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OCTOBER 28 - 29, 1995

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***-PROCEEDINGS OF THE XTH MEETING OF JAPAN  
ASSOCIATION FOR INTERNATIONAL HEALTH-***

***OCTOBER 28-29, 1995***

***THE UNIVERSITY OF TOKYO  
SANJO-KAIKAN***



## **PREFACE**

The tenth annual meeting of the Japan Association for International Health was held in Tokyo from October 28 to 29, 1995, to commemorate the tenth anniversary of the Association.

A total of 500 participants attended this year's meeting and the topics of discussion covered several important areas of health care, namely control of communicable diseases, primary health care, NGO activities on health care, foreign migrant worker's health care and so on. The objectives of the meeting were to exchange information and experiences in order to identify and to analyze existing health problems with the view to discuss possible solutions. During the two-day sessions, experts from 20 countries imparted the progress of collaborative activities on health care in various countries, while others enthusiastically shared their experiences and the lessons that they have learned as well as the difficulties that they have faced

A number of selected articles from each session are compiled as short reports for publication in the proceeding. I am hopeful that the sincere effort of the Association will eventually contribute to improve the health status of many developing countries.

I would like to extend my gratitude to all the participants especially to those who presented their papers.

Last but not least. I would like to thank to the members of the organizing committee and the graduate students of the Department of Health Policy and Planning, Graduate School of International Health, Faculty of Medicine, the University of Tokyo for their untiring effort to convene the meeting.



**Takusei Umenai M.D., Ph.D.**

**President,  
The Tenth Annual Meeting of Japan  
Association for international Health**

**1995**





## CONTENTS

### KEYNOTE SPEECH

<i>Takusei Umenai</i> .....	1
-----------------------------	---

### SPECIAL LECTURE

<i>Isao Arita</i> .....	7
-------------------------	---

<i>VACCINATION</i> .....	21
--------------------------	----

<i>HIV / AIDS</i> .....	29
-------------------------	----

<i>TROPICAL / COMMUNICABLE DISEASE</i> .....	39
--	----

<i>DIARRHEA</i> .....	89
-----------------------	----

<i>TUBERCULOSIS</i> .....	111
---------------------------	-----

<i>MOTHER AND CHILD HEALTH</i> .....	135
--------------------------------------	-----

<i>PRIMARY HEALTH CARE</i> .....	169
----------------------------------	-----

<i>PROJECT MANAGEMENT</i> .....	181
---------------------------------	-----

<i>HEALTH SYSTEM / ECONOMICS</i> .....	215
--	-----

<i>NON-GOVERNMENTAL ORGANIZATION</i> .....	233
--	-----

<i>DISASTER MEDICINE</i> .....	255
--------------------------------	-----

<i>NETWORK / COMMUNICATION</i> .....	277
--------------------------------------	-----





## ***KEYNOTE SPEECH***



## ***“Keynote Speech”***

### **International Collaboration for Health Development: Toward Disease Control and Community Participation**

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Key words: technology transfer, revolving drug fund, hepatitis B

#### **Introduction**

A remarkable progress has been achieved in many developing countries during the last three decades as an outcome of the efforts to improve health care to the general population of those respective countries. Among those countries, the average life expectancy at birth increased by over one-third during the past three decades; 23 countries have achieved a life expectancy of 70 years and more. In parallel to this, mortality rates of children less than five years of age were halved<sup>1)</sup> and global immunization coverage of six vaccines to the children of one year old and below reached almost 80% under the Expanded Program on Immunization<sup>2)</sup>.

Collaboration among countries for the improvement of health has been playing a vital role toward such achievements. However, several public health problems—both old and new—such as HIV, TB, Malaria and adequate supply of essential drugs to the communities still have to be challenged.

This paper's aim is to describe personal experiences of the author in the development of the Hepatitis B control program through technology transfer and essential drug program by community participation and discuss some aspects of future international collaboration in the development of health care systems.



## **Technology Transfer for Vaccine Production to Prevent Hepatitis B in Asia**

Hepatitis B (HB) is a disease of global distribution. According to estimates, there are approximately 300 million persistent carriers of the HB virus in the world, more than 200 million of them being in Asia. For example, among 35 countries in the Eastern Asia and the South Pacific region, 25 countries have a HBsAg carrier rate of more than 5%, with 17 countries having a carrier rate of more than 10%. In China, which population is approximately 1.2 billion, the HBsAg carrier rate in the general population is around 10%. There, the high prevalence of liver cancer is an important public health problem, particularly in southern areas like Guangdong and Guanxi provinces. The average mortality rate of liver cancer is high in Long-an County of Guanxi province with 81/100,000 among men, and 19/100,000 among women. The mortality rate of liver cancer among men in this county peaks at more than 200/100,000 for the 30-40 years of age group<sup>3)</sup>.

To cope with the problems, technology transfer to China for large scale production of plasma-derived HB vaccines started in 1983 through the collaboration of WHO and Japan. China produced 15.1 million doses of vaccines in 1987, 22.8 million in 1988 and 25 million or more doses in 1991<sup>3)</sup>.

For many developing countries with small population, producing the vaccine domestically is difficult and inappropriate. Therefore, a high-titer HBsAg-positive plasma collection system has been developed in small countries of the South Pacific. Two steps of HBsAg testing, i.e., qualitative and quantitative, are conducted for screening high-titer HBsAg-positive plasma. Concentrated high-titer HBsAg-positive plasma is sent to be processed into vaccine to the Kitasato Institute in Tokyo, Japan, which is a WHO collaborating Center. The production of each dose costs US\$0.50. Vaccines are returned to the respective countries free of charge, the financial burden being entirely supported by WHO and Japan. Currently, HB immunization programs are running in 33 countries out of 46 in Asia.

Out of these 33 countries, 27 have launched immunization programs for the newborns<sup>3)</sup>.

### **Development of Essential Drug Programs through Community Participation**

Shortages of essential drugs supply at the community level have been a serious issue in many developing countries. To alleviate the shortages a Revolving Drug Fund (RDF) system through community participation was introduced in five Asian countries and five Central and South American countries through both the Nippon Foundation of Japan and UNICEF, in which the University of Tokyo provided with the technical assistance. Each RDF operational mechanism in the above-mentioned countries are different from each other as those are designed according to each country's specific needs<sup>4)5)</sup>.

A significant progress in RDF has been achieved both in Vietnam and in Myanmar through strong central government's political commitment to manage the project by involving the community even for monitoring and supervision. In Vietnam, 20% of communes now have operated RDF projects. So far, those drug funds (six months since their inception) have been maintained and grown, while, based on the above developments, the central government has decreed that salaries for at least three community health workers per fund were to be provided to improve supervision by the Ministry of Health<sup>5)</sup>. In Myanmar, the response of the Government to support the RDF initiative from highest levels has also been appropriate and is a good indicator of the relevance of this approach to strengthening primary health care services<sup>5)</sup>. It has to be noted that in that country, the community participation is characterized by a strong voluntary service.

On the other hand, similar progress can be seen in the RDF projects in the urban areas of Guatemala and in rural areas of Honduras in which community pharmacies

have successfully been developed through community participation with the active support of international and local Non-Governmental Organizations<sup>6)7)</sup>. Those promote the community's sense of ownership and awareness which are essential components of the sustainability of the project.

### **Discussion and Future Direction**

The above experiences of international collaboration, although limited in their number, have implications to improve the public health situation of the countries mentioned as well as in others facing similar problems. One of the main implications is that technology transfer plays a key role to enable developing countries to generate products for better health by themselves. This process is necessary for each country to achieve an acceptable level of health development. However, emphasis should be given to the selection of technology that is appropriate to each country's concerns as seen in a large country like China (large-scale HB vaccine production) and small countries of the South Pacific (plasma collection). Another important implication is the community participation as seen in RDF projects in Vietnam, Myanmar, Guatemala and Honduras. It is almost impossible to develop and sustain an RDF project without any active community participation and community-based sense of ownership and awareness of the project.

Finally, mentioning here that encouragement of appropriate technology development and community participation are two integral and inseparable components that should be focused on in health development is noteworthy. In other words, international collaboration should be directed toward cultivation and motivation of people to enable them to recognize and assess the given situation, to identify their own problems correctly and, ultimately, to formulate strategies to challenge problems by themselves.



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# CONTENTS

## KEYNOTE SPEECH

International Collaboration for Health Development: Toward Disease Control and Community Participation <i>Takusei Umenai</i> .....	1
---	---

## SPECIAL LECTURE

Global Strategy for Control or Eradication of Infectious Diseases with Immunization <i>Isao Arita</i> .....	7
--	---

## VACCINATION

Strategies for Control of Hepatitis Viral Infections: Pathogen-Oriented Prevention of Hepatocellular Carcinoma <i>Kusaya Nishioka</i> .....	21
The Status of Child Immunization and Strategies for Achieving Year 2000 Goals <i>Kunio Waki</i> .....	25

## HIV/AIDS

HIV/AIDS in the Foreigner Population in Japan <i>Masahiro Kihara et al.</i> .....	29
The Importance of the Counterplan for the HIV Related Matters in Foreigners and Its Problems <i>Yoneyuki Kobayashi</i> .....	33
Roles of CBO in Comprehensive HIV/AIDS Care in Continuum for Mother and Children from Thailand <i>Chizuko Ikegami et al.</i> .....	36

