessible to the rural population, particularly in depressed areas.

There has been a continuing increase in the number of barangay health stations and rural health units through the years.

Of all the health facilities and services, hospitals get the biggest share from the national health budget (Fig. 5).

As of 1983, there were a total of 1,705 hospitals all over the country, seventy percent (70%) of which are privately owned. There was a 122.0% increase in the total number of hospitals built from 1973 to 1983.

Although 70% of the total number of hospitals are privately owned, the government hospitals held the bigger share (54%) of the total bed capacity.

Morbidity

Philippine Statistics on the notifiable disease presented by the Disease Intelligence Center, Department of Health were collected from the morbidity reports received weekly from all provincial and city health offices throughout the country.

A ten-year average (1973-1983) of the rates of the 10 leading causes of morbidity specific for the age group 0-19 years old (Fig. 6), in accordance with notifiable disease specified by the Department of Health (Act 3573).

Bronchitis had the highest morbidity rates (821.5 per 100,000 population of 0-19 years old) followed very closely by diarrheas (all forms) with a rate of 819.8. It will be noted that bronchitis was not included as a notifiable disease in 1974 and 1975. Diarrhea includes cholera, typhoid, and paratyphoid fevers and other salmonella infection, food poisoning, all forms of dysentery (bacillary and amoebic) and non-specific diarrheas. Influenza, with a rate of 550.9 is a far third. Pneumonias which ranked fourth, include both viral and bacterial etiologies. Measles ranked fifth with a rate of 117.4 per 100,000 population of 0-19 year olds. Whooping cough, malaria and tuberculosis included all clinical forms but it has been noted that approximately 96% of illnesses due to tuberculosis in general, are respiratory in nature. Schistosomiasis, although endemic in a few areas, ranked 9th with a rate of 7.8. Malignant neoplasms ranked 10th with a rate of 7.1 and include all growths on any site of the body. This did not include leukemias.

There were only minimal changes in the rates and ranking of the 10 leading causes of morbidity in 1973 and 1983. Malaria rose from 8th to the 6th rank although there was a decrease in the rate. Tuberculosis and schistosomiasis which ranked 6th and 9th in 1973, dropped to 8th and 10th respectively, in 1983. Their rates also decreased. Malignant neoplasms rose from the 10th in 1973 to 9th place in 1983, with a corresponding increase in rates. (Fig. 7).

It is noteworthy that except malignant neoplasm, all these leading causes of morbidity in the age group of 0-19 years, are communicable or infectious. Of

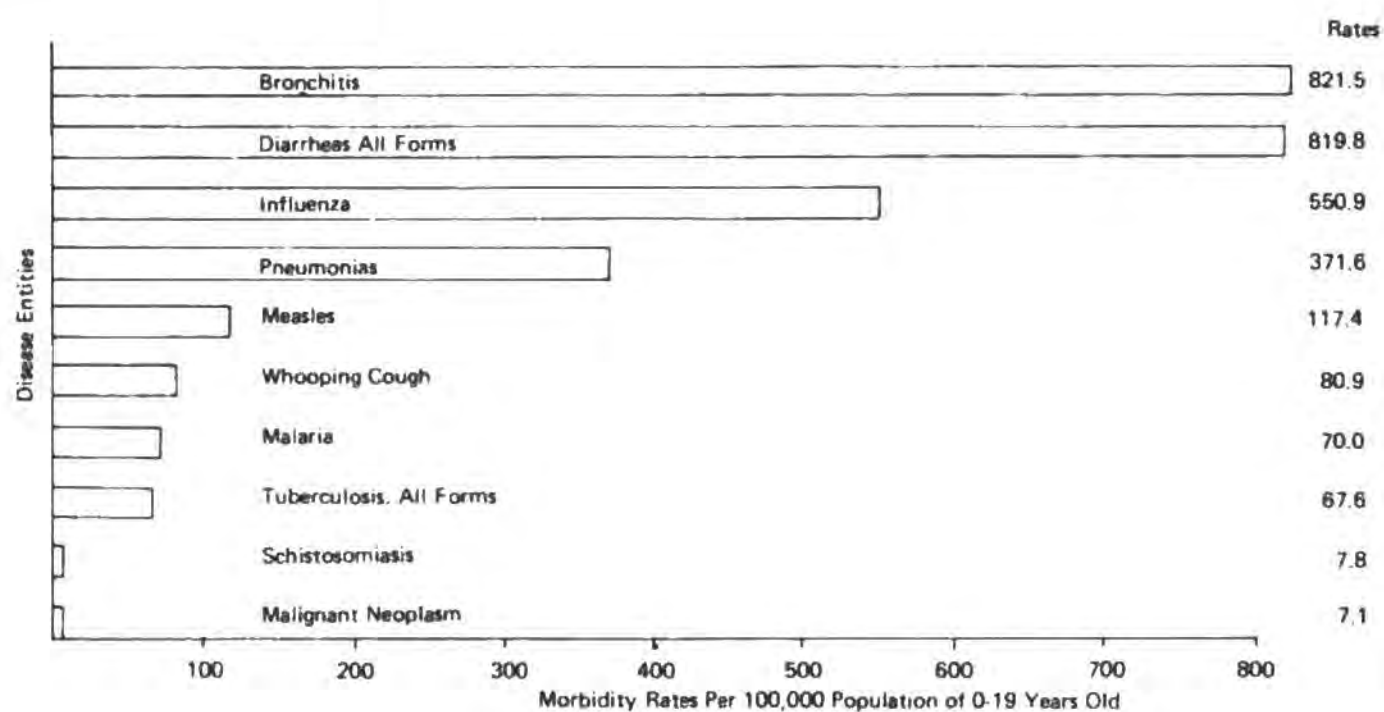


Fig. 6. Leading causes of morbidity among 0-19 years old: a 10-year average (1973-1983) Philippines.

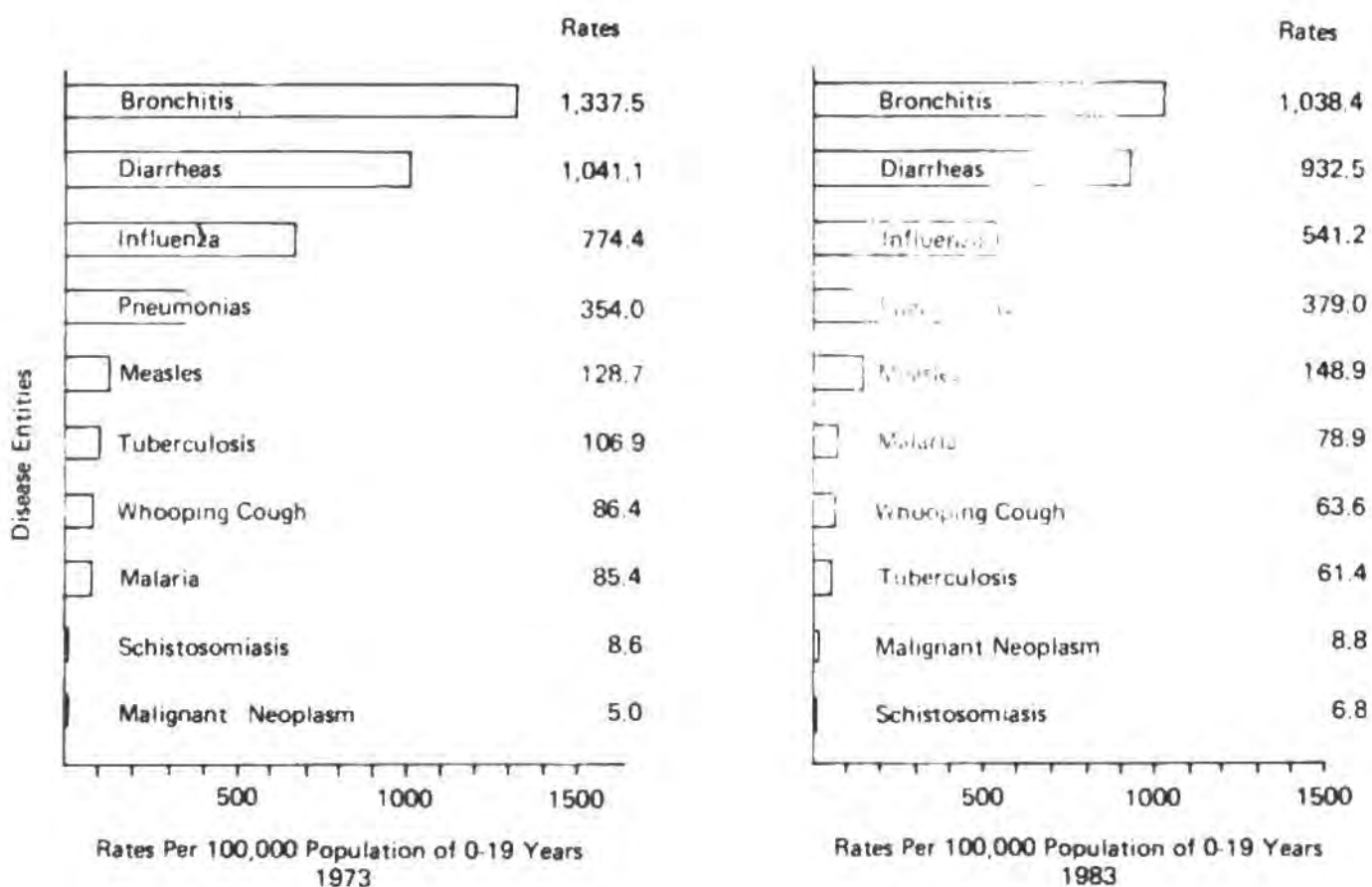


Fig. 7. Comparison of leading causes of morbidity among 0-19 years old in 1973 and 1983 Philippines.

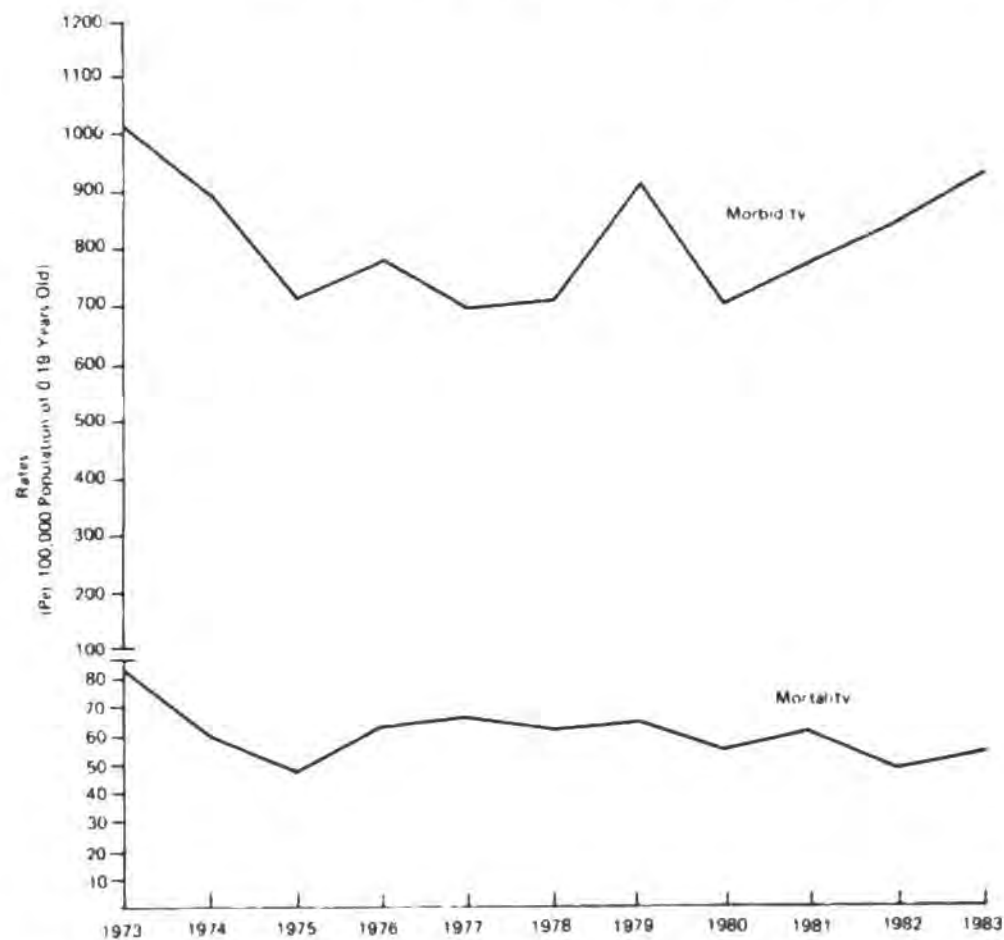


Fig. 8. Diarrhea, all forms: morbidity and mortality trends among 0-19 years old Philippines 1973-1983.

