COMMUNICATION

Prevention of Communicable Diseases in Infants in Indonesia

by

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Abstract

Indonesia consists of more than 3000 islands. In 1979 the population is estimated to be 145 million. Communicable diseases and malnutrition are major health problems in rural and urban areas.

Poverty, ignorance, exploitation of the environment and resources and ill health are responsible for the high childhood morbidity and mortality. Fifty percent of all deaths occur in the Under — Fives' group and infant mortality constitutes half of it. The communicable diseases are :

1. *diseases related to poor hygienic andsanitary conditions 2. disease preventable through immunizations 3. vector borne diseases 4. diseases transmitted through direct contact*

The Indonesian Ministry of Health has identified the following health problems :

— *environmental problems due to physical and biological factors*
— *environmental problems due to socio-cultural factors including lack of community participation*
— *problems due to the unsatisfactory health status of the community*
— *health manpower problems*
— *problems due to inefficiency in management and health facilities*

Improvement of health service delivery system is done by means of a better outreach to the rural districts, giving priority to the low-income groups and encouraging the community's participation in health activities. Simple, inexpensive methods should be used which are adapted to the conditions and way of life of the community in the prevention of communicable diseases in infants.

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Introduction

Indonesia is an archipelago consisting of more than 3000 islands extending over 4500 kilometers from east to west and 1500 kilometers from north to south with an area of 1.904.345 square kilometers.

In 1979 the population is estimated to be 145 million with an annual increase of 2.0 — 2.4%.

The people are of Malayan stock with Mongolian influence, consisting of 54 ethnic groups with Islam as the predominant religion and in addition also Christianity, Hinduism, Buddhism and Taoism. Traditional Beliefs are still found in certain parts of the country. The majority of the people lives in the rural areas (82.6%).

Forty-four percent belong to the age group of 0 - 14 years and 40% are still illiterate. About 48% of the population live under the poverty line and the annual G.N.P. is about US $ 200.—

Health status of the population

Communicable diseases and nutritional deficiencies are major health problems in rural and urban areas. Poverty, ignorance, exploitation of the environment and resources and ill health are responsible for the high childhood morbidity and mortality.

Information about diseases and other health problems in Indonesia is not yet accurate consequently data on vital statistics are also not very accurate. About 30% of all deaths are not reported and clinical autopsy is rarely done.

Crude birth rate is 36 per 1000 population, crude mortality rate is 16 per 1000 population/year, perinatal mortality rate is 73 per 1000 population, infant mortality rate is 100 - 125 per 1000 live births.

Fifty percent of all deaths occur in the Under Fives group and infant mortality constitutes half of it. Childhood mortality in Indonesia is 30 - 40 times higher than in the developed countries whereas the death of adults is only 2 - 3 times higher.

Expectation of life at birth is about 50 years, but if a child succeeds to reach the age of 5 years his life expectancy becomes 63 years. (Rohde et al., 1978).

Communicable diseases

Communicable diseases caused by living organisms, which can be passed from the infected individual to other susceptible persons can be divided into 4 different classes (Sudiyanto, 1979), namely :

1. diseases related to poor hygienic and sanitary conditions : cholera, gastroenteritis, salmonellosis, intestinal parasites, skin and eye infections, infectious hepatitis.
2. diseases preventable through immunization: tuberculosis, smallpox, tetanus (including neonatal tetanus), pertussis, diphtheria, poliomyelitis, measles, rabies.

3. vector borne diseases: malaria, dengue hemorrhagic fever, filariasis, schistosomiasis, plague.
4. diseases transmitted through direct contact: leprosy, framboesia (Yaws), varicella, mumps, acute respiratory tract infections, venereal diseases.

Diarrheal diseases still constitute one of the major causes of morbidity and mortality in Indonesian children. With oral rehydration, if necessary simultaneously with intravenous fluid drip therapy and promotion of breastfeeding the case fatality rate of diarrheal diseases including cholera has been dramatically reduced from 62,2% in 1959 to less than 6% at present. (Tumbelaka and Sunoto, 1978).

Since 1974 Indonesia is free of smallpox. Dengue Hemorrhagic Fever constitutes one of the major public health problems in South East Asia now also in Indonesia.

Early recognition of cases and an appropriate treatment have resulted in a decline of the case fatality rate in Indonesia from 41.4% in 1968 to 6.5% in 1975.

The case fatality rate of Salmonellosis in hospitals is around 10.6%. As for intestinal parasites the prevalence rate among children under five years is 809 per 1000 population of the same age for ascariasis. For hookworm infestation it is 240 per 1000 population of the Under Fives.