## TROPICAL/COMMUNICABLE DISEASE

African Trypanosomiasis: The Possibility of Vaccine Development <i>Toshihide Fukuma et al.</i> .....	39
Chagas' Disease <i>Koich Nagakura</i> .....	42
Filariasis <i>Isao Tada</i> .....	44
Drancunculiasis (Guniea Worm Disease) <i>Masamichi Aikawa</i> .....	46
An Ecological View on the Present Situation of Malaria Vectors and Their Control <i>Masahiro Takagi</i> .....	54
A Possible Scientific Approach for the Control of Malaria <i>Kenji Hirayama et al.</i> .....	58
Malaria Chemoprophylaxis for Japanese Residents in Developing Countries <i>Atsuo Hamada et al.</i> .....	60
Iron Nutrition and Anemia in Malaria Endemic Environment <i>Minato Nakazawa et al.</i> .....	63
Study on Respiratory Infection in the Kingdom of Nepal <i>Tadashi Horiuchi et al.</i> .....	69

Estimation of Pharyngeal Bacteria Flora of the Children in Thailand <i>Hidefumi Ishikawa et al.</i> .....	78
New Approach for Dengue Fever Control in South Vietnam <i>Ken Osaka et al.</i> .....	85

## DIARRHEA

Control Measures for Viral Diarrhoea in Developing Countries <i>Hitoshi Kamiya</i> .....	89
Present Status of Bacterial Diarrheal Diseases in Kenya and Their Countermeasure <i>Takeshi Honda et al.</i> .....	93
Pandemic of Cholera due to a New Serogroup of <i>Vibrio Cholerae</i> O139 Bengal <i>Yoshifumi Takeda</i> .....	98
Increasing Trend of Cholera Cases among Japanese Travelers Visiting Cholera Endemic Countries <i>Yashima Hodate et al.</i> .....	101
Viral Infection among Infants with Diarrhea in Pakistan <i>Osamu Nishio et al.</i> .....	109

## TUBERCULOSIS

Tuberculosis Control in Developing Countries-facing with a New Global Strategy of WHO <i>Masami Matuda</i> .....	111
Assessment of Case-Finding of Tuberculosis Patients in a District in Cambodia <i>Kimiko Takahashi et al.</i> .....	113
Present Situation and Problems of National Tuberculosis Control Program in the Philippines <i>Masashi Suchi</i> .....	123
Situation and Problems of TB Laboratory Services in Developing Countries <i>Akiko Fujiki</i> .....	128
Modeling of Participatory Community Health Activities in Support of Disease Control Programme <i>Masami Fujita</i> .....	130

## MOTHER AND CHILD HEALTH

Pediatric Morbidity Pattern in a District Hospital of Cambodia <i>Narayan Basnet</i> .....	135
The Transition of Child Mortality in Japan <i>Yasuhide Nakamura</i> .....	145
A Study on the Clinical Laboratory System for Maternal Health in Developing Countries <i>Setsuko Sato et al.</i> .....	148
Infant Mortality Rate and per capita Gross Domestic Product, 1960 - 1990 <i>Rikuo Doi et al.</i> .....	151
The Situation of Family Planning Services and Community Participation in the Rural Area of Vietnam <i>Momoe Takeuchi et al.</i> .....	158
Development of a Management System for Sustainable Community-based Family Planning Programs in the Philippines <i>Ryoko Nishida et al.</i> .....	163

## PRIMARY HEALTH CARE

Change of Nursing along with the Development of PHC and Cooperation Human Resource Development in Indonesia <i>Ikuko Moriguchi</i> .....	169
Health and Medical Needs After PHC in Middle Income Countries <i>Tadashi Yasuda et al.</i> .....	172
Study on Masticatory Function of the Elderly in Korea <i>Hiroko Miura et al.</i> .....	176

## PROJECT MANAGEMENT

The Project Management Viewed by Team Leader <i>Kenji Sawamura</i> .....	181
Impact of the Improvement of Water Supply on Reduction of Diarrheal Incidence and Increase of Household Income in a Squatter Area of Metro-Manila <i>Hirotsugu Aiga et al.</i> .....	184
Formulation of Appropriate Water Supply Project in Low-Income Developing Countries <i>Ichirou Takamatsu</i> .....	192
The Organization and Management of Human Services in Japan <i>Masao Tao</i> .....	194
Management of Japanese Voluntary Organizations <i>Hiromitsu Kojima</i> .....	197
Improving Safety and Health at Work in Rural Sugar Cane Factories in the Mekong Delta Area in Vietnam <i>Tsuyoshi Kawakami et al.</i> .....	199
Study on International Training Programs on the Structure at Planning, Management and Evaluation <i>Osamu Oyama</i> .....	202
Community Based Rehabilitation (CBR) Initiator's Workshop in Solo City, Indonesia <i>Naoichi Tsuyama</i> .....	206
One of the Countermeasures against Counterfeit/Substandard Drugs in Developing Countries <i>Kosaku Uchida et al.</i> .....	208
Corporate Health Care Provision and Perspectives on International Medical Treatment <i>Isamu Yoshida</i> .....	211

## HEALTH SYSTEM/ECONOMICS

Vietnam Health Insurance Scheme: Case Study in Two Provinces <i>Patrick Unterlerchner</i> .....	215
Marketing of Health Care Business <i>Umezawa Shotaro</i> .....	220
Financial Aspects of Japanese Medical Care System: Trends, Forecast and Optimality <i>Francisco P. Flores et al.</i> .....	222
Health Problem and Illness Behavior of Ethnic Groups, and Misunderstanding between Medical Facilities and Gaikokujin Visitors of Medical Facilities in Iwate Prefecture <i>Kuni Iwai et al.</i> .....	229

## NON-GOVERNMENTAL ORGANIZATION

Appeals from NGO to Pharmaceutical Companies, Their Countermeasures, and NGO's Non-Profit Oriented Policies in the Face of the Hanshin Great Earthquake	
<i>Naohiro Higuchi</i> .....	233
What are Medical NGO's in Japan Confronting?	
<i>Susumu Wakai</i> .....	237
Problems and Future Prospects for Japanese NGO's - In the case of SHARE -	
<i>T. Sawada et al.</i> .....	240
Coordination among NGO's in Rwandan Refugee Camp of Goma in Zaire and Code of Conduct for IFRC and NGO's in Disaster Relief	
<i>Toshiharu Makishima</i> .....	243
Health Related Problems of the Foreign Residents in Japan	
<i>Yuko O. Hirano et al.</i> .....	247
Obstetric and Gynecological Problems of the Foreigners in Japan	
<i>Naoko Miyaji et al.</i> .....	250

## DISASTER MEDICINE

Reconsideration of Our Attitude for Getting Volunteer's Help at the Hanshin Earthquake Disaster	
<i>Osamu Kitaoka</i> .....	255
Relief Operations of Yodogawa Christian Hospital and the Kansai NGO	
<i>Kasuke Tsujimoto et al.</i> .....	256
An Analysis of Visiting Patients to the Medical Relief Station Run by the Japanese Red Cross Society at the Hanshin-Awaji Large Quake -- Focusing on the Effect of Psychological Stress	
<i>Tomoyuki Igari et al.</i> .....	259
Changes in Medical/Health Needs and the Role of Medical Relief Teams in the Disaster Area of the Hanshin-Awaji Earthquake	
<i>Takashi Sawada et al.</i> .....	263
Role of Rapid Assessment of Health Consequences in Disasters	
<i>Osamu Kunii et al.</i> .....	266
An Outbreak of Measles Epidemic in the Mt. Pinatubo Evacuation Camps in the Philippines, 1991	
<i>Nakajima Mototsugu et al.</i> .....	270

## NETWORK/COMMUNICATION

A Tropical Medicine Database On The Internet	
<i>Hiroshi Takahashi et al.</i> .....	277
Activities of Tokyo International Society for Child Health (TISCH)	
<i>Hata et al.</i> .....	281
Information of Relief Project for Sakhalin Earthquake on Internet	
<i>Hideki Yamamoto et al.</i> .....	287
Foreigner's HIV Infection and Trial for Organization Medical Care Network in a Nagano Prefecture District	
<i>Kijo Deura</i> .....	291
HIV Related Problems of Foreign Residents in Japan - Based on Calls Received by AMDA International Medical Information Center Tokyo -	
<i>Katori Mieko et al</i> .....	296

## ***SPECIAL LECTURE***





## ***“Special Lecture”***

### **Global Strategy for Control or Eradiction of Infectious Diseases with Immunization**

Isao Arita, M.D.

Agency for Cooperation in International Health (ACIH)

4-11-1 Higashi-machi, Kumamoto City 862, Japan

Key words: prevention, eradication of diseases, world vaccine strategy

#### **Resume**

Immunization is the most cost-effective tool for control or eradication of infectious diseases. Success in global eradication of smallpox and successfully progressing global programme of poliomyelitis (polio) eradication are two excellent examples. In Americas, following the eradication of polio, a measles eradication programme has been already initiated on trial basis.

In 21st century, eradication of various infectious diseases may be accelerated due to rapid technology development which includes invention of new or better vaccines, and to globalization where all the nations throughout the world can more and more share the same objectives toward happiness of the human race.

It is most appropriate that Professor Takusei Umenai, the President of this Medical Congress stresses on the importance of these unique scientific areas.

#### **Miseries in the world and children**

People in the developing world suffer a great deal such as explosion of population famine in Africa and poverty in urban areas. Industrialized nations are not exception too; there are rapid increase in crimes, terrorism and soaring cost of medication due to aging population.

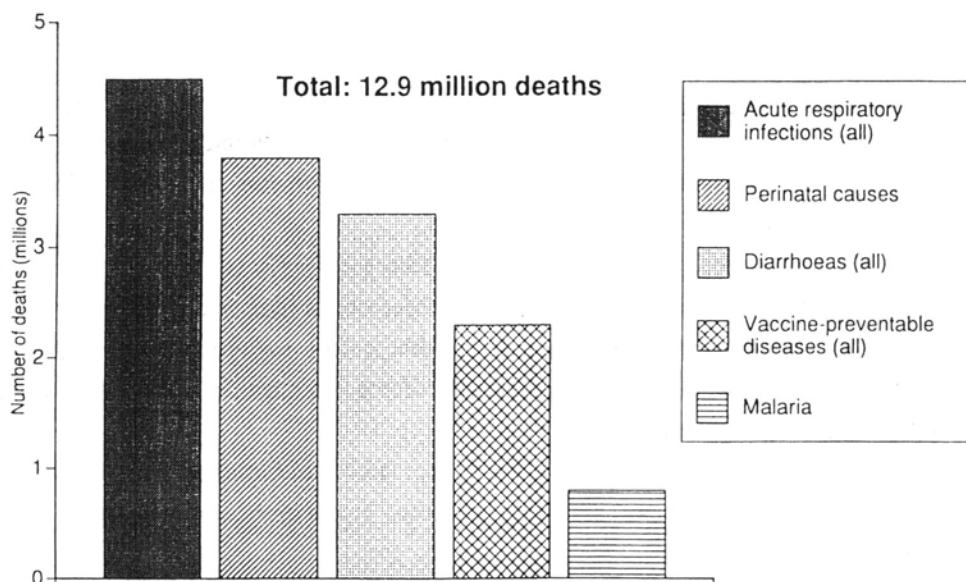
These miseries as such provide greatest suffering to children. In Africa as well as Asian subcontinent, more than 200 children die among 1,000 infants before their reaching five years of age; this is 20 times higher

than that in Japan and North America.

In developing world, 40 million people die yearly. Of these, one third, 13 million, are the children under 5 years of age. This is sharp contrast against the statistics in industrialized world where only 300,000 children under five years of age die.

Then what is the cause of death in the developing world. Eighty percent of all the child deaths are caused by infectious diseases. They are in order of pneumonia first, then death due to perinatal diseases, diarrhea, vaccine preventable diseases and malaria.

Figure 1: Selected Causes of death in children under 5 years of age, developing countries, 1990



### How to save the children

Economic development, improvement of housing and sanitary conditions, level-up of education and application of high level medical technology. These are certainly key words whenever we discuss on the measures to save children, but all the same, it will take perhaps 50 years for developing nations to meet these requirements. Then, what do we need now.

I believe, what is now needed is the introduction of highly cost-

effective preventive programme. Japan is now proud of the longest life expectancy as well as of the lowest infant mortality rate in the world. However, medical investment such as expenditure for therapeutic medicine and number of physicians are much less than those of industrialized countries in North America or Europe. Then, why Japan's achievement in health indices has been better than others. I believe, the most influential factors are our life style such as nutrition and sanitary habit, mother's education for health care and people's interest in health. They are all expressed as the penetration of preventive health care into Japanese communities.

Table 1: Health Indicators and Investments

	Life expectancy at birth (years)	Infant mortality (per 1,000 live births)	Health spending as % of GDP	Doctors per 10,000 population
<b>Japan</b>	<b>79</b>	<b>4.4</b>	<b>6.7</b>	<b>16</b>
<b>Germany</b>	<b>76</b>	<b>7.2</b>	<b>8.2</b>	<b>30</b>
<b>United States</b>	<b>76</b>	<b>9.8</b>	<b>11.8</b>	<b>23</b>
<b>Britain</b>	<b>76</b>	<b>7.4</b>	<b>5.8</b>	<b>14</b>
<b>France</b>	<b>77</b>	<b>7.3</b>	<b>8.7</b>	<b>30</b>
<b>Canada</b>	<b>77</b>	<b>6.8</b>	<b>8.7</b>	<b>22</b>
<b>Holland</b>	<b>77</b>	<b>7.1</b>	<b>8.3</b>	<b>24</b>

- Life expectancy and Infant mortality in 1992

- Other indicators in 1989

- Original table, the Economist, 1987, modified and updated

In U.S.A., more than 16,000 organ transplants are being performed yearly in terms of those of heart, lung, liver, pancreas and kidney whilst in Japan cases for transplants have been almost nil, except for less than 1,000 of kidney transplants. This is suggestive, namely high medical technology such as organ transplant is not the factor improving national health indices or

longevity of Japanese race.

### **Global strategy for reduction of child mortality**

WHO has developed the programmes for control of ARI (Acute Respiratory Infections) and of diarrheal diseases with oral dehydration treatment (ORT). These are, so to speak, a setting-up of very simple treatment system in communities. Certainly the system can contribute, to some extent, to the reduction of deaths by giving antibiotics or ORT to the patients. However, in the communities where the level of general education is low and only small number of health stations are existent and rather inactive, it is difficult to provide timely curative treatment to sick children in rapidly deteriorating health condition. Also the development of maternity and child health activities may reduce the deaths of perinatal causes, but it has its own limitation in terms of resources and facilities.

Such being the case, immunization can be currently regarded a most cost-effective tool for reduction of deaths. The success of global smallpox eradication campaign has proved that this is true. In 1967, the campaign started with effective vaccination and surveillance activities to cope with then occurring cases of 20 million throughout the world. In 1980, the global commission for certification of smallpox eradication certified that the disease had been eradicated from the earth. The global expenditure from 1967 to 1980 was estimated to be about \$300 million (less than the cost for building two hospitals of each having 1,000 beds). The complete disestablishment of control measures including vaccination resulted in yearly saving of world health expenditure, by \$1,000 million. Thus, vaccines are the tool for global strategy to fight against the infectious diseases in childhood.

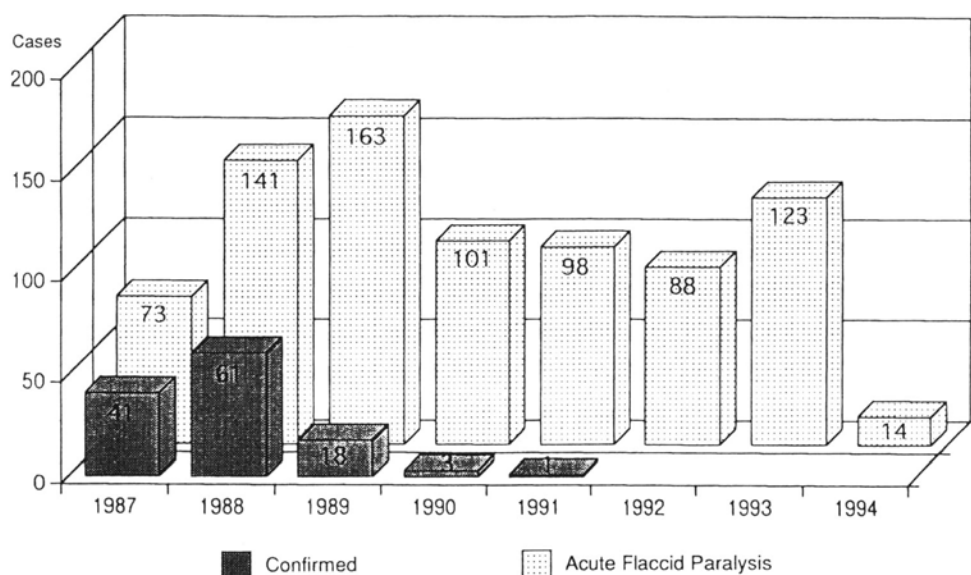
### **Expanded Programme on Immunization (EPI) and polio eradication**

Success of smallpox eradication encouraged the international society to launch EPI. In 1970's, vaccination coverage against TB, Diphtheria, Pertussis, Tetanus, measles and polio were only less than 5% in developing countries, but with EPI which started late in 1970's, the coverage reached 80% in 1990. Such high coverage resulted in the reduction of deaths caused by tetanus, diphtheria, pertussis and measles by 70% during the last 15 years.



The last case occurred in Peru in August 1991, and the entire American continents were certified as indigenous polio free by special Commission for Certification of Polio Eradication in August 1994 exactly three years after the occurrence of the last case in Peru.

Figure 3; AFP reported and poliomyelitis confirmed Peru, 1987-1994



### Polio eradication in Asia

In 1988, when WHO Assembly resolved the global eradication of polio, there were 13 countries where polio transmission was apparently continuing in two Asian WHO regions. They were China, Papua New Guinea, Philippines, Viet Nam, Laos and Cambodia in WHO Region of Western Pacific and Indonesia, Myanmar, Thailand, Bangladesh, Nepal, India and Sri Lanka in WHO Region of South East Asia. The information is incomplete in further Western part of Asian subcontinent, but among others, Pakistan should be listed an important country for polio eradication effort.

In 1991, WHO Regional Office for the Western Pacific, assembled the regional member states to hold a conference on EPI and regional polio eradication and confirmed that polio should be eradicated in the Region by

1995. The strategy was the same as Americas and after preparation, NIDs started in the polio endemic countries in around 1993. For example, about 80 million children under 4 year of age in China were vaccinated twice, namely on 5 December, 1993 and 5 January, 1994. Surveillance also developed in these countries examining a total of more than 3,000 AFP yearly in this region. To date (Dec. 1995), China confirmed six cases in 1994 and no case in 1995, although further intensifying surveillance is needed to discover residual foci, if any. Also good programmes were developed in Indochina peninsula comprising Viet Nam, Laos and Cambodia. In 1995 as of to-date, 9 cases in Cambodia and 3 cases in Viet Nam were laboratory confirmed. Papua New Guinea and Philippines have not reported the cases since 1994 despite continuing surveillance. Papua New Guinea requires special comments, namely the vaccination coverage as well as surveillance did require further strengthening, but perhaps due to its rather low density of population, it appears that vaccination programme made the transmission rate very infrequent or ceased. Bilateral cooperation by Japan, U.S.A. and other nations and Rotary International and UNICEF joined these national efforts for eradication under the coordination by WHO.

Figure 4: Polio cases in the Western Pacific Region, 1990

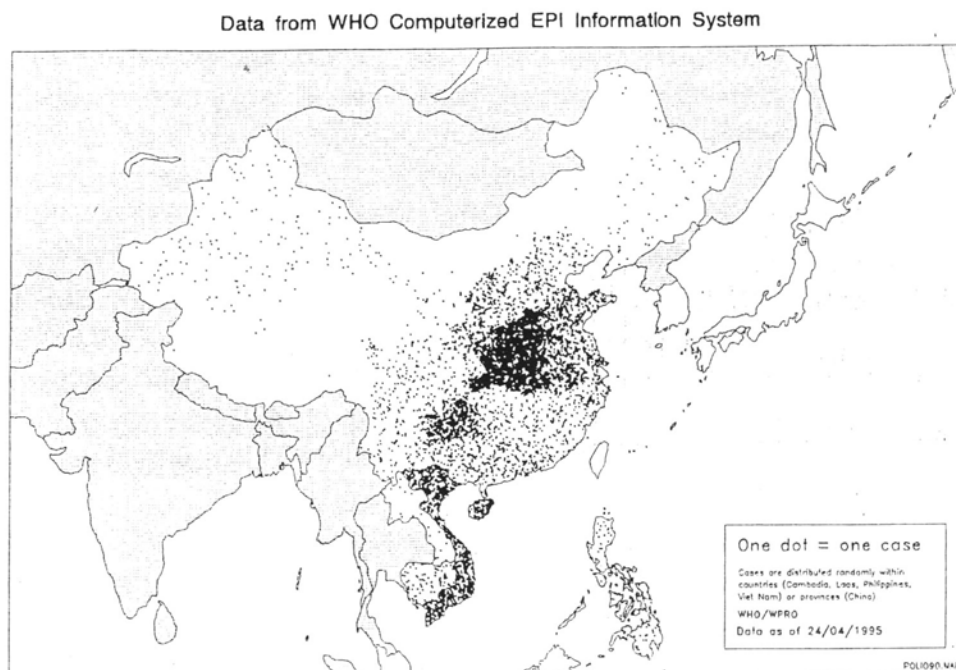
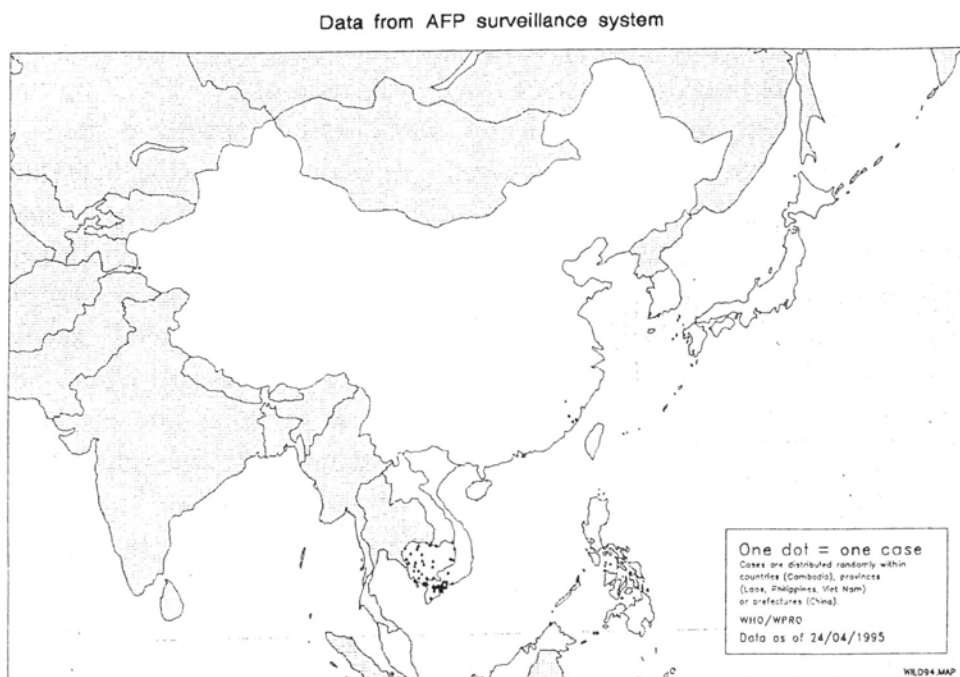


Figure 5: Polio cases confirmed by wild virus isolation, Western Pacific Region, 1994



Regarding WHO South East Asia Region, the programme development has been greatly accelerated after 1994 regional conference in Thailand. Sri Lanka, Bangladesh and Indonesia have already performed NIDs in 1995. India and Myanmar plan NIDs in late 1995 or early in 1996. International collaboration started including that by Japan, U.S.A., and others, as occurred in Western Pacific Region. However, a great deal of work for NIDs and satisfactory development of AFP and wild virus surveillance will be required in this Region.

On the whole, during last few thousand years endemic polio had been occurring in the most populous areas of Asian subcontinent of from China to Pakistan. The eradication efforts initiated in China, Viet Nam, Laos



and Cambodia in 1993, appears having the results, but in its continuing epidemiological and geographical areas of Myanmar, Bangladesh and India (specifically West Bengal, Bihar and Uttar Pradesh), the efforts have been just started.

It should be remembered that during the global smallpox eradication in 1970's, these were the epidemiological areas (from Bangladesh to Pakistan) which had been most resistant to the eradication efforts. At that time more than 100 international experts had been assigned in these areas to work together a few 100 of nationals, an indication, how hard it was to make break through.

### **Eradication effort in Africa and global certification of polio eradication**

Limited resources as well as developing status of health services make the eradication efforts less effective in African countries, but as seen in Papua New Guinea, the low density of population perhaps is the cause of progress being made in Southern part of Africa where without NIDs or good surveillance, relatively intensified vaccination programmes resulted in the very low or zero incidence of polio.

Assuming that Africa may be the continent where the last polio foci might be discovered in 2000, the eradication of polio in Africa will lead to the global certification of polio eradication which may take place in 2003 three years continuing surveillance and vaccination programme after 2000. Whether or not this can be done, solely depends upon the leadership of WHO, commitment of nations, and how much international community makes the resources available. I believe, no technical problems are involved.

### **Initiation of measles elimination**

Introduction of measles vaccination programme through EPI has caused the substantial reduction of measles morbidity and mortality in many developing countries. WHO has set up a target, namely all the countries should have reduced the mortality down to 10 % of that before the introduction of measles vaccination.

However, current schedule, the vaccination of infant at 9 months after the birth and subsequent vaccination of all children at various ages resulted in the shifting toward older age distribution of cases and sudden large outbreaks among cumulated unimmunized children in urban areas.

These are complicated and rather difficult problems to solve. Hence, in order to seek radical solution, new initiative, measles elimination programme started in American Region where polio has been already eradicated and health service can afford to do this initiative on trial basis.

In 1994, all the countries in this region covered the large number of children of age group from 9 months to 14 years. The results are dramatic. For example, U.S. reported only a few hundred cases over the last 9 months. Cuba initiated the wide range age group vaccination already in 1988 and reported nil incidence during last few years. An excellent achievement. The optimal frequency of this new campaign is now under study in the Region.

Figure 6: Number of measles cases notified WHO region of the Americas,

1960-1994

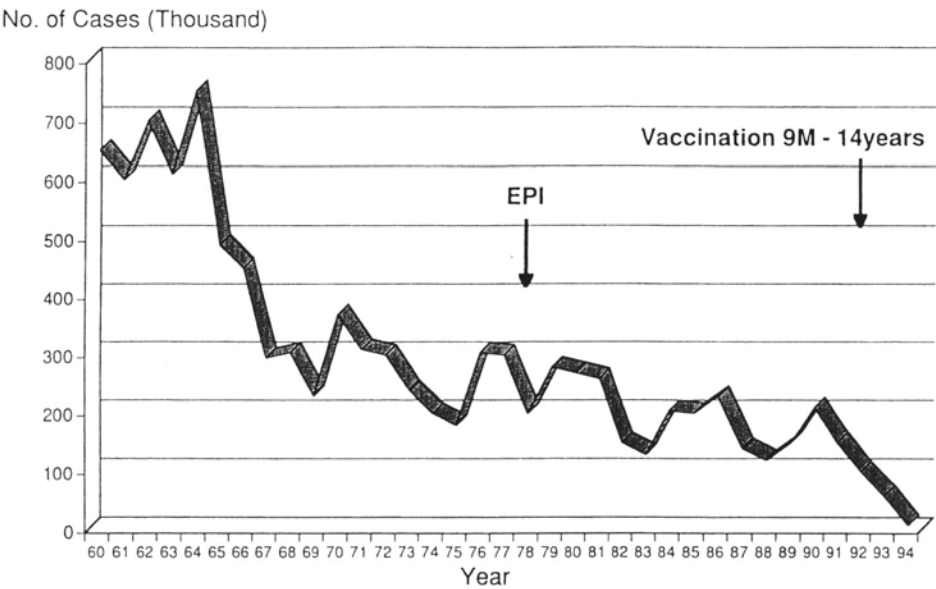
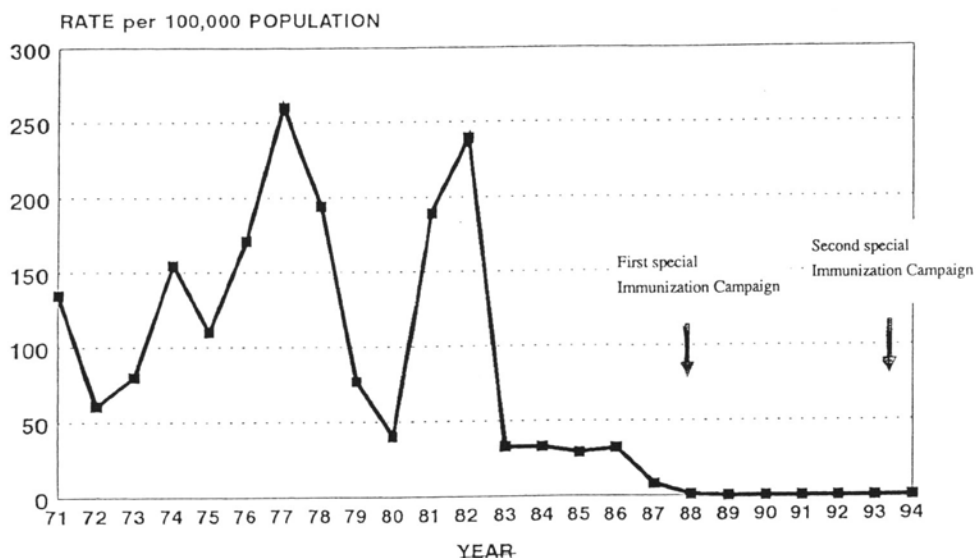


Figure 7: Measles morbidity rates, Cuba, 1971-1994



SOURCE: WHO/PAHO/EPI

### Neonatal tetanus elimination

Neonatal tetanus has already disappeared in the industrialized countries. It still poses a great public health problem in developing countries. WHO recommends to immunize women of child bearing age twice by tetanus toxoid and practice of clean delivery in the selective risk areas of high incidence. The target is 1 case among 1,000 live births. During the last decade, about half of the developing countries appears to have reached this target, but intensifies surveillance needs to confirm this. Hospital based surveillance in risk areas will be the key to strengthen the surveillance.

### Children's Vaccine Initiative (CVI)

In 1990, the Child Summit was held in New York and Children's Vaccine Initiative (CVI) was launched. Five institutions collaborate to promote the vaccine research, introduction of new vaccine to EPI and establishment of

world vaccine supply system and quality control. They are WHO, UNICEF, World Bank, UNDP and Rockefeller Foundation.

Although vaccine is the most cost effective public health tool, there are three difficulties being encountered during the last two decades. First, many developing countries can not afford to procure the vaccine due to its high price and increasing national requirement. UNICEF and donors are now supplying the vaccine with difficulty. Secondly, new vaccine development has been slow. No new vaccine has been introduced into EPI during the last two decades except for HB vaccine of which use is also very much limited. Thirdly many large developing countries such as China, Brazil, India, Indonesia, Mexico and Russia have been already producing EPI vaccines but their qualities need improvement and production capacities need to expand. Having analyzed the current situation like this, CVI will now initiate the efforts, vaccine self-sufficiency programme to resolve these problems in collaboration with various collaborators.

Table 2: Vaccine production in 14 developing countries, as of August, 1995

Country	No. of Infants < 5 years (million)	Products		
1. Bangladesh	20			DTP
2. Brazil	17	OPV	MEASLES	DTP
3. China	120	OPV	MEASLES	DTPa
4. Egypt	8	OPV		DTP
5. India	116	OPV	MEASLES	DTP
6. Indonesia	24	OPV	MEASLES	DTP
7. Iran	12	OPV	MEASLES	DTP
8. Mexico	12	OPV	MEASLES	DTP
9. Pakistan	23	OPV	MEASLES	DTP
10. Philippines	9		Restructuring	
11. Russia	23	OPV	MEASLES	DTP
12. South Africa	4		Restructuring	
13. Thailand	6		DTP	
14. Viet Nam	10	OPV		DTP
Total	404 (75%)			
Third World Total	540 (100%)			

### **Conclusion**

It is most appropriate that Professor Takusei Umenai, the President of this Medical Congress has stressed the importance on the subject of the infection disease control or eradication through vaccines. There are many areas where efforts be required to reduce the human miseries caused by diseases, namely acute respiratory infections, diarrhea, tropical diseases, HIV infection, various liver infections caused by hepatitis viruses and tropical parasitic diseases. It is important to study, develop and implement the control measures against these diseases. However, in developing countries where the resources to fight against these diseases are limited, the disease control or eradication through technology developed by immunology should take a first priority. Specifically I believe, the eradication of diseases would be one of the major developmental scientific areas in the 21st century. In this new era, research and technology development and globalization would proceed more rapidly and I expect, there would be unexpected scopes that the number of eradicable diseases may appear.



## ***VACCINATION***





# **Strategies for Control of Hepatitis Viral Infections: Pathogen-Oriented Prevention of Hepatocellular Carcinoma**

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**Keywords:** viral hepatitis, hepatocellular carcinoma, vaccination

Currently, several types of viral hepatitis caused by hepatitis viruses, HAV, HBV, HCV, HDV, HEV, (perhaps also by HFV and GBV/HGV?) have been recognized. Among these, based on the severity and magnitude of the disease, persistent infections with HBV and HCV are two major health problems worldwide. Their pathogenic association with liver cirrhosis and hepatocellular carcinoma (HCC) has been clarified in Asia, Africa, the Pacific, southern Europe and Latin America. It is estimated that 300 million HBV carriers and 100 million HCV carriers exist in the world.

Main routes of transmission to cause persistent infection for HBV are vertical transmission from mothers with high virus load to the neonates, and horizontal transmission in immunologically immature infants. HBV vaccination program has been implemented in 31 out of 35 countries or areas in Western Pacific region, where more than 200 million HBV carriers exist.

In Taiwan, the most extensive vaccination program has been carried out led by Prof. Sung and Chen, in combination with universal vaccination and selective passive-active immunization of infants born from HBsAg-positive mothers. HBsAg carrier rate among infants is reduced from 18-19% to 2.6%. They estimate the rate would be reduced to 0.2%. Prof. Chang reported that infant HCC caused 100% by HBV infection was not observed among children who had received HBV immunization according to their cancer registry. This is the first observation that HBV immunization can prevent HCC caused by persistent HBV infection.

In Japan, in 1970's, two thirds of all HBV carrier infants resulted from a horizontal HBV transmission. Later in 1980's, there was a switchover and more than 90% were due to vertical transmission, and horizontal transmission decreased significantly owing to improvement in general hygienic environment, medical care system as well as nutritional states in infants. HBsAg carrier rate in general population decreased from 2.7% to 0.92%, especially in age group 6-15, turning 0.40%. Since other

mechanisms for HBV transmission were greatly reduced, the most effective procedure to prevent perinatal infection on the selected high risk group babies has been adopted. This is a combined passive and active immunization of neonates born to HBeAg-positive mothers starting immediately after birth.

This program was set into action in Jan. 1986 and the protocol stipulates that all the pregnant women are to be tested for HBsAg and the infants born to HBeAg-positive mothers are to be treated with HBIG twice, at birth and 2 months after, and HB vaccine 3 times, 2 months, 3 months and 5 ~ 6 months after birth. The cost for the prevention program is covered by the government. To date, almost all pregnant women in Japan have been tested for HBsAg. The protective efficacy rate of persistent HBV infection by this program is given as 98%. After 1991, HBsAg-positive rate among infants born after initiation of nationwide prevention program is reduced to 0.03%. This is 98.9% reduction as compared with that in two decades before.

For infants born to HBeAg-negative carrier mothers, HB vaccination without passive immunization started in April, 1995. This is because, in rare cases, the babies born to HBeAg-negative carrier mothers have developed infantile fulminant hepatitis due to HBV mutants.

Since blood transfusion was documented as a major route of persistent HCV infection, elimination of donated HCV Ab-positive blood from transfusion have been the most important not only for prevention of post-transfusion hepatitis but also for prevention of its chronic sequelae, liver cirrhosis and HCC. In November 1989, the Japan Red Cross Blood Centers all over Japan began screening for antibody to C100-3 recombinant protein HCV, and switched to agglutination tests using core, NS3 and NS4 antigens, in 1993. Incidence of post-transfusion non-A non-B hepatitis, majority of which related to HCV, decreased from 16.07% in early 1980's to 2.09% after C100-3 screening was introduced, and to 0.14% after PHA and PA screening. In 1995, Japanese Red Cross carried out post-transfusion hepatitis follow-up study with 4044 transfused patients. None of post-transfusion hepatitis B nor C were observed, showing 95% CI less than 0.07%. Unidentified liver dysfunction other than HBV and HCV infection was observed in 9 cases, 0.22%. Whether these are due to real post-transfusion viral infection or not should be determined, and if they are, the role of new candidate hepatitis viruses, (GBV or HGV) or protracted viremia of enteric hepatitis viruses should be investigated.

Route of HCV infection other than blood transfusion still remained to

be solved. However, HCV infection rate decreased naturally and nearly unrecognizable in generation younger than 16 years old. Improvement of nutritional state and general hygienic condition, especially a nationwide policy to adhere to a single use of sterile needles in the health care environment may have contributed significantly as in the case of HBV injection.

The strategies for pathogen-oriented prevention of HCC are now summarized into four steps:

- (1) Primordial Prevention: To avoid exposure of the viruses to general population by improvement of hygienic environmental condition and proper medical care system including blood screening for transfusion.
- (2) Primary Prevention: To enhance immunological competence against primary exposure to the viruses by both non-specific measures such as improvement of nutrition or immunomodulators and specific measures such as HBIG and HBV vaccine.
- (3) Preclinical Prevention: To intervene disease progression from persistent viral infection to chronic sequela such as liver cirrhosis and HCC by antivirals.
- (4) Secondary Prevention: Early stage diagnosis by ultrasonography, computed tomography or tumor markers such as AFP or PIVKA II followed by non-invasive or surgical treatment.

All these strategies are now translated into action and we can predict more than 92% of HCC in Japan can be prevented in several decades.

**Table 1: ESTIMATES OF IMMUNIZATION COVERAGE BY  
UNICEF REGIONS  
1994**

**CHILDREN UNDER ONE YEAR OF AGE PREGNANT WOMEN**

UNICEF REGION	BCG	DPT3	OPV3	MEASLES	TT2
WCARO	54	43	39	43	36
ESARO	74	60	58	58	31
MENA	92	83	84	85	53
EAPRO	94	91	92	89	73
ROSA	93	87	87	84	74
TACRO	92	81	80	84	43
CEE/NIS	73	82	82	77	32
ASIA	93	89	89	86	70
AFRICA	69	57	55	56	38

# **The Status of Child Immunization and the Strategies for Achieving Year 2000 Goals**

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Key words: child, immunization and strategy

## **Introduction**

We have only two months left in 1995. It is good time for all of us to review the status of the implementation of child immunization in the world to see how we are doing against the mid-decade goals and discuss the strategies for achieving year 2000 goals. Following the World Summit for Children in 1990, the world leaders agreed on the following year 2000 goals among other goals.

1. A one-third reduction in 1990 under-five death rates (or to 70 per 1,000 live births, Whichever less).
2. The achievement of 90% immunization among under-ones, the eradication of polio, the elimination of neonatal tetanus, a 90% reduction in measles cases, and a 95% reduction in measles deaths (compared to pre-immunization levels).

Since year 2000 seemed to be too far away, the world community established the mid-decade goals against which all nations can strive by the end of 1995. In 1996, the assessment of the achievement of the mid-decade goals is scheduled, and we can expect the detailed information from all over the world. The following shows the immunization related mid-decade goals.

1. Immunization against the six major vaccine-preventable diseases of childhood to reach at least 80% in all countries.
2. Neonatal tetanus to be virtually eliminated.

3. Measles deaths to be reduced by 95% and measles cases by 90% (compared with pre-Immunization levels).
4. The elimination of polio in selected countries and regions (as a step towards worldwide elimination by the year 2000).

### **Method**

The estimates of immunization coverage given in this paper are based on information available at UNICEF Headquarters in the middle of 1995. They are to be seen as informal estimates made by UNICEF Programme Division based on Government, WHO and UNICEF data available at that time. Strategic discussion was based on the author's personal experiences in Nigeria and Pakistan where he was UNICEF Representative from 1988 to March, 1994. Opinions expressed in this paper are the author's personal views and not necessarily reflect those of UNICEF.

### **Result and Discussion**

See Table 1. Estimates of Immunization Coverage by UNICEF Regions. Please note that except for Africa, all other regions are already achieving on average at least 80% coverage in BCG, DPT3, OPV3 and measles. Due to civil wars and economic crises, many African countries are facing the collapse of the government health services. In some, the deficit in the budget for preventive health care is undermining the child immunization programme and lowering the morale of health workers as we have seen in Nigeria. Benin Republic is the only country in West and Central Africa where 80% coverage in BCG, DPT3 and OPV3 is achieved. In Eastern and Southern Africa, good performers include Kenya, Malawi, Mauritius, Zambia and Zimbabwe. In Asia, Cambodia, Laos, Papua New Guinea, Nepal and Pakistan are still struggling with DPT3 coverage of 48 to 66 percent and failing to achieve the mid decade goal of 80% coverage by the

end of this year. We see excellent performance by both Middle East and North Africa region and the Americas region. We are happy to note that since 1990 which was the target year for Universal Child Immunization, 79% of the countries somehow managed to sustain or increase DPT3 coverage. No polio case was reported in 145 countries last year. The efforts of the countries in the Americas region were particularly noteworthy in this regard. We saw good progress made in polio elimination in several countries in Asia including China and the Philippines. 84 countries have already achieved 90% reduction in measles incidence. Due to the lack of mortality and morbidity data related to immunizable diseases, it is difficult to infer the impact of immunization programme. We expect more reliable data will be made available next year when the global assessment of child immunization will be completed in cooperation with WHO.

UNICEF continues to help developing countries, in particular low performance countries by mobilizing financial, manpower, organization and communications resources globally. We are very pleased that the Government of Japan is providing vaccines and cold chain equipment for polio elimination in many countries in Asia and Africa. Polio eradication is no longer a dream. I am confident that the world will see a spectacular progress in the remaining five years before we enter into the twenty-first century.

What we learned from our involvement in the implementation of the Expanded Programme of Immunization (EPI) for the last decade was that we all have to adopt a systems approach to make sure various activities are carried out at the same time for the successful implementation of immunization programme. In Nigeria, my major advocacy effort was directed towards ensuring that the fund was available for the purchase of vaccines by the Government. Last year the Head of State approved the

allocation of fund for the purchase of vaccines, but the Ministry of Finance did not release the fund due to the lack of liquidity. UNICEF had to come to their rescue by scrounging whatever fund remaining with us in UNICEF, Nigeria.

We also had to ensure that the cold chain system works well throughout the country from the two airports of Lagos and Kano to health centers and villages. When we faced a fuel crisis in the country with frequent power failures, we had to worry about supplying even diesel to cold storage in Lagos for standby generators to protect a large amount of vaccines in the store. The supply of syringes, needles and sterilizers must be ensured. The training of all categories of health workers must be an on-going activity often supported by UNICEF and WHO in order to ensure the quality of supervision and services. UNICEF and US AID supported the establishment of monitoring and reporting system for the managers and decision-makers to know what is going on in EPI very quickly so that they can take corrective actions. WHO played an important role in helping the Government establish a better system of monitoring morbidity and mortality related to the immunizable diseases. UNICEF and the Government mobilized NGOs including local chapters of Rotary Club, church and other religious organizations, the mass media, medical associations and other private sector organizations.

It became clear to us that we cannot succeed in child immunization without the strong commitment of top political leaders including the President and the Prime Minister and the substantial support from donor governments and organizations.



## ***HIV / AIDS***



## HIV/AIDS in the Foreigner Population in Japan

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### Introduction

Among total 1,747 AIDS and HIV positives (HIV+) reported to the AIDS surveillance, approximately half (51.7%) of them are foreigners as of the end of 1994 and during the last 4 years (1991-94), number of foreign cases showed remarkable changes. especially in females. In view of the potential importance of foreigner population in the HIV/AIDS epidemiology, data of surveillance and epidemiological studies regarding foreigner population were analysed and reviewed.

### METHODS

Analysis of the AIDS surveillance data was performed using the national AIDS surveillance data base and the annual reports (1990-1994) of AIDS epidemiology research group sponsored by the Ministry of Health and Welfare were reviewed for the studies on foreigner subgroups.

### RESULTS

Results of AIDS surveillance data are summarized in the table for the foreigners infected through heterosexual contact. Number of HIV+ were small but steadily increasing in males, while it was much greater but decreasing in the recent 2 years after reaching a peak in 1991-92 in females. Number of AIDS cases on the other hand showed a small but sudden increase in both males and females in 1993-94. Asia was most common as a nationality except for male AIDS patients where South America was predominant. Though most of the cases were reported as infected abroad, it was noted that majority of HIV+ were reported to be infected in Japan in 1993-94 in both genders. Geographically. most of the female cases were

reported from the prefectures neighboring to Tokyo, while male cases were relatively concentrated in Tokyo.

Results of the cases(28 AIDS and 45 HIV+) infected through homosexual contact were contrasting(data not shown). There was no tendency for recent increase. with western countries as predominant nationalities and marked concentration (70-76%) in Tokyo.

Epidemiological studies were available almost exclusively for the females of South-Asia origin. especially those of Thai nationality. An STD clinic-based survey of medical records of about 2,000 foreign female commercial sex worker (CSW) revealed that there was a sudden increase and decrease in the number of attendants during 1991-94 with little change in their HIV infection rate ranging 3-5%. Since immigrant statistics showed that the number of foreign females entried or illegality staying in Japan remained stable or gradually increased during the same period. it is suggested that sudden changes in the number of foreign females reported to AIDS surveillance unlikely reflected either infection rate or size of the background population. Suppressed numbers of foreign female HIV cases before and after 1991-92 in the surveillance therefore indicate that greater cases may have been left unlisted and/or underreported during these periods. Regarding the demographics and behaviour of foreign female CSW it is revealed that most of them (>90%) were engaged in sex work for the first time in Japan and forced sex work in many cases without using condom.

## **DISCUSSION**

It seems important to recognize that HIV may propagate in the multicultural interaction in Japan since more than 1 million foreigners are living in Japan. Supportive to this viewpoint is the geographical association between the number of foreign females and Japanese males in the AIDS surveillance. the recent increase in the number of foreign females infected in Japan and the recent epidemiological evidence that clients of foreign CSW were quite multiple in nationality. In spite of the potential importance of this viewpoint, however, little research or control program has been directed to the foreign residents in Japan, as little study has been performed in female CSW other than Thai. no study on foreign males has been done and only a limited program for linguistic services has been available for foreign people. In order to prevent further epidemic of HIV in Japan, research and control program

should be urgently developed based on a paradigm of muticultural interaction of HIV epidemic.

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Ministry of Health and Welfare, Japan.

Table. Number of heterosexually-infected foreign cases reported to the AIDS surveillance in Japan as of Dec.31, 1994

		Male		Female		
		AIDS	HIV+ <sup>1)</sup>	AIDS	HIV+	
Year	1985-86	0	0	0	0	
	1987-88	3	6	2	2	
	1989-90	2	9	0	15	
	1991-92	4	23	0	210	
	1993-94	14	30	9	115	
Nationality	Asia	5 [5]	17 [12]	8 [8]	268	[106]
	US&Europe	2 [1]	12 [4]	1 [0]	1	[1]
	South America	11 [8]	7 [3]	1 [1]	5	[4]
	Africa	0	12 [6]	0	4	[0]
	Unknown	5 [5]	20 [5]	1 [0]	64	[4]
Place <sup>2)</sup>	In Japan	1 [1]	8 [5]	1 [1]	30	[24]
	Abroad	16 [11]	49 [21]	2 [2]	192	[37]
	Unknown	6 [2]	11 [4]	8 [6]	120	[54]
Region <sup>3)</sup>	Kantoh district <sup>4)</sup>	6 [5]	15 [7]	7 [6]	162	[71]
	Tokyo	6 [2]	36 [15]	2 [1]	68	[21]
	Others	11 [7]	17 [8]	2 [2]	112	[23]

1)HIV+: HIV seropositives

2)Place where infection took place

3)Region where the reports to the surveillance were made from

4)Kantoh district excluding Tokyo

# **The Importance of the Counterplan for the HIV Related Matters in Foreigners and its problems.**

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Key words : HIV infection, foreigners, counterplans

## **Introduction**

In fiscal 94', among newly registered people as HIV positive and AIDS in Japan, foreign nationals accounted for the 23 % in male and 81% in female. So, investigating the problems with HIV related matters in foreigners and making up the counterplans are impossible and matters of great urgency.

## **Materials and Methods**

From Jan. 93' to Jun. 95' . 110 people were received blood examination for HIV infection with their own will in Kobayashi International Clinic. From Apr. 91' to Jun. 95', The AMDA International Medical Information Center which were running by AMDA and freely provides a wide range of information on health care for foreigners via telephone has received 134 inquiries related with HIV infection. Above mentioned 110 people and 134 inquiries were investigated.

## **Results**

Among 110 people who were examined in Kobayashi International Clinic, 93 were foreigners and other 17 were Japanese. And among 93 foreigners, 55 people has received blood examination in 93', 23 people in 94' and 15 people in 95' (Jan. to Jun.). The number of the male were 51 and 30 of them were Thailand nationals. Other 42 were female and all of them were Thailand nationals whose age were ranged frond high-teen to four decades. Totally, 72 of 93 people were Thailand nationals. No positive cases were found in male. In female, 3 cases were positive, however, were free from the symptoms. Above mentioned 3 cases and 2 cases who were diagnosed as HIV positive in other medical facilities, has been checked in the clinic. Four

of 5 cases were Thailand nationals and another was Peru national. In 2 cases, health check was performed regularly and other 3 cases never come back.

Among 134 inquiries related with HIV matters in The AMDA International Information Center, 60 inquiries were from the western people, 31 were from asian people, 17 were from south American people and 21 were uncertainty. Among 60 inquirers from the western people, 40 (66.7%) were on the information of facilities where blood examination for HIV were performed. On the other hand, among 31 inquiries from asian people, 13 (42.0%) were on the medical knowledge about HIV infection and AIDS. However, 12 (38.7%) were related with the patients suffering from HIV infection and AIDS, containing emergency necessity of medical support. Twelve of 31 inquiries were from Thailand nationals, 9 were from China nationals, 3 were Korea nationals and so on.

### **Discussion**

The number of the foreigners who were received HIV blood examination in Kobayashi International Clinic were 5.47 times as many as those of Japanese. I suspect that the reason of above mentioned was Japanese could utilize freely blood examination system for HIV infection at the regional public health office. however foreigners couldn't because of mainly language problem. Thailand nationals accounted for 77.4% of 93 examined foreigners. It might be the special situation of the region where the clinic was located. Thailand female who accounted for the 100% of the examined foreign female were high-teen to four decades in their ages. Female in this age ranges were thought to be work in the field of so-called sexual amusement and I suspected these Thailand national female had self-consciousness as they were belong to the high-risk group of HIV infection. The number of foreigners receiving blood examination had reducing tendency year to year. I suspected it was strongly influenced that there still was no effective radical medical treatment for HIV positive and AIDS.

The lack of the information related with HIV infection for foreigners became clearly from the inquiries in The AMDA International Information Center. The informations contained where foreigners could receive blood examination, where they could get exact knowledge, where the patients suffering from HIV infection were accepted and so on. However, needs of detailed information were different from race to race. The western people



mostly needed the information of facilities where they could get blood examination. The information for HIV related medical knowledge had less needs as basic education might be served in their countries. It's the difference between the western people and people coming from the developing countries.

### **Conclusion**

- 1) To protect not only foreigners health, but also Japanese society , making up counterpane for HIV in foreigners is important.
- 2) The counterplans for non English speakers .especially for Thailand nationals is urgently. ,
- 3) The counterplans must contain serving information related with HIV infection, for example where the foreigners can get medical knowledge , counseling, blood examination, medical treatment and so on with their mother languages .

# **Roles of CBO in Comprehensive HIV / AIDS Care in Continuum for mother and child from Thailand**

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**Keywords:** community care. PWH/A, vertical transmission

## **Introduction**

Through its community-level activities, PLACE TOKYO as a CBO (Community-Based Organize), seeks to create an agreeable environment for those who are living with HIV/AIDS regardless of their nationality and the mode of transmission. A Care Support Service has been set up for PWH/A. Cadre Support members earl themselves the "buddy" staff, and are sent when PWH/A or MSW (Medical Social Worker) request them. Buddy staff members respect the independence of those who request their services and help them to truly improve their quality of life.

## **Methods**

A MSW requested PLACE TOKYO to take care a 18-months baby with HIV who couldn't intake baby food and was loosing weight. The mother who is also living with HIV is a Thai woman married to a Japanese man and the family - Japanese husband, Thai wife and their child - moved to the neighbor of the hospital where they took their baby. We, PLACE TOKYO, has sent a buddy who has a long experience as a midwife auld nurse as well as a mother & grandmother. The buddy has visited the mother and child at home at least once a week and has provided psychological support to the mother over telephone counseling. We have discussed about this case every other week and analyzed the problems experienced by this family members.

## **Results**

The baby gained weight and became healthier within a few months. This is a result not only of our buddy's professional advice but also the improvement of the relationship between mother and child caused by our buddy's psychological support to the mother. The mother didn't seek a medical

treatment for herself even her CD4 is very low. Her priority is to take care of her sick baby and then to send money to her own mother in Thailand. Therefore she wanted to work by all means. The couple doesn't communicate enough and they do not have accurate information about the disease as well as the medical/social services they are eligible. Our buddy served as a couple counselor and an educator. Our buddy, however, is a Japanese who, does not: speak Thai and tried to find out a Thai speaking volunteer but in vain. Since the baby's condition became better, they decided to visit Thailand to show the baby to its grand parents. We made contact with a Thai CBO and collected enough information regarding medical care and support groups for PWH/A including babies in her hometown. Unfortunately, the baby died in Thailand and the couple came back to Japan. Now with our support the mother started to seek medical service for herself. and the communication between the husband and and wife has been improved.

### **Discussion**

Each community has to create the comprehensive HIV/AIDS Care in Continuum, which includes medical services, nursing care, counseling and social support. However, especially for a person from outside Japan, it is very difficult to get information about services. Even when they have accurate information, it is very difficult to get services because of the language barrier. Moreover, in order to create comprehensive care. there must be close communication, among service providers. In other words, medical services and social support must function as a team. However this team attitude is not common in Japan especially for resident aliens. In this case international network of CBOs has been very helpful and valuable. We need to establish a care network among medical institution, social service system and CBOs in community.



# ***TROPICAL / COMMUNICABLE DISEASE***



## **African Trypanosomiasis : The Possibility of Vaccine Development**

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**Key words:** vaccine development, *Trypanosoma b. gambiense*, recombinant mVSG

African trypanosomiasis is called sleeping sickness by the appearance of the patient in terminal stage. The causative agents of the disease are *Trypanosoma brucei gambiense* and *T. b. rhodesiense*. They are derived from *T. b. brucei* which cause the disease "nagana" in ungulates including the domestic animals. *T. b. gambiense* is supposed to have branched earlier than the 14th century, and by then, human sleeping sickness and nagana had been endemic in West Africa.

In the 19th century, many people and domestic animals moved vertically and horizontally over African Continent along the route of explorers, missionaries and caravans, and it might have mixed up pathological agents and their vectors. In 1908 the new type of sleeping sickness which is different from the usual western sleeping sickness named Congo sleeping sickness was found in Rhodesia of central or east Africa, and called Rhodesian sleeping sickness. The etiological agents of both sleeping sickness were morphologically undistinguishable from that of nagana which was discovered in 1894, a hundred years ago, in the blood of an infected cattle by Dr. Bruce and described by Plimmer and Bradford in 1899. The last year, 1994, was centenary of his discovery. Those three types of trypanosome are classified as *brucei* subspecies. Rhodesian sleeping sickness caused by *T. b. rhodesiense* shows acute form of African trypanosomiasis differing from Congo or Gambian sleeping sickness caused by *T. b. gambiense* which was discovered in the blood of a patient infected by the River Gambia. Besides *T. brucei*, *T. congolense* and *T. vivax* are included in so called African trypanosomes, they are morphologically different from each other and show variations among their migration patterns in the vector, though all are transmitted by tsetse flies of *Glossina* spp. All of

them are classified in salivaria because they are ingested or injected at the bite of the vector tsetse fly. Their distribution depends on that of tsetse which shows a shape of a belt covering sub-Saharan Africa and lying roughly between the north and south tropics. As many as 36 countries of 48 in Africa have endemic area and about 50 million people live in the area of risk of sleeping sickness. Annually about 20,000, actually around 200, 000, new cases are reported. Gambian sleeping sickness distributes in West Africa and Rhodesian sleeping sickness in East Africa, and transmitted mainly by *Glossina palpalis* and *G. morsitans* respectively.

The first onset of the disease appears as a local chancre, 2 or 3 weeks after the bite of an infected tsetse. Febrile blood lymphatic stage follows and cerebrospinal stage progresses for years after the parasite invasion of central nervous system, finally to the stage of cachexia and coma. Rhodesian type represents an acute progress and patients are often fatal within 3 to 9 months suffering from cardiac disorders.

Control measures of African sleeping sickness are insufficient. Drugs for treatment should be selected for indication according to the stage of the disease. Pentamidine and suramin are effective in the early stage, but in the late or cerebrospinal stage melarsoprol or trivalent arsenicals is effective, however, with a high risk of fatal side effect of reactive encephalopathy. Recently eflornithine, (DFMO), a potent inhibitor of polyamine synthesis was developed. DFMO is very effective without any serious side effects, though it is ineffective against *T. b. rhodesiense* and very expensive to cost \$500 for recovery of one patient. DFMO was registered by US FAD under the commercial name Ornidyl in 1990. Unfortunately it is reported that tolerant trypanosomes have already appeared. Vector control is far behind the goal, because of a vast habitat area of tsetse and the possibility of insecticides to pollute environment, though application of traps in combination with attractants has efficacy.

As for vaccination, it is hindered by antigenic variation. Bloodstream form (BSF) of African trypanosome is covered with a kind of surface coat of 15 nm thickness. The coat has the characteristics of serologically variable surface glycoprotein (VSG). With this surface coat BSFs are protected and evade host's immunological surveillance. There is still some possibility to develop vaccine when whole life cycle of the parasite is considered minutely. Right after BSFs are ingested into insect host, they lose their surface coat



and get the coat again to be ready to infect mammal when they complete the cycle in the tsetse transforming into metacyclic forms.

Number of variant antigen type (VAT) of metacyclic VSG (mVSG) converges to smaller number than 12 at the reappearance of VSG, from the number as many as 103 of VAT of BSFs. Especially in case of *T. b. gambiense*, the number of VAT of mVSG is estimated to be less than 5. When the estimation is true, there is a hope to provide vaccine against those mVSGs with recombinant ones. We tried to clone mVSG genes from metacyclic forms of *T. b. gambiense* IL 2343 propagated in vitro culture according to the culture method by H. Hirumi and K. Hirumi.

Any matured mRNA of trypanosomatid has mini-exon sequence at 5' terminal, and 3' noncoding region of VSG gene has homologous sequence of 18 mer nucleotides which is specific to BSFs of *T. b. gambiense*. Two kinds of RT-PCR (reverse transcriptase - polymerase chain reaction) products (IL2343 mA and mB) were obtained on total RNA prepared from metacyclic forms. Nucleotide sequence of mA has been almost completely determined, however as to mB medial sequence is not determined yet. In 5'- or N-terminal region there exist variable sequence with some conserved portion in VSG. By homology analysis 50% and 20% of homology were observed on nucleotide and amino acid sequence respectively, among mA, mB and KuTat 1.1 VSG gene which was cloned from BSF of *T. b. gambiense* Wellcome strain. In 3'- or C-terminal region among those three much higher homology was remarked, referred to cross reactive determinant of C-terminal of VSG.

It could be concluded with high possibility that mVSG gene of *T. b. gambiense* has the same conserved sequence in 3'-noncoding region that in BSF and the number of VAT for mVSG of *T. b. gambiense* is not single but multiple. Intensive searching for mVSG genes should be tried for other VATs applying the method to remove mRNA of dominant mVSG before RT-PCR.

# **Chagas' Disease**

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**Key words:** Chagas' disease, seroepidemiology, immunotherapy

Chagas' disease is an endemic human trypanosomiasis that is estimated to afflict over 24 million people in South and Central America <sup>2)</sup>. The Ministry of Public Welfare in individual countries are doing the vector control for Triatomine bugs under WHO Division of Control of Tropical Diseases (CTD) and Special Programme for Research and Training in Tropical Diseases (TDR). The results of the vector control got good, the numbers of detection of *Trypanosoma cruzi*-positive triatomine bugs and chagastic patient decreased remarkably in endemics. However, a public health problem for the disease raised recently at the large cities; one is the immigration of the patient to city, others is the blood transfusion. *T. cruzi*-contamination of blood confirmed by the result of our serological survey in Bolivia, about 50% of donor is seropositive. Therefore, Chagas' disease changed now from endemic trypanosomiasis to city-type infectious disease. Since 1909, discovered the causative agent *T. cruzi*, there are no effective therapeutic drugs and available vaccines for Chagas' disease. In this workshop, I will report the result of evaluation of serological diagnosis using monoclonal antibody TCF87 and the possibility of immunotherapy for Chagas' disease.

## **Seroepidemiological survey for Chagas' disease**

Serology of Chagas' disease is of paramount importance for both mass surveys and case detection due to limitations of parasitological testing during the chronic phase of infection. Moreover, since *T. cruzi* shares a number of antigens with *Leishmania*, serological tests must be highly specific in co-endemic areas <sup>1)</sup>. We recently reported the presence of monoclonal antibody TCF87 <sup>3)</sup>. The TCF87 was reactive apparent molecular weight 25,000 antigen of the plasma membrane and the flagellum regardless of

strain and developmental stage of *T. cruzi*. Although many antigens of *T. cruzi* epimastigotes were recognized by sera from chagastic patients, the 25,000 antigens did not react with leishmaniasis sera. The competition enzyme-linked immunosorbent assay (C-ELISA) using TCF87 for serodiagnosis of Chagas' disease was evaluated in areas where leishmaniasis is co-endemic. The positivity of serodiagnosis ranged 1-13%, specific IgM antibody was detected. And the positive of C-ELISA agreed with that of positive ( $>1:160$ ) of IFA test, and none of patients with visceral leishmaniasis showed seropositivity. The results indicate that the serologic diagnosis using C-ELISA may be feasible, practical, and reliable, and *T. cruzi*-infection still continued in the endemics.

### **The possibility of Immunotherapy for Chagas' disease.**

It is well known that helper T cell divides functionally two type, that is Th1 and Th2, CD4 lymphocytes. Th1 lymphocyte relates the delayed-type hypersensitivity (cellular immunity), whereas Th2 induces antibody production (humoral immunity). *Trypanosoma* parasite infects mainly to macrophage, and multiply within macrophage cells that plays as antigen presenting cell in immunology. And the protective immunity of human for *T. cruzi*-infection trend to be leaning to Th2, and the species-specific antibody found in sera of patients. To the two reasons, cellular immunity may be paralyzed at acute phase of *T. cruzi*-infection. Therefore, we tried for parasite killing through control of Th1-Th2 balance. The admission of Interleukin-12 resulted in the dramatic decrease of protozoan parasites in vitro and in vivo, indicating that immunotherapy by IL-12 for Chagas' disease is possible.

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# **Filariasis**

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**Key words:** filariasis, lymphatic filariasis, onchocerciasis

Filariasis is a disease complex of infections with filarial nematodes of various genus. Among them, lymphatic filariasis and onchocerciasis are important for their impacts on mankind of tropical and sub-tropical regions. As filariasis is transmitted by anthropophilic insects and is distributing widely, the control of disease is rather difficult.

## **1 . Lymphatic filariasis.**

*Wuchereria bancrofti* and *Brugia malayi* are the two major causative parasites for human filariasis ( In total 78.6 millions infected). As the vectors, mosquitoes of the genus *Culex*, *Aedes*, *Mansonia* and *Anopheles* are important. Lymphatic filariasis is characterized by a wide range of clinical manifestations. In the endemic foci, asymptomatic microfilaremia is the first sign of the infection, while it may continue for a year or for a life. Next comes Acute manifestations like adenolymphangitis, fever and malaise. In man, epididymo-orchitis may appear. Then comes chronic manifestations featured by hydrocele, elephantiasis and chyluria. These signs and symptoms differ by parasite and regions. Diagnosis requires blood examination, usually night blood, of various types (smear and millipore filter methods) and immunodiagnosis with antibody or antigen detections. For the treatment , oral administration of Diethylcarbamazine (DEC) has been performed in various modes and doses, while this drug caused side reactions. Recently ivermectin is going to be tested its efficacy, as this drug is less toxic. For the prevention of filarial transmission, human behavior in relation to vector mosquitoes is important.

The authors are investigating endemic filariasis in the Caribbean side (Puerto Barrios, Livingston and Mariscos) of Guatemala, Central America, due to the findings on typical leg elephantiasis cases in this region. No microfilarial positives were ever found yet.

## **2. Onchocerciasis.**

*Onchocerca volvulus* is the parasite for this disease, river blindness (17.7 millions infected). The vector is various species of blackflies of the genus *Simulium*. Onchocerciasis is characterized eventually by blindness, while early signs are skin changes (pruritus, pigmentation, leopard skin, skin atrophy) and nodule formations caused around adult parasites. In the eye, conjunctivitis, punctate keratitis, sclerosing keratitis, cataract, iritis, choriocapillary atrophy, optic degeneration etc appear due to the progress of disease. For the diagnosis, skin snipping is the basic method by taking tiny piece of skin from the buttock or back. Sophisticated technologies by ELISA or DNA probe may be important for travellers from industrialized countries.

Ivermectin is now widely applied to treatment instead of the traditional DEC and antipol therapy for its low toxicity. Intervention of onchocercal transmission has been performed by larvicide spraying for the blackfly in the river and chemotherapy. From this view, Mectizan (Ivermectin) Donation Program is an effective and practical alternative of vector control.

## **Drancunculiasis ( Guinea Worm Disease )**

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**Key words:** Drancunliasis, eradication campaign, epidemiology

### **Introduction**

Drancunculiasis (guinea worm disease) is caused by the parasite, *Dracunculus medinensis*; people acquire the disease by drinking water contaminated with the parasite. Although guinea worm disease per se is not fatal, emergence of the worms through the skin of infected individuals is extremely painful and disabling, and the sequelae may be life-threatening. As recently as the late 1980s, it was estimated that about 120 million Africans and 20 million Asiatics were at risk for guinea worm infection<sup>1)</sup>(Fig. 1). A campaign begun in 1989 by Global 2000, a program of the Carter Center, and WHO and UNICEF has dramatically decreased the number of infected persons<sup>2,3)</sup>. The ultimate goal of this campaign is to entirely eradicate this affliction. Unfortunately, sporadic outbreaks of guinea worm disease still occur in India, in Pakistan (Fig 