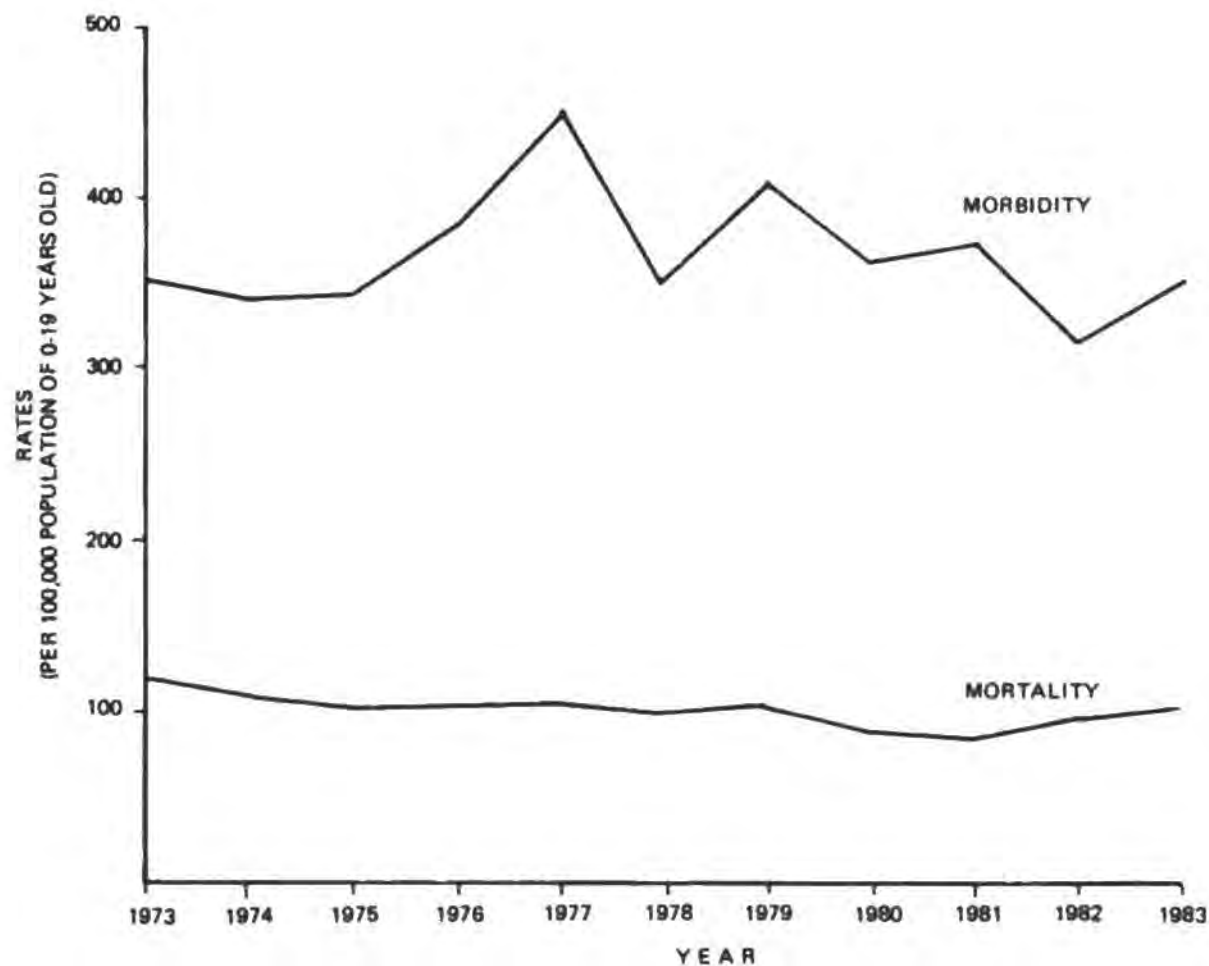


Fig. 9. Pneumonia: morbidity and mortality trends among 0-19 years old. Philippines 1973-1983.

the infectious diseases, 4 involve the respiratory system (bronchitis, pneumonias, whooping cough and tuberculosis), one involves the gastro-intestinal tract (diarrheas), 2 are viral (influenza and measles), and 2 are parasitic (malaria and schistosomiasis).

The incidence (and mortality) from most of these notifiable diseases showed a continued decline from 1973 to 1983. Although the incidence of diarrhea (Fig. 8), bronchitis and pneumonia (Fig. 9), in general were high in 1973, there was a declining trend, the lowest rate being in 1977 after which there was an increased rate up to 1983. All forms of dysentery and food poisoning, however, showed an increasing trend during the 10-year period. Leprosy showed a similar trend causing the increase in cases. The incidence of tetanus, whooping cough and polio decreased from 1973 to 1983. Measles and influenza have irregular trends due to outbreaks at almost yearly intervals. Malignant neoplasms have increased in incidence and mortality.

Mortality

The 10-year average of the leading causes of mortality specific for the age group 0-19 years is shown in Fig. 10.

Pneumonias top the list as a cause of mortality among the 0-19 age groups and in all age groups. There are, however, differences in the ranking of diseases as diarrheas, nutritional deficiencies and avitaminosis and measles. Accidents are more common among the 0-19 year olds, than among all groups, as a whole. On the other hand, heart and vascular disease, malignant neoplasm and tuberculosis are less common causes of death among children less than 19 years old than in the general population. Bronchitis and tetanus ranked 5th and 7th among the leading causes of mortality among children less than 19 years old but not among the 10 causes of mortality in the general population.

Among the 10 leading causes of mortality in children less than 19 years old, 6 were communicable. Of these, 3 are immunizable diseases through our Expanded Program of Immunization. The other 4 are non-communicable. Nutritional deficiencies include goiter without thirotoxicosis, avitaminosis, kwashiorkor, nutritional marasmus and other protein-calorie malnutrition.

Most of the communicable diseases (pneumonia, bronchitis, tetanus and tuberculosis) had a decrease in mortality and morbidity rates from 1973 to 1983. Diarrheal rates were variable with slight improvement noted from 1979-1982 (Fig. 8). Measles, had a variable course, the lowest rates being noted in 1974 and the highest in 1983 with variable rates in between.

Mortality rates due to accidents increased from 1974-1978, then a decrease from 1979-1983. A similar trend was noted from nephrosis, nephritis, nephrotic syndrome and infection of the kidney. Mortality rates from avitaminosis and other nutritional deficiencies showed a declining trend from 1973-1983. In general, the mortality rates of communicable diseases as a group, presented a generally

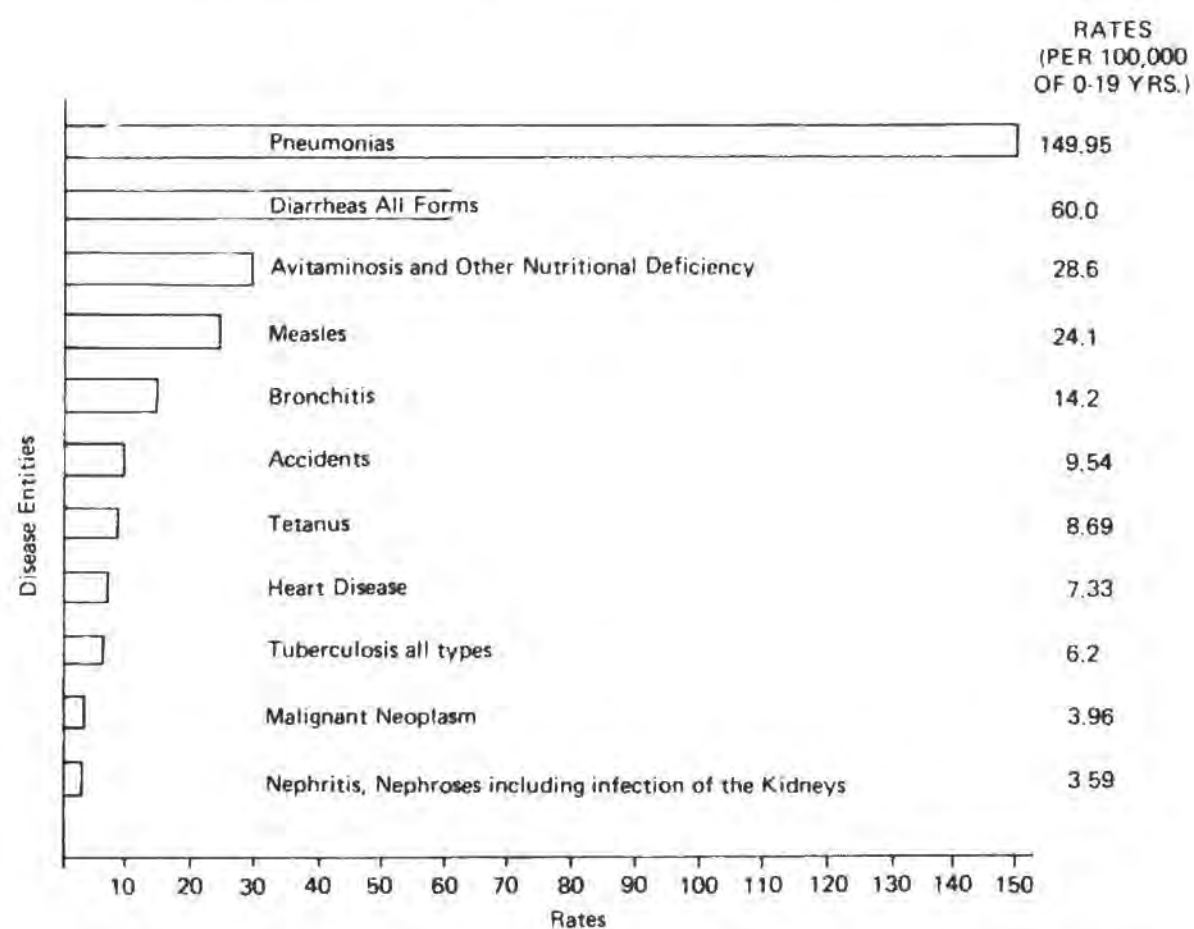


Fig. 10. Leading causes of mortality among Filipino children 0-19 years old: a 10-year survey Philippines 1973-1983.