The incidence rate of tetanus (neonatal and non-neonatal) is 0.88 per 1000 population. Tetanus neonatorum itself has an incidence rate of 11 per 1000 live births.

Pertussis and paralytic poliomyelitis have an incidence rate in children under five years of respectively 10 and 0.7 per 1000 population of the same age.

Diphtheria has a case fatality rate in hospitals of 20%, primarily among children and a proportional rate of 2%.

Malaria, filariasis and schistosomiasis are mainly seen outside Java. Plague is under control. The incidence rate of varicella and measles in children under five years is respectively 519 and 596 per 1000 population of the same age.

Mumps has an incidence rate of 3 per 1000 population. Acute upper respiratory tract infections has an incidence rate of 803 per 1000 population whereas for acute lower respiratory tract infections it is only 77 per 1000 population.

Leprosy, framboesia and venereal diseases are not much seen in children.

The disease pattern of patients visiting the OPD and those admitted to the Department of Child Health, University of Indonesia Jakarta is different. The five major diseases of the OPD patients are (Sutejo et al., 1976).

1. Upper respiratory tract infections,
2. Gastroenteritis,
3. Protein Energy Malnutrition,
4. Vitamin A deficiency,
5. Tuberculosis,

In 1978 the 10 major diseases of the patients admitted to the same Department are :

1. Diseases of the gastrointestinal tract,
2. Pneumonia,
3. Convulsions, (mentioned separately as long as underlying disease remains unknown).
4. Tetanus,
5. Dengue Hemorrhagic Fever,
6. Severe P.E.M. (kwashiorkor and marasmus),
7. Encephalitis,
8. Diphtheria,
9. Typhus abdominalis,
10. Purulent meningitis.

Patients are also admitted for tuberculosis, diseases of the blood (anemia, leukemia, thalassemia), diseases of the kidney, asthma and heart disease (Tumbelaka, 1979).

Perinatal problems

Infections (tetanus neonatorum, gastroenteritis, sepsis, meningitis), low birth weight, neonatal asphyxia, neonatal jaundice, malformations and injuries are the main causes of death during the neonatal period (Monintja, 1979). The case fatality rate of neonatal tetanus is still high (around 85%). More than 80% of all deliveries are still done by traditional midwives.

Nutritional deficiencies

According to hospital statistics from 9.2% to 21.4% of all babies born in those hospitals are underweight. This is considered a manifestation of intrauterine malnutrition due to the unsatisfactory health and nutritional status of the mothers.

Malnutrition, diarrheal diseases and respiratory tract infections (pneumonia) are the main causes of death of infants and children. Malnutrition and infections are often seen simultaneously in infants and children and both conditions usually have an adverse effect on each other.

About 30% of the children under six years suffer from mild to moderate P.E.M., whereas 3% are in a serious malnourished condition (kwashiorkor, marasmus).

In 7% of pregnant women and 3% of lactating mothers malnutrition is also found. Every year 45.000 to 90.000 children under six years run the risk of becoming blind; 1.4 million suffer from mild eye diseases and 15 million have hemeralopia or a low vitamin A content of the blood. Nutritional anemia due to iron deficiency is found in 40% of the children under five years, 31% of the school children, 70% of pregnant women and 40% of the low-income labour force. Twelve million are suffering from endemic goitre, 100.000 will become cretins and 500.000 cretinoid due iodine deficiency (Unicef, 1977).

Major health problems

The Indonesian Ministry of Health has identified the following health problems to be solved with the current Third Five Year Development Plan (Gambiro Prawirosudirdjo, 1979).

I. Environmental problems due to physical and biological factors : tropical climate enabling the easy spread of infectious diseases (bacteria, parasite, virus), presence of natural and man made breeding places, problems of sanitation, safe water supply, waste disposal etc.

II. Environmental problems due to socio-cultural factors including lack of community participation : poverty, ignorance, traditional customs, habits and beliefs, etc.

III. Problems due to the unsatisfactory health status of the population. In this connection the problems of infectious diseases, parasite infestations and nutritional deficiencies have already been mentioned before. The medical demand of the community is different for rural and urban areas.

IV. Problems due to difficulties in the delivery of health services : health facilities are not yet sufficient and equally distributed (Adik Wibowo, et al., 1979).