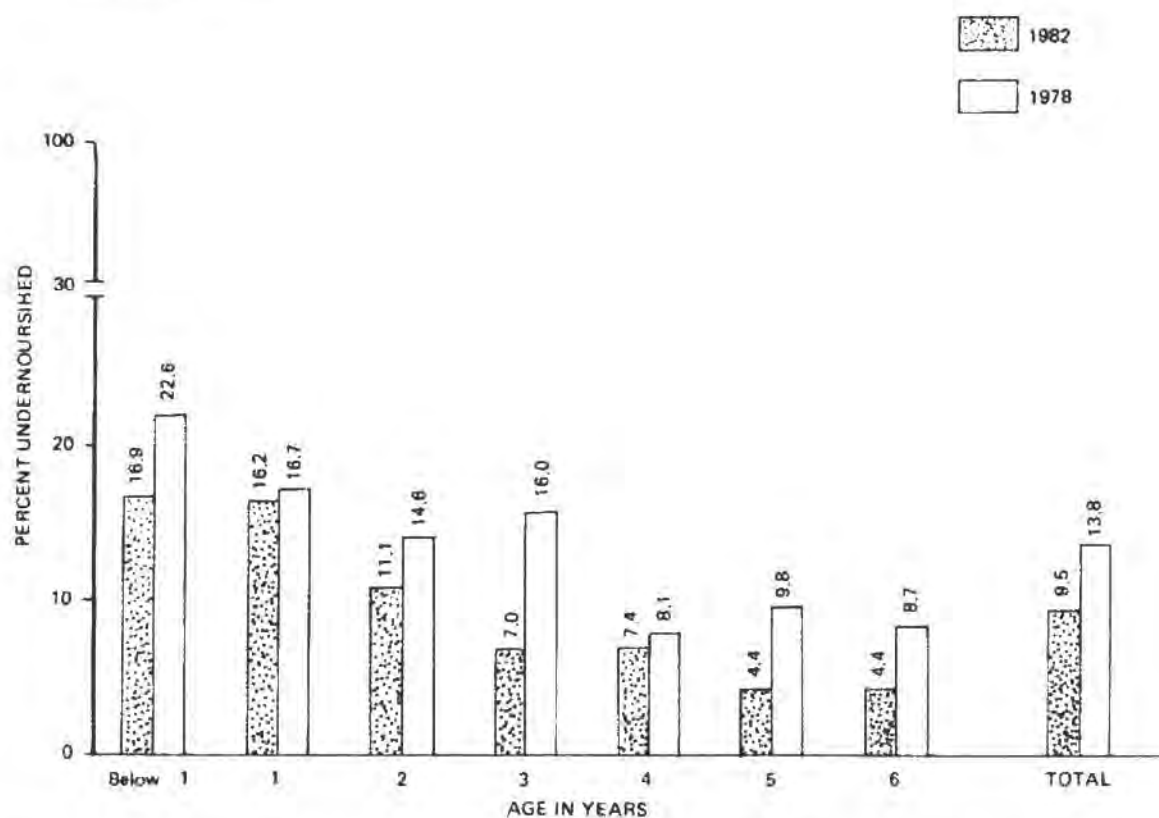


Fig. 11. Comparison of distribution of undernourished 0-16 years old children using weight for height standard by age. Philippines, 1978-1982.

Source: Phil. Journal of Nutrition, April-June, 1985

decreasing pattern while heart diseases and malignant neoplasms showed a gradually increasing trend.

Accidents include a wide range of spectrum namely: railway, motor vehicle and traffic accidents, water, air and space transport, poisoning, falls, fires and flames, submersion, suffocation and foreign bodies, accidents due to natural environment, adverse effects of drugs and medicaments, biological substances and late effects of accidental injury.

Cardiac diseases include acute rheumatic fever, chronic rheumatic heart diseases, ischemic heart diseases, hypertension with heart involvement, and other forms of heart diseases.

Nephritis, nephrosis, nephrotic syndromes and infection of the kidneys and malignant neoplasm show very similar rates and both occupy the 10th rank.

Nutritional status of children

From 1973 to 1983, there have been several number of surveys to assess the nutritional status of Filipinos, notably the Department of Health, Food and Nutrition Research Institute and the National Nutrition Center, with different findings which are in Table 5. To standardize data, we chose those of the Food and Nutrition Research Institute, in two (2) nationwide nutrition surveys of 1979 and 1982, which have been divided in 3 groups: food consumption, anthropometry, and clinical assessment.

a) Food consumption. In general, there has been an increase in the consumption of almost all food groups from 1978 to 1982. Highly significant increases in consumption were noted for sugars; meat and poultry (including eggs); dried beans, nuts and seeds; green leafy and yellow vegetables; miscellaneous foods. The overall increase in the consumption of these food groups have been attributed largely to the following: considerable focus by both government and private sectors on production of these commodities; massive campaign on the importance of green leafy and yellow vegetables in the diet through the Philippine Nutrition Program; and continued encouragement given to home production.

Reduced consumption were reflected in 2 food groups: cereals and cereal products and Vitamin-C rich foods.

Comparing nutrient intakes of the 2 survey periods, highly significant improvements were noted for riboflavin, protein and fat. Energy intake had no significant change. Ascorbic acid intake decreased from the 1978 intake level with the significant reduction in the consumption of Vitamin-C rich foods.

As regards nutrient sources of energy, the Filipino diet has remained characteristically carbohydrate in nature. In both surveys, carbohydrates constituted about 3/4 of the total one-day per capita.

b) Anthropometric measurements. The nutritional status of pre-schoolers (0-6 years old) was based on weight-for-height, weight-for-age and height-for-age indices. The pattern of malnutrition changes with each index for they measure different things.

Weight-for-height measurements provide a picture of current, acute malnutrition and is age independent until the age of 10-11 years. Using a cut-off point of less than 85% of the standard weight-for-height findings, there were 9.5% undernourished (moderate and severe) pre-schoolers out of the 3,615 subjects examined. These children may be suffering from acute malnutrition, needing priority action. The highest percentage of children found underweight-for-height were the 2-year olds and below. A downward trend in the prevalence of malnutrition among the undernourished children was found in the 1982 survey as compared with that of 1978 (Fig. 11). Highly significant decreases in the overall proportion of children with acute malnutrition was shown in 1982, representing a 31.2% nutritional status improvement over the 1978 survey. The overall proportion of under-weight-for-age children in the 1982 survey revealed a highly significant decrease of 21.5% than that of the 1978 survey.

Among pre-schoolers the rate was 20.6% as measured by height-for-age using a cut-off point of less than 90% of standard height for age. Height deficit tended to parallel the increase in weight deficit among the 1-3 years children. The height deficit found in infants may be the consequence of small size at birth rather than an indication of postnatal nutrition because it takes some time to develop skeletal deficits.

The nutritional status of school-age children (7-14 years old) was assessed using the percentage of standard weight-for-age. Using a cut-off of 70% of standard, 18.5% of these children were under weight for age. Height-for-age is a measure of past or chronic malnutrition and may be indicative of the history and effects of malnutrition in their early years of life. Among the 7-14 years old children, 24.6% were found below 90% of the standard height-for-age. About 14.7% of children 7-14 years old surveyed were both underweight and stunted. There were however, not enough data during the 1979 survey for comparison.

c) Clinical Assessment

1. Anemia assessment. The overall prevalence of anemia in the population is 26.6%. Among children, the prevalence of anemia was highest among the age group below 1 year (51.3%), as shown in Fig. 12. Their mean hemoglobin level of 10.68 g/dl was the lowest among all age groups. This may be due to an abrupt decrease in erythropoiesis and depletion of iron stores during the stage of rapid growth concomitant with intake of either breastmilk or unsupplemented cow's milk with low iron content. The iron requirement of infants, despite their much smaller body size is almost as high or higher than that of the adults.

2. Vitamin A deficiency. Clinical assessment of vitamin A deficiency in the 1982 survey included nightblindness and Bitot's spots among 2-6 years old Filipino children which were 1.6% and 1.4% respectively, indicating that vitamin A deficiency is a public health problem. The highest prevalence in nightblindness was among the 5-6 years old while that of Bitot's spots was on the 3-5 years old (Fig. 13). The highest prevalence of both nightblindness and Bitot's spots were in the 3-year old. The clinical findings of vitamin A deficiency may be closely

interrelated with the prevalence of undernutrition among pre-schoolers, using weight-for-height index. It could be presumed that those wasted and stunted pre-schoolers were deficient in protein, calories and fat which are very important in the conversion of B-carotene to arrive vitamin A and in its transport, absorption and storage. As vitamin A is important in maintaining the integrity of epithelial tissue, its deficiency may lead to signs and symptoms of early xerophthalmia among pre-schoolers.

3. Goiter prevalence. The highest goiter prevalence using the WHO criteria, was noted among the lactating women 13-20 years old (7.7) compared to the total goiter prevalence of 3.1 in the survey group. More females than males were noted to have goiter implying that the thyroid gland tends to increase in some until the end of the reproductive period because of the increased iodine requirements during child bearing and lactation. Thyroid enlargement noted among the non-pregnant, non-lactating women could be due to genetic predisposition and intake of goiterogenic substances.

4. Assessment of parasitological infection. One of the indirect ways to assess environmental sanitation status in the population is the parasitic prevalence rates. Intestinal parasitism was found in 69.3% of all subjects examined, with the 1-12 years old subjects having highly significant prevalence rates (Table 6). *Ascaris* was the most common parasite (51.6%) in the population.

A number of factors may play a role in these findings, to wit: poor hygienic practices of children and even adults, source of water supply and manner of garbage disposal.

Maternal health

Mother and child constitute one biologic unit. Directly or indirectly the health and nutrition status of the mother affects her offspring. Hence any discussions on child health from the period around birth to adolescence involves the mother.

A study of the Philippine maternal nutrition status presented the levels of biochemical parameters among pregnant woman with respect to iron, carotene, vitamin A, vitamin C and proteins. The study also presented the average per capita nutrient intakes computed to recommended dietary allowance (RDA). The results showed that 20 to 28 per cent of the subjects were "deficient to low" in vitamin A, 13 to 59 per cent in serum carotene, and 4 to 7 per cent in vitamin C.

As regards dietary intake, the mean levels of calories intake of subjects ranged from 83.5 to 101.6 per cent of RDA, while the intake of protein was 14.8 and 14.9 per cent, respectively, in excess of the recommended amounts for the subjects in the first and second trimesters of pregnancy. Iron intake not only 78.2, 82.4, and 61.8 per cent of RDA for the groups, respectively. The calcium intake for the third trimester subjects was quite low (47.3 per cent of RDA). The intake of vitamin A was 69 per cent of RDA for the second trimester subjects. Ascorbic acid intake was only 51 to 53 per cent of RDA.

Table 5. Prevalence of type of intestinal parasitism by age, sex and physiologic state of subjects: Philippines, 1982

Age, Sex and Physiological State	Number: Examined:	Types of Intestinal Parasitism									
		<i>Ascaris lumbricoides</i>	<i>Trichuris trichiura</i>	<i>Hook- worm</i>	<i>Enterobius vermicy- laris</i>	<i>Eschericia</i>		<i>Giardia lamblia</i>	<i>Schistosoma japonicum</i>	<i>Others</i>	<i>Any Parasite</i>
						<i>Histo- lytica</i>	<i>coli</i>				
Percent Positive											
Below 1 years	424	10.7	3.9	0.4	--	0	0.1	0	0	0	13.8
1 – 6 years	2,920	63.9	39.6	9.1	20.0	0.2	0.5	0.3	0.2	0.3	78.3
7 – 12 years	2,705	65.3	52.5	12.4	--	0.3	0.2	0.3	0.1	0.1	79.7
13 – 59 years											
(males	3,703	44.6	36.0	19.6	--	0.1	0.2	0.2	0.1	0	66.2
pregnant, non- lactating females)	3,420	46.1	37.6	12.3	--	0.2	0.3	0.1	0.1	0.1	65.3
60 years and over	886	35.0	35.7	20.0	--	0.3	0.1	0	0.4	0	61.1
Pregnant	246	59.1	36.9	14.3	--	0	0	0	0	0	69.1
Lactating	435	58.0	39.8	13.3	--	0.1	0.1	0.1	0	0	72.9
All Ages	14,739	51.6	39.3	13.7	--	0.2	0.3	0.1	0.1	0.1	69.3

¹A subject may be positive for more than one type of parasite.²Examination one only on 1 – 6 year old children.

The maternal mortality rate in 1975 was 1.4 per 1000 live births and 1.1 in 1979. The leading causes of maternal mortality in 1975 were hemorrhages (51.3%), hypertension (13.8%) and abortion (11.3%). By 1981 74.3% of birth occurred in the homes and 17.0% in hospitals, 2.5% in clinics and 6.2% in puericulture centers.

Basic health indicators

These are measures of progress commonly referred to as health indicators and include infant mortality, life expectancy and literacy. They represent aspirations of most nations and are efforts for wider progress as well as measures of specific achievements. Thus infant Mortality Rate reflects availability of safe water, mother's health and nutrition and quality of the home environment. Literacy rates represent the percentage of those over 10 who can read and write but for the poor to contribute to and benefit from the process of development. Life expectancy conveys quality of life and chances of death.

These indicators were incorporated in the targets of the International Development for the 1980s and were adopted by the UN General Assembly as goals for all nations to aim at by the year 2000, specifically IMR of 50 or less an average life expectancy of 60 or more and acquire lasting literacy requiring that every child should have at least 4 years of primary school education.

Table 6. Philippine development indicators on health.

<i>Indicators</i>	<i>1972</i>	<i>1982</i>	<i>1983</i>
Life Expectancy (in years)	57.0	62.6	62.5
Infant Mortality Rate (per 1,000 live births)	78.4	60.6	59.3
Crude Death Rate (per 1,000 population)	10.3	8.4	8.2
Hospital Bed-Population Ratio	1:815	1:612	1:615
No. of Rural Health Units (cumulative)	1,705*	2,019	—
No. of Barangay Health Stations (cumulative)	3,023*	7,250	—
MEDICARE			
Coverage (million persons, cumulative)	7.3	19.5	22.8
Beneficiaries (thousand persons)	55.4	1,384.2	1,443.3

*1975

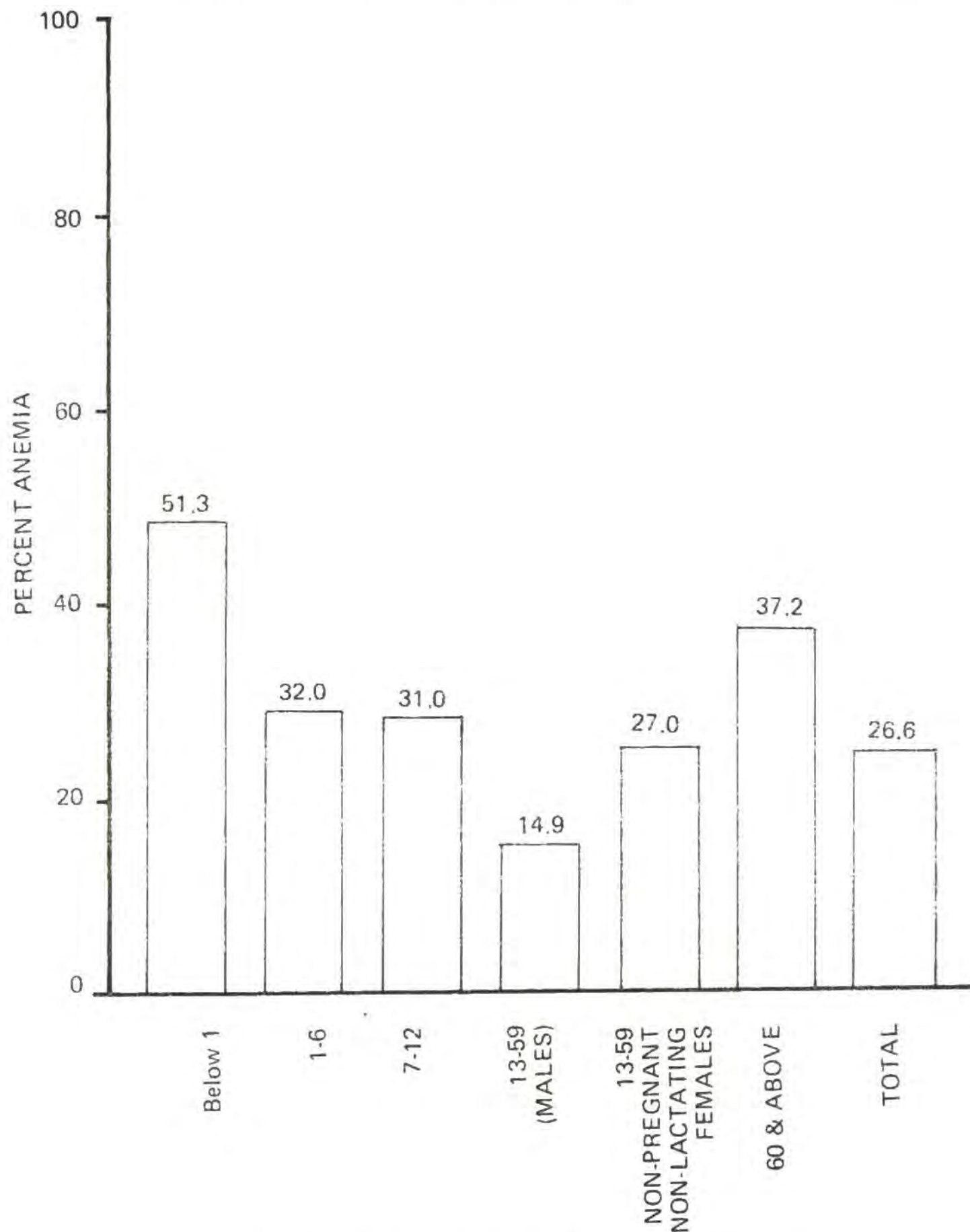


Fig. 12. Prevalence of anemia by age, sex and physiological state
Philippines, 1982.

Source: Phil. Journal of Nutrition, April-June, 1985

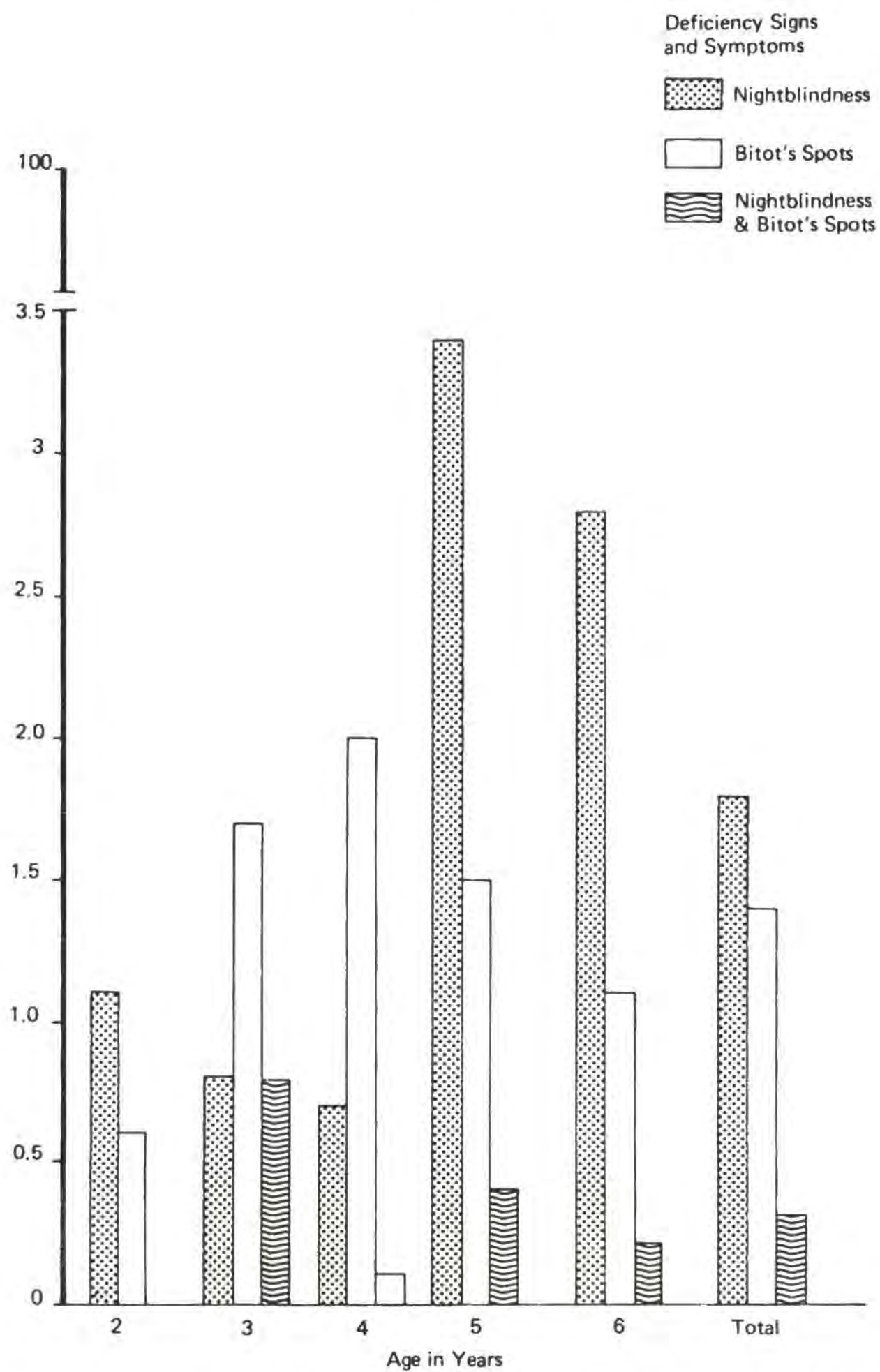


Fig. 13. Prevalence of nightblindness and bitot's spot among 2-6 years old Filipino children by age, Philippines, 1982.

Infant mortality rates (IMR)

Infant mortality rate, or the number of deaths below one year per thousand live births, is considered one of the most sensitive indicators of progress in children. It has been fittingly stated that IMR is the most revealing measures of how well a society is meeting the needs of its people. It reflects not only per capita stocks of food, clean water, and medical care but also the actual availability of such amenities to all members of the population.

IMR is increasingly important not only because of the health aspects and effects on the quality of life but also because of its social and economic implication and effects on national development. A graphic presentation of IMR in selected Asian countries is shown in Fig. 14.

In the Philippines, the IMR has decreased over the 10-year period under review, from 76.5 in 1973 to 59.3 in 1983 (Fig. 1). The infant death rate curve has shown an irregular but marked declining trend. An all time low IMR for the country was observed in 1978 (53.1). Mortality during the first 6 days of life account for 32.8% of infant deaths.

The leading causes of infant mortality are shown in Fig. 15 in practically the same order and with very slight differences from year to year. Pneumonias and gastroenteritis take the lead each year; seven (7) out of the ten causes are due to infections.

Life expectancy

Estimates indicate that the expectation of life at birth, or the average number of years that a baby, born during a specific period can expect to live, has accelerated to reach around 61 years in 1973; the increase has been slow but steady to 62.5 in 1983.

Table 7. Life expectancy in years (Projection only)

<i>Year</i>	<i>Male</i>	<i>Female</i>	<i>Difference</i>
1973	57.04	61.75	4.75
1974	57.90	61.75	3.83
1975	58.06	61.90	3.84
1976	58.53	62.39	3.86
1977	58.98	62.84	3.86
1978	59.39	63.25	3.86
1979	59.77	63.61	3.84
1980	59.80	63.4	3.6
1981	60.10	63.7	3.6
1982	60.4	64.0	3.6
1983	60.7	64.3	3.6

Literacy rate

The national literacy rate of Filipinos 10 years and over was 83.4% in 1975 and 82.7% in 1980. The urban literacy rates were higher than the rural rates with an average urban-rural difference of 12.9%. Despite this impressive record, studies show that college freshmen are poorly prepared for language skills, mathematics and the sciences.

The proportion of private household population 10 years old and over are able to read and write has slightly decreased from 83.36% to 82.72%. This however may be due to sampling errors. There was no difference in the literacy rate of males (82.82%) and females (82.63%) as of 1980. There is a higher rate of literacy in urban areas than the rural areas which is to be expected in view of the concentration of schools and accessibility in urban areas.

Table 8. *Private household population 10 years old and older who were able to read and write

	1970	1980
Total	83.36%	82.70%
Male		82.62%
Female		82.63%

*Private household population 7 years old and over by highest grade completed. Philippines 1975-1980.

	1980	
	Urban	Rural
Male	93.04%	76.70%
Female	92.0%	76.35%

Crude birth rate

The crude birth rate which indicates the general magnitude of the fertility level of the population, has increased from 26.1 per 1,000 population in 1973 to 29.0 per 1,000 population in 1983, registering an 11.1% increase in the 10-year span. The rates increased gradually with the highest (30.7%) rate being noted in 1979, followed by a gradual decline up to 1983 (Fig. 16). The lowest crude birth rate recorded was 24.8 per 1,000 population in 1972. Although the crude birth rate has shown a general declining trend since 5 decades ago, changes were rather slow and irregular.

Crude death rate

The crude death rate is a measure of the average risk of death of the population at large. It has decreased by 10% from 7/1000 population in 1973 to 6.3/1000 population 1983 as shown in Fig. 16 representing 327,260 deaths. This pattern of a general downward trend with slight thoughts as has been the pattern for the past 4 decades.

Programs and Strategies

Primary health care (PHC)

It will be recalled that in 1978 a global conference was held in Alma Ata, Russia, in which PHC was promulgated and adopted by 130 nations. A basic approach was developed towards the provision of health services that are accessible, affordable and sustainable by the community. This brings health care closer to the children and their families and reaches out as far as possible to where people live, work and survive. PHC has been adopted and implemented in the Philippines as a national program and a major health activity since October 19, 1979. DOH was directed to design and develop programs which will focus on health development at the community level particularly in rural areas and utilizing PHC system to control and eradicate the immediate and specific health problems in Philippine communities.

In general the objective of PHC is to mobilize communities and make them participate effectively in identifying their health needs and in providing their solutions through self-reliance and self-determination. Components of PHC are: a) health education; b) MCH and family planning; adequate food supply and proper nutrition; c) environmental sanitation; including adequate supply of safe water; prevention of communicable diseases; the use of essential drugs.

National program for the control of diarrheal diseases

The National Program of the Control of Diarrheal Diseases (CDD) of the Ministry of Health (MOH) was formerly launched in October, 1980 with the following objectives. 1) to reduce mortality from the diarrheal diseases among children less than 5 years old by 75% in 1987 through extensive use of Oresol and 2) to bring down diarrhea morbidity by 50% in 1987 through strengthening the components of Environmental Sanitation, Nutrition, Maternal and Child Health, Surveillance, Epidemic Control and Health Education.

Oresol production, was started in 1977 on a small scale and in 1980, its production has increased 12.6 times.

After 4 years of implementation, the impact of the CDD Program was evaluated jointly by representatives of the MOH, WHO, UNICEF and USAID from January 28 – February 11, 1985. A report on the comprehensive program review has shown that some impact on the mortality from diarrheal diseases has been

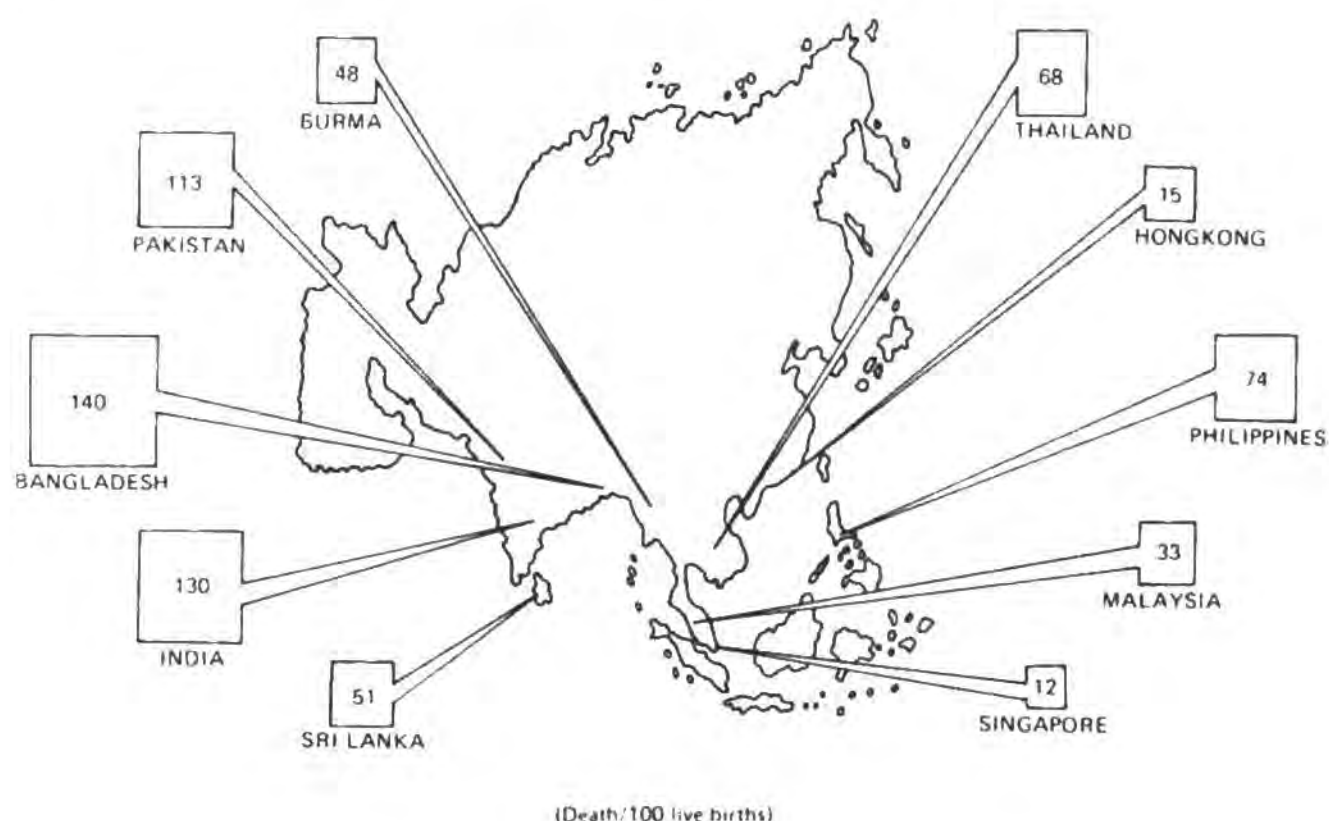


Fig. 14. Infant mortality in selected Asian countries 1975.

observed among children less than 5 years old based on data collected by the Disease Intelligence Center, MOH. Despite under-reporting, the reduction in the mortality rates by 52% from 1978 to 1982 reflects to some extent the impact of the program, considering the fact that was only a 17.8% reduction in the mortality rate from all causes in the same period. This reduction in mortality in diarrheal diseases is inversely proportional to the amount of Oresol produced (Fig. 17).

Important to note is that the data of this review came from 2 different sources; the National Census and Statistic Office and the Disease Intelligence Center.

Expanded program of immunization

The Ministry of Health with the assistance of UNICEF and WHO launched its Expanded Program on Immunization (EPI) on July 12, 1976 with the following objectives: 1) to reduce morbidity and mortality of the 6 EPI diseases (tuberculosis, diphtheria, pertussis, tetanus and measles, poliomyelitis) by increasing the proportion of fully immunized children in their first year of life; 2) to reduce the incidence of neonatal tetanus by providing pregnant women with tetanus toxoid immunization.

The first effort of the Philippine program was to give BCG to school entrants. In 1977, BCG and DPT were given to 3-14 months old children in priority areas and in 1979, and BCG and DTP program were expanded nationwide.

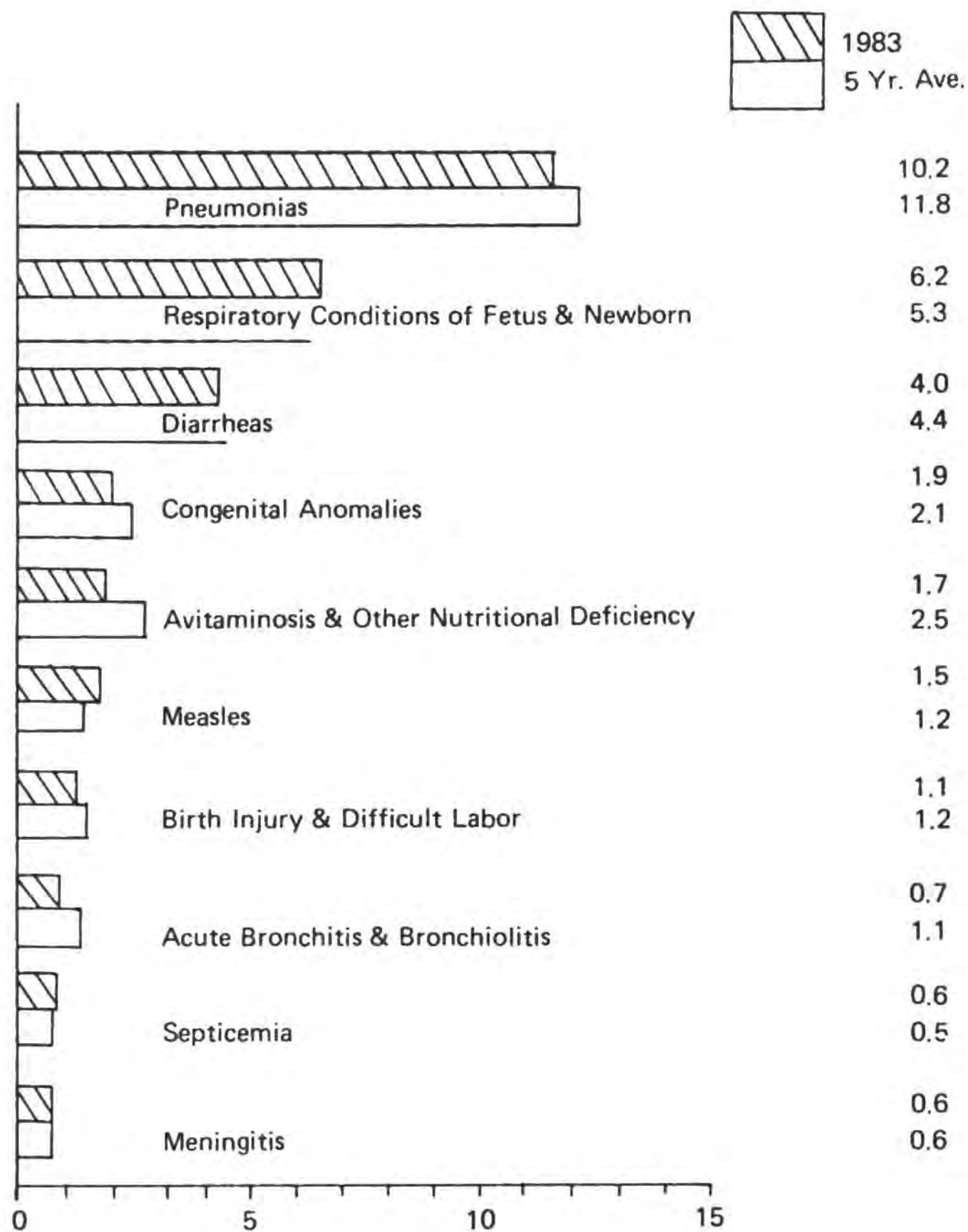


Fig. 15. Infant mortality: leading causes rate per 1,000 live births
Philippines.
5 yr. ave. (1978-1982) and 1983.

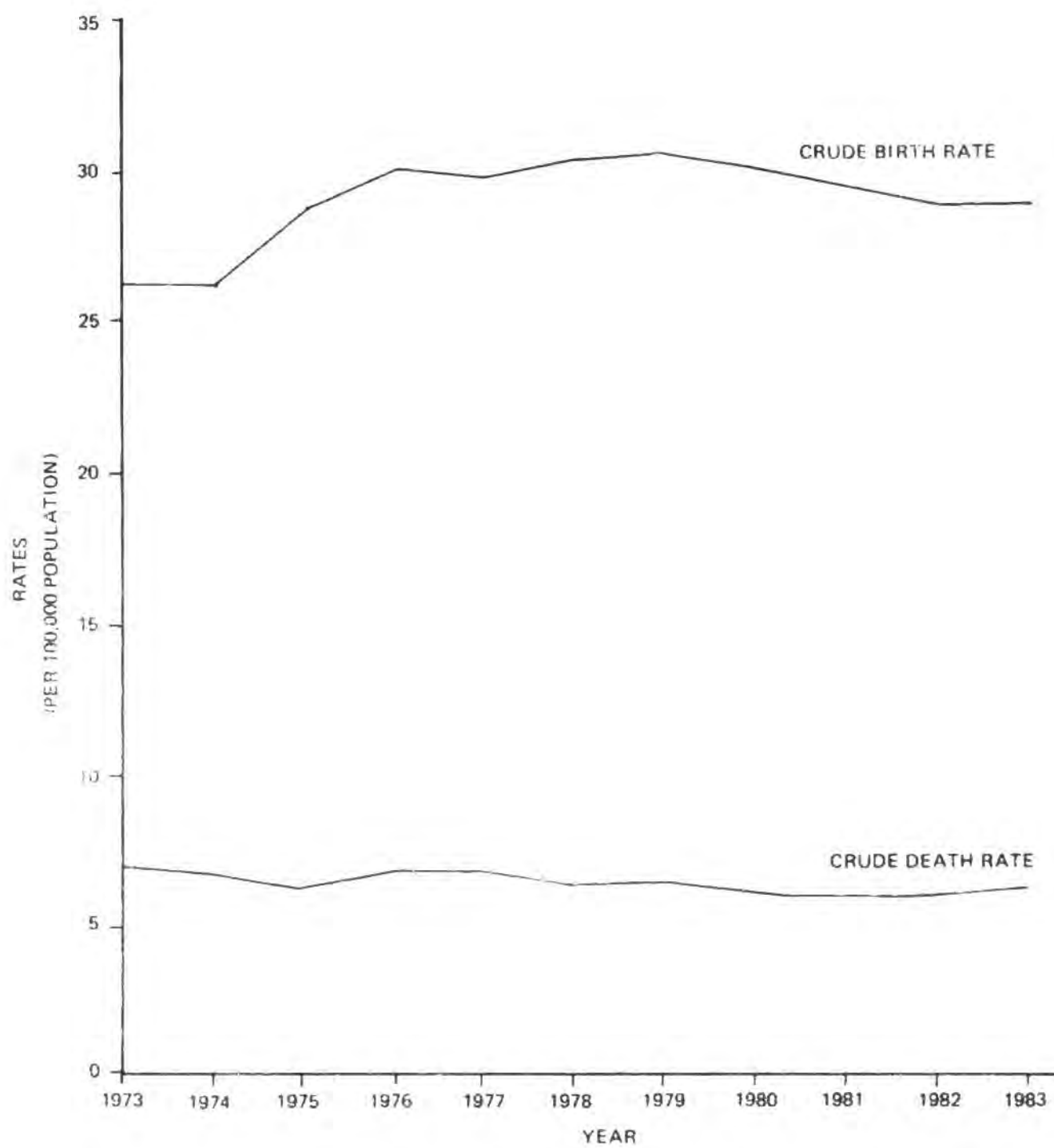


Fig. 16. Crude birth and death rates.

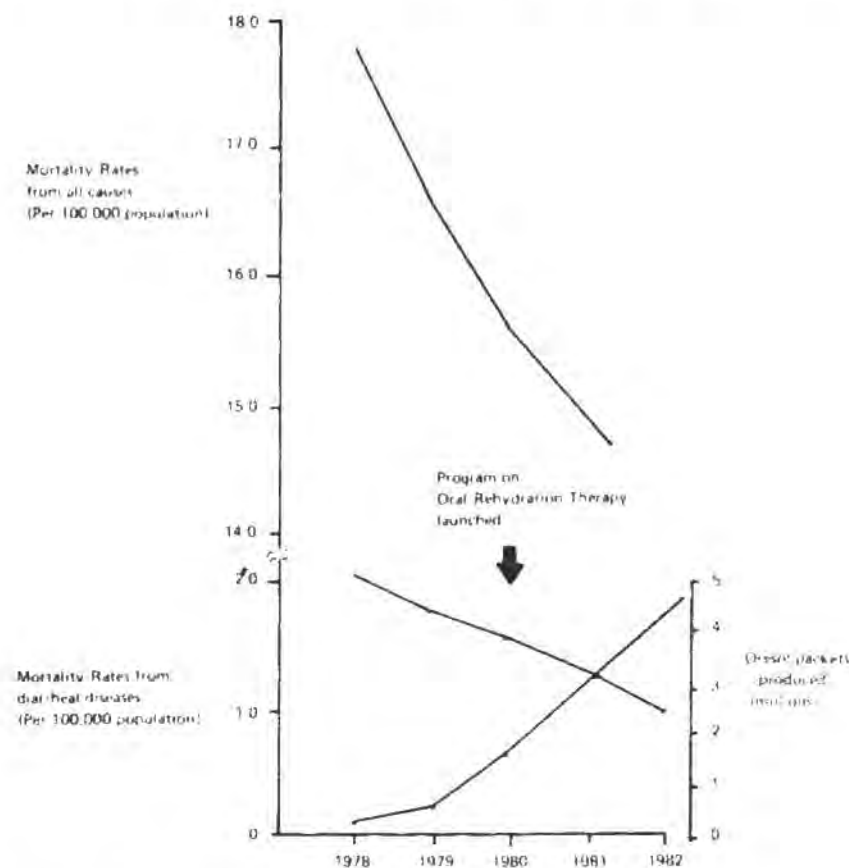


Fig. 17. Relationship of mortality rates from all causes and from diarrhea diseases with oresol* production, Philippines, 1978-1982.

Oral polio vaccine was started in 1980 among 3-14 months old children. In the same year, tetanus toxoid for pregnant women was given nationwide. Measles vaccination started recently in 1982. Figs. 18-23 are shown the morbidity and mortality rates of the 6 immunizable diseases among children 0-6 years old from 1973 to 1983. Superimposed on these are the percentage of coverage of the vaccines in their targeted population.

There is a significant and sustained drop in the morbidity and mortality rates of poliomyelitis, diphtheria, pertussis and tuberculosis noted after the start of immunization campaigns on the specific diseases in a nationwide scope. Anti-measles immunization started in 1982 so that it would be too early to assess its effect on the morbidity and mortality rates of the disease.

Promotion of breastfeeding

Aware of the universally recognized fact that the unfavorable trend from breast to bottlefeeding is detrimental to progress in nutrition and survival of infants, a campaign to promote breastfeeding has been undertaken in the Philippines, first through private individuals and groups but eventually under government leadership, through retraining of its personnel, using mass media to publicize superiority of breastfeeding over artificial formulas and instructions in hospitals and health centers. The present program in urban communities aims to change lay and medical attitudes, including hospital routines adverse to breastfeeding promotion.

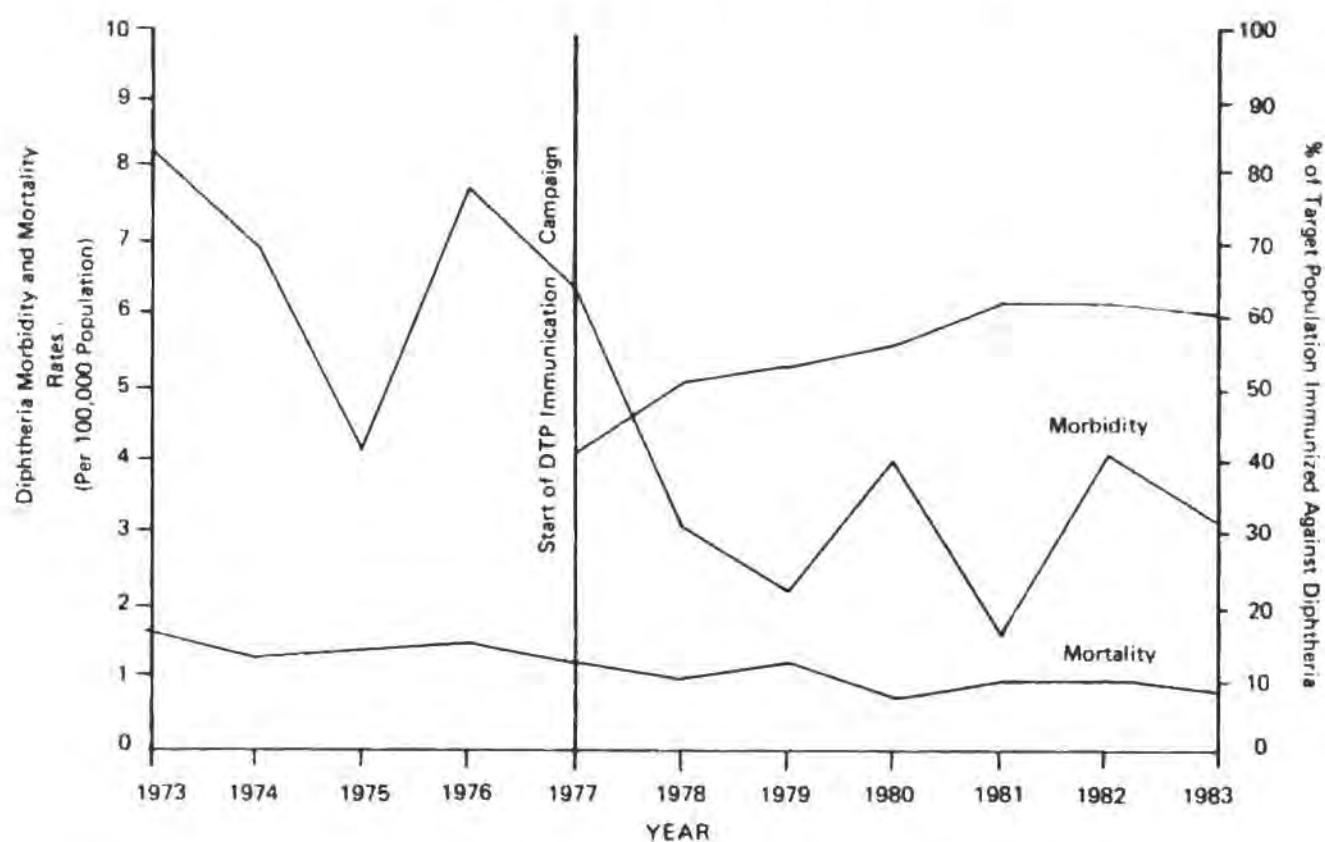


Fig. 18. Morbidity and mortality rates of diphtheria and percentage of target population* immunized against diphtheria.**

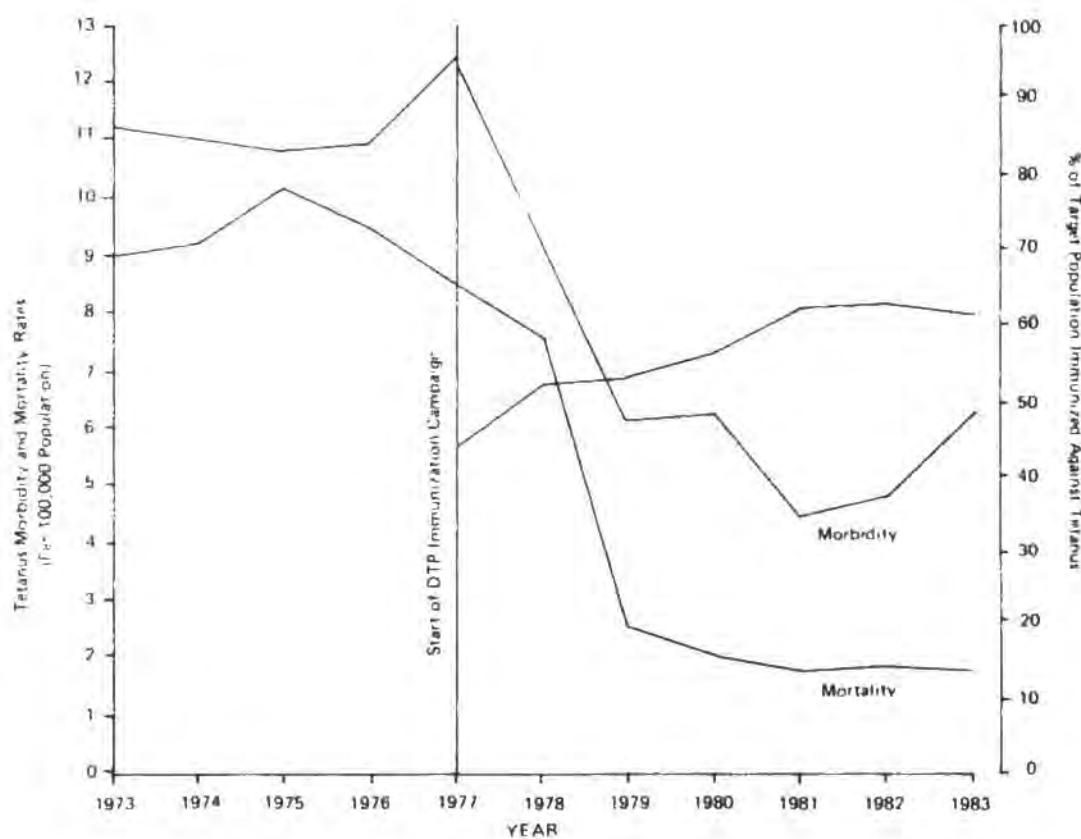


Fig. 19. Morbidity and mortality rates of tetanus and percentage of target population* immunized against tetanus.**
Philippines, 1973-1983.

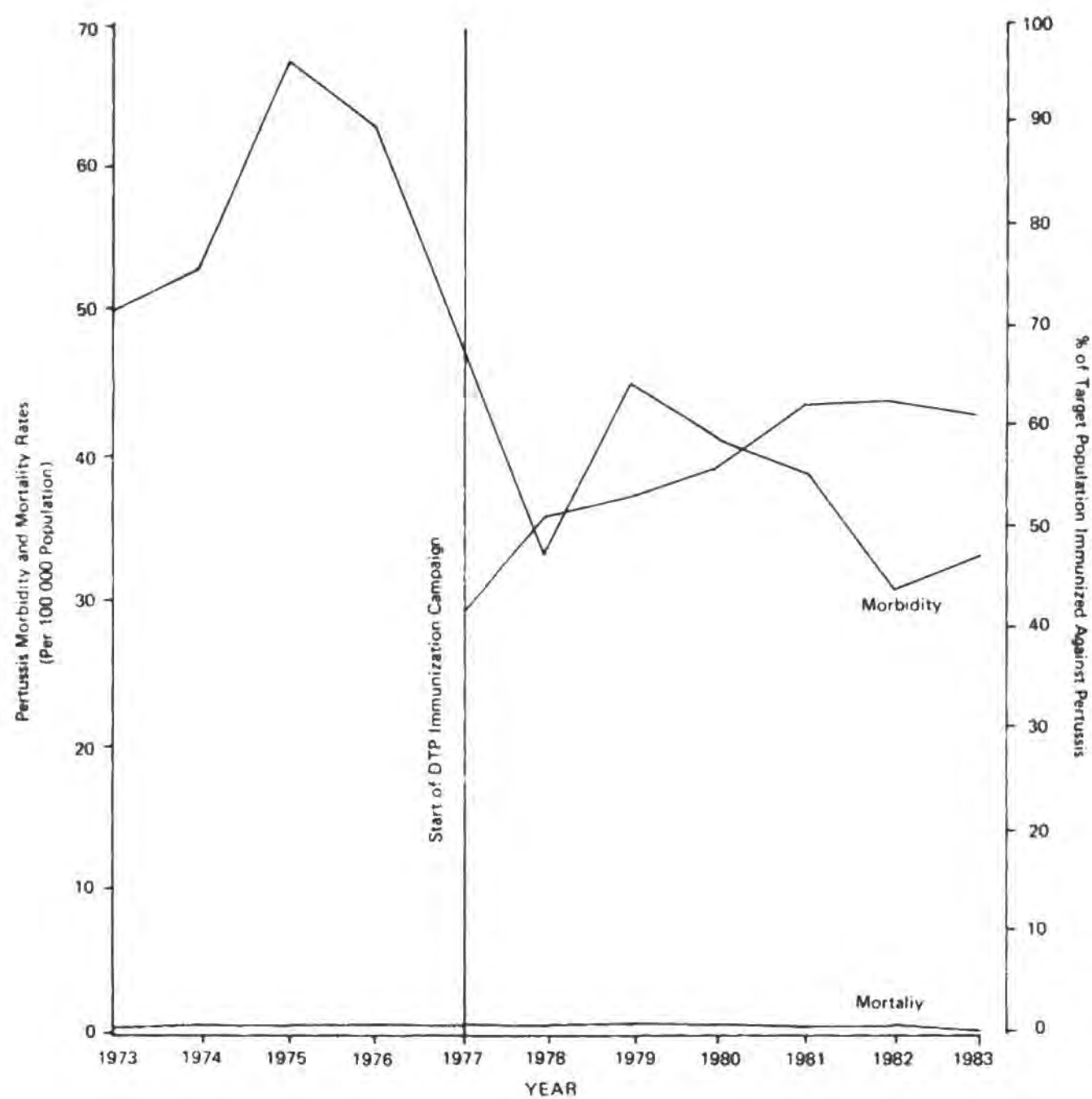


Fig. 20. Morbidity and mortality rates of pertussis and percentage of target population* immunized against pertussis.**

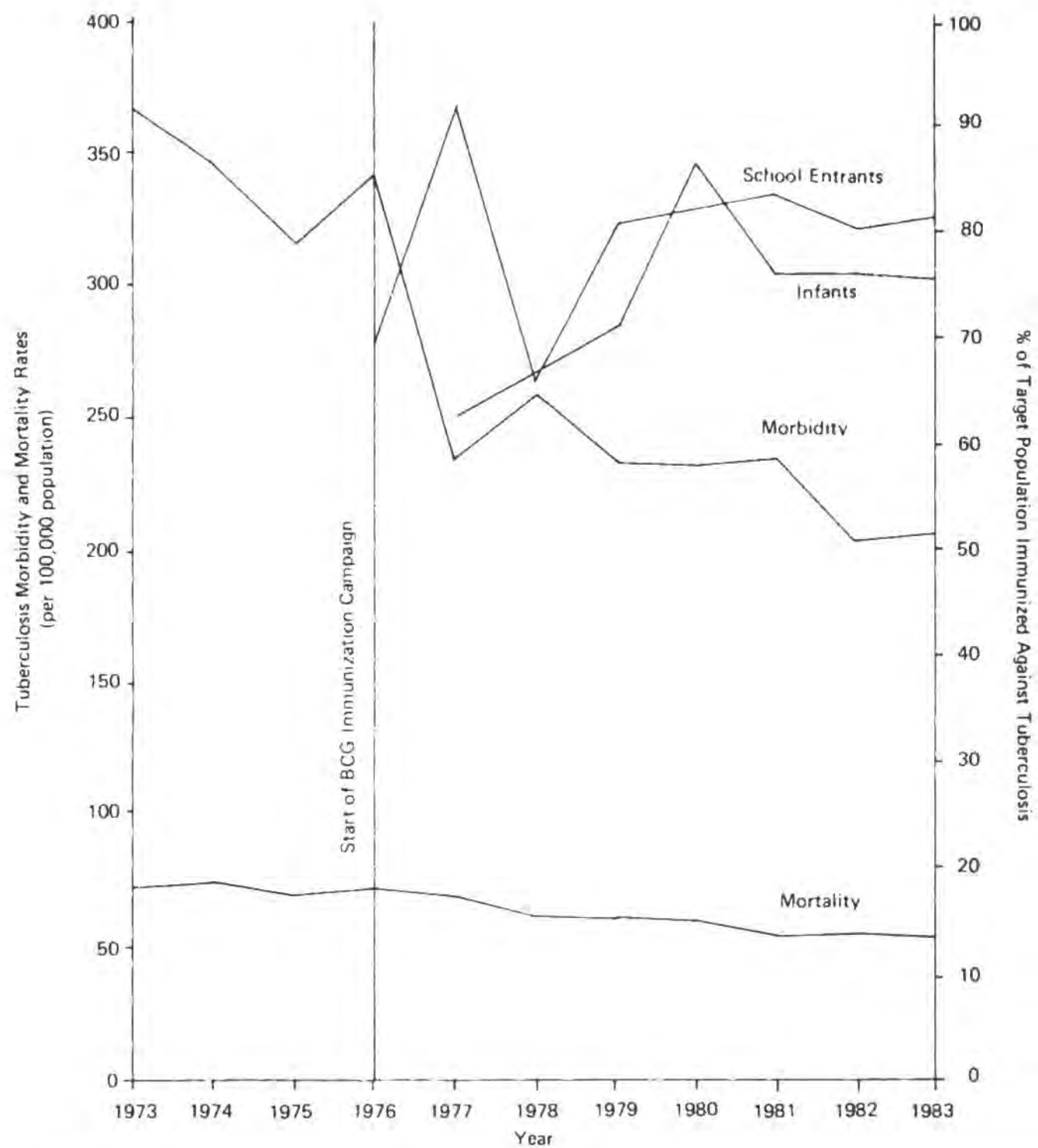


Fig. 21. Morbidity and mortality rates of tuberculosis and percentage of target population* immunized against tuberculosis. Philippines, 1973-1983.

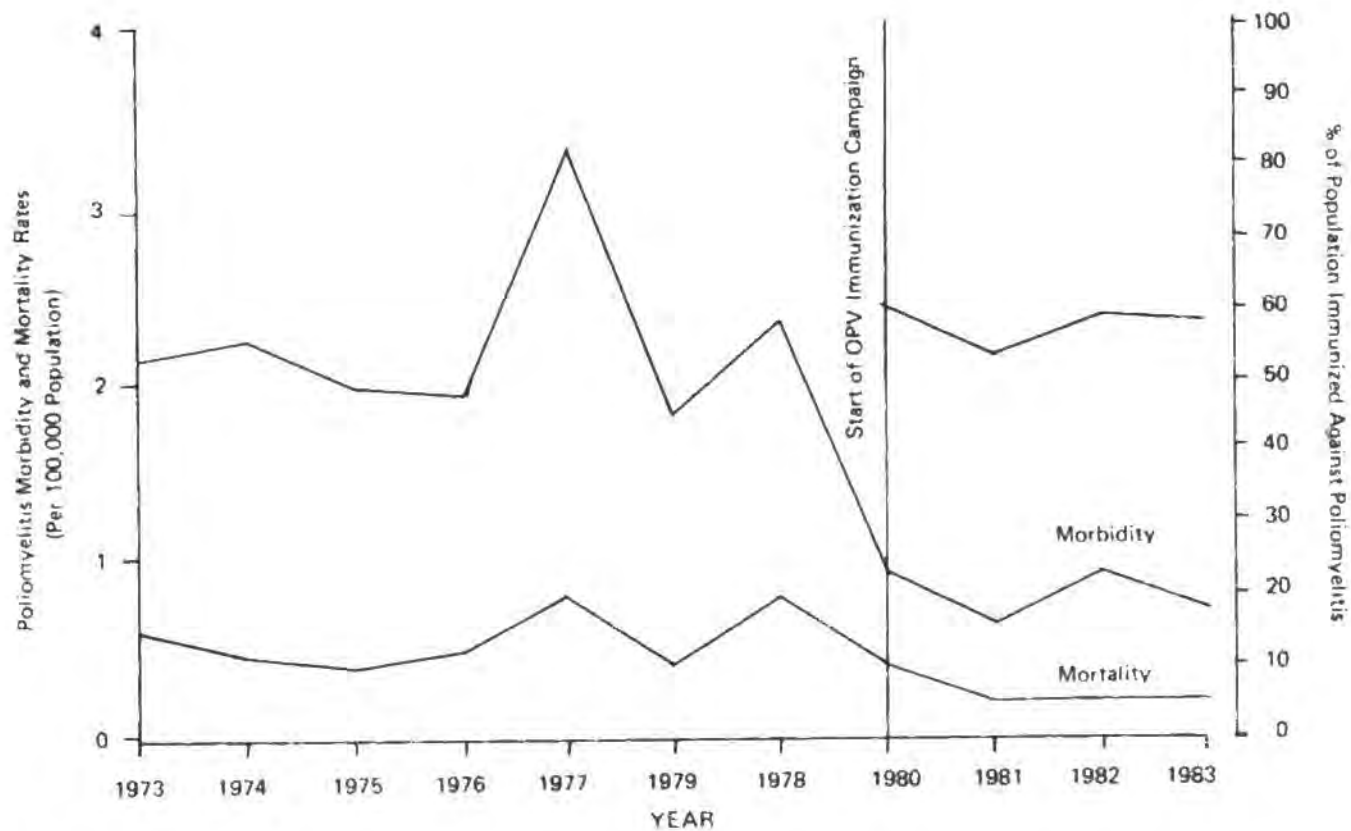


Fig. 22. Morbidity and mortality rates of poliomyelitis and percentage of target population immunized against poliomyelitis. Philippines, 1973-1983.

Quoted in the 1984 UNICEF report is the observation that in the Philippines by encouraging breastfeeding instead of bottlefeeding among newborns at Baguio General Hospital, clinical infections were reduced by 88%, diarrheas by 93% and infant mortality by 95%.

A study of the incidence of breastfeeding in Luzon in 1974 indicated that this is practised by only 52% of mothers in Luzon, with 2½ times by percentage of breastfeeding mothers in rural than in urban areas. On the other hand, mixed and bottle feeding are practised more often by urban than by rural mothers. Notably there are low diarrheas cases in rural areas where by getting is still the practice.

The International Code on the Marketing of Breast Milk substitutes which was readily adopted by 35 nations in 1981 to change marketing procedures has increased to 130. Political will has decidedly given momentum to the promotion of breastfeeding. Favorable effects have been observed and commended as an effective measure to reduce the "most unnecessary malnutrition of all". In the Philippines, the Code was finally signed by the President in January, 1987.

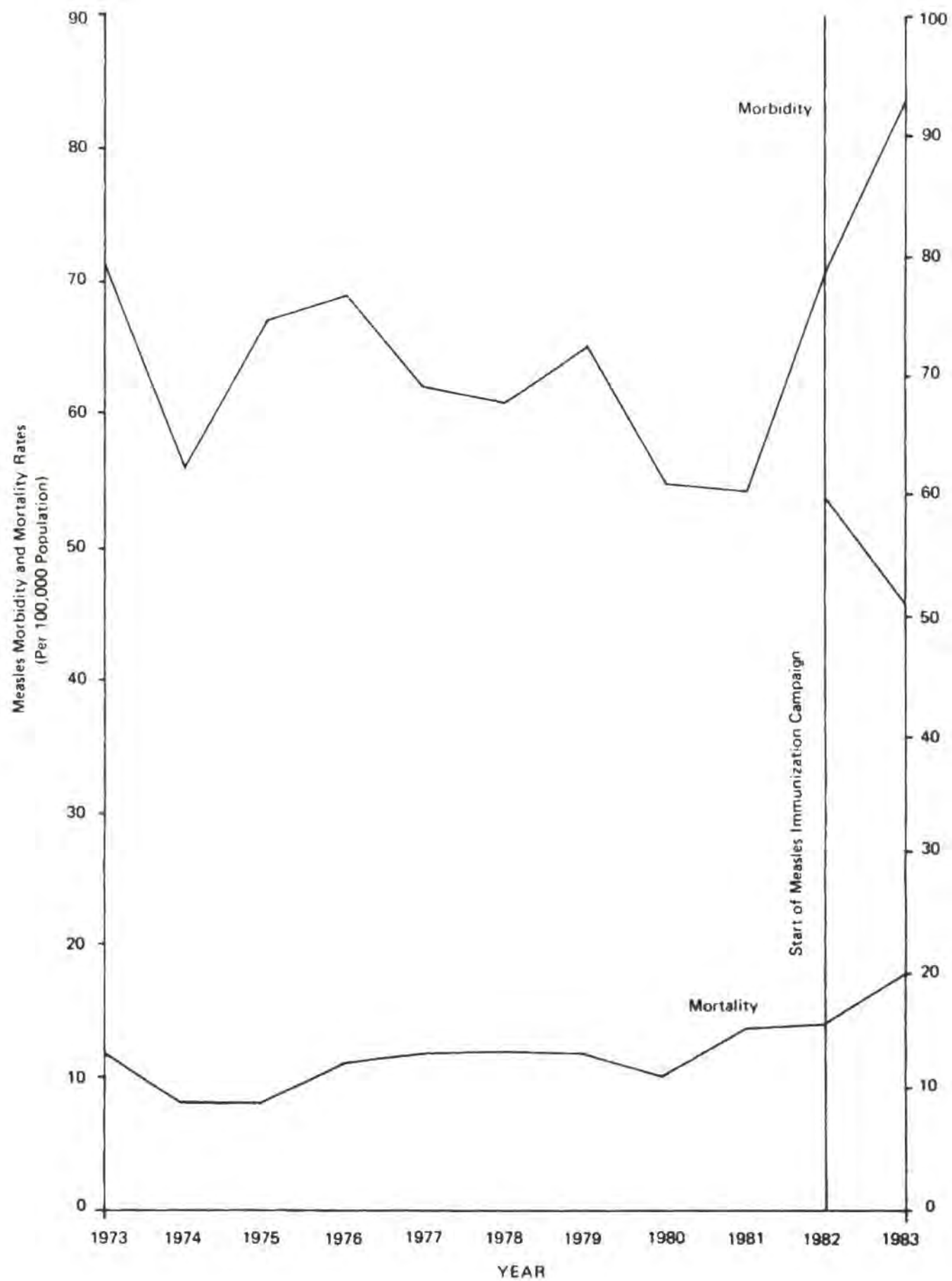


Fig. 23. Morbidity and mortality rates of measles and percentage of target population* immunized with antimeasles vaccine.
Philippines, 1973-1983.

Summary

A study of the trend in the health and nutrition of Filipino from birth to 19 years old was conducted for the decade 1973 to 1983. The main objective is to gather data and information on the attainment and achievement of a decade by agencies in government or in private concerns, whether as individuals or in groups and to determine problems and possible solutions to improve quality of life of the future citizens and resources of the country.

As in most developing countries, children in the Philippines constitute the large proportion of the population (52.9%) in 1983. This large young dependent sector necessarily have exerted pressures on the resources and facilities of the country.

Basic health and development indicators of the country show a life expectancy in 1983 of 62.5 years (an increase of 2.4% during the decade); an Infant Mortality Rate of 59.3 (a decrease of 22.5) and a Literacy Rate of 82.7.

Trends in these indicators show an improvement in the quality of life brought about by many factors including improved health and nutrition services and increased health education activities.

The morbidity and mortality rates have declined, particularly for the immunizable diseases (TB, diphtheria, tetanus, whooping cough, poliomyelitis and measles and also tetanus for mothers). The use of oral rehydration therapy has helped reduce mortality from diarrheas. In general, communicable diseases death rates decreased by 28.6. In the case of tuberculosis, mortality in this age group decreased by 15%. Pneumonias remain as a major health problem.

The nutritional status of pre-schoolers with weights higher than 75% of Filipino standard weight for age has improved by 8% in 1983.

Maternal death rate has decreased by 28.6% during the period under review. The leading causes of deaths were hemorrhages 51.3%, hypertension (13.8%) and abortion (11.3%). More mothers delivered in the hospitals (74.3%) which was 75 to 78% early in the decade. Maternal nutrition studies has shown that a small percentage had low levels of Vit. A and Vit. C while iron take was less than the recommended dietary allowance for the 3 trimesters, the lowest was in the last trimester.

An overall improvement in the health and nutritional status of children 0-19 years in the decade 1973 to 1983 is reported, although this may not be impressive nor highly significant.

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Bibliography

- Philippine Health Statistics, Disease Intelligence Service, Ministry of Health, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982 and 1983.
- Annual Health Report. Department of Health, Republic of the Philippines 1983.
- Philippine Statistical Year Book 1986. National Economics and Development Authority, Republic of the Philippines.
- The State of the World's Children United Nations Children's Fund (UNICEF) Grant James P. 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987.
- The State of Asian Children Pre-Congress Symposium on Social Pediatrics. Santos-Ocampo P.D. Kuala Lumpur, Malaysia, June 1985.
- Pediatrics in the Tropics Current Review. Henrickse R.G. Oxford University Press. Oxford 1980.
- Health and Nutrition Sector Report, Council for the Welfare of Children. National Study on the Situation of Children and Youth in the Philippines 1985.
- del Mundo, Fe. Concerns on the Reduction of Infant Mortality in Asian Countries (for publication) 1983.
- LBW Neonates and Surrounding Factors in Communities in 11 Health Regions of the Philippines (1983-85). del Mundo, Fe, Cruz, C, and Fonte, A.V.
- This year 800,000 Children Owe Their Lives to Immunization. Robinson, R.J. Developing World Grosvenor Press International LTD 1986.
- The Child and Youth Welfare Code PD 603.
- Proceedings of Workshop on Breastfeeding and Supplementary Foods Bangkok, Thailand 1979.
- Health for all Filipinos through Primary Health Care, Ministry of Health, 1983.
- Report of the Joint MOH/WHO/UNICEF/USAID Comprehensive Program Review. Jan. 28 - Feb. 11, 1985, CDD Program, Ministry of Health. 1985.
- 1986 Philippine Statistical Year Book, 1986 National Economic Development Authority, Philippines.
- 1974 Philippine Statistical Year Book. 1974 National Economic Development Authority, Philippines.
- 1984 United Research Demographical Year Book United Nations 1984.
- Population Growth Rate. National Census and Statistics Center 1970; 1975, 1985, Phil.
- Magbitang, JA, Purita, AV, Bulatao-Jayme, J. *et al.* First Nationwide Anthropometric Survey Philippines, 1978. Philippines. Journal of Nutrition, April-June, 1983.
- Flores, EG, Magbitang, JA, Florentino, RF, *et al.* Second Nationwide Nutrition Survey Philippines 1982. Part A Food Consumption and Nutrient Intake. Phil. Journal of Nutrition, Jan.-March, 1985.
- Flores, EG, Magbitang, JA, Florentino, RF, Pingol, CC, Cilindro, TA. Second Nationwide Nutrition Survey, Philippines, 1982. Part B. Anthropometre. Anemia and Clinical Surgery.