At present there are 360 hospitals consisting of :

— 2 hospitals of type A : top referral hospitals with all branches of specialities and subspecialities.
— 13 hospitals of type B : with all branches of specialities
— 43 hospitals of type C : with 4 major branches of specialities :
  — internal medicine
  — surgery
  — obst. & gynecology
  — pediatrics
— 221 hospitals of type D : without specialists.
— 81 hospitals of type E : with a primary health nurse (nurse/midwife).

4.353 community health centers (Puskesmas), 4.180 sub-health centers and 2412 M.C.H. centers; the number of nongovernmental hospitals is 128.

The referral system of patients from the rural health centers to the better equipped hospitals, is not yet functioning well. Attention should be drawn to a statement of the World Bank, that actually the urban poor are more in need of health services than their rural counterparts.

V. Health Manpower problems.

The number of physicians is now 10.456, dentists 1539 (gov), pharmacists 1014, sanitarians 3429, nurses (including auxiliary nurses) 68.259, midwives 6.075, primary health nurses 1930. Again an equal distribution over the whole country is not yet attained.

In accordance with the Third Five Year Development Plan the following addition to the present health manpower is deemed necessary : 3000 physicians, 300 dentists, 200 pharmacists, 1000 sanitarians and 1800 primary health nurses (nurse/midwife).

The ministry of health has also started the training of so-called village health promotors (equivalent more or less to "barefoot doctors" in the People's Republic of China).

VI. Problems due to inefficiency in management and health facilities. Health

manpowei development and their career development should be improved.

The collection of data on vital statistics, certification of births and deaths, also require special attention. Planning, execution and evaluation of health policies should be done properly.

Community oriented health care system

It is evident that prevention of communicable diseases in infants in Indonesia and other developing countries requires an improvement of both the health and nutritional status of the population. The Indonesian Ministry of Health is at present improving the health service delivery system by means of a better outreach to the rural districts, giving priority to the low-income groups in rural as well as urban districts and encouraging the participation of the local community in health programs.

In addition to outpatient treatment in small health centers, preventive health care is emphasized in this community oriented health approach. Improved environmental sanitation including safe water supply and waste disposal, health education, maternal and infant care, immunization, family planning and nutrition programs are part of the activities being carried out by the government. (Gambiro Prawirosudirdjo, 1979).

Expanded program on immunization

The Expanded Program on Immunization (E.P.I.) for the protection against tuberculosis, diphtheria, tetanus, pertussis, poliomyelitis, measles and smallpox should be mentioned here. The execution of this program is done on a service-based schedule, starting with BCG and smallpox vaccination at the age of 2 months (smallpox vaccination is still applied although as mentioned before, smallpox is considered completely eradicated since 1974), followed by DPT and polio vaccination, three times with an interval of 1 month at the age of three months.

This vaccination is available at the community health centres (Puskesmas), M.C.H.C. (B.K.I.A.), hospitals, and also done by midwives, general practitioners and pediatricians.

Booster of DPT and polio will be given 1 year after the third vaccination and then every 3 years up till 12 years old. Immunization against neonatal tetanus is given to expectant mothers twice in the third trimester. Regular supply of vaccines and the cold chain are problems that have to be solved in a satisfactory way (Setiady, 1975; Guerin, 1978; Sudiyanto, 1979).

Other health programs

Programs for control of tuberculosis and diarrheal diseases are also carried out as a national effort.

Oral rehydration and promotion of breastfeeding appear to be very helpful in the eradication of diarrheal diseases. The results of the family planning and nutrition programs are also encouraging. Directly or indirectly these health programs have a favourable impact on the prevention of communicable diseases in infants.

Village Community Health Development

Since more than 82.6% of Indonesia's population live in rural areas, it is very essential that the village community should be involved in all health activities.

Primary Health Care stresses the importance of health promotion development, increasing the capability of individuals, families and communities to live a healthy life without overemphasizing treatment of diseases. (W.H.O. recommendation, Alma Alta, U.S.S.R., July 1977).

This concept is applied in Indonesia by means of the Pembangunan Kesehatan Masyarakat Desa (Village Community Health Development) as part of the Rural Development Program.

The village community is directly involved in health activities as much as possible including the mothers and children e.g. child to child program (Indonesian Paediatric Association, 1978).

These activities should also be adapted to the local habits, customs, traditions and conditions. So-called "village health promotors" are recruited from the village community and upgrading courses given to traditional midwives and practitioners (Voulgaropoulos, 1977).

With simple and inexpensive methods adapted to the conditions and way of life of the village community their health and nutritional status will be improved including the prevention of communicable diseases in infants.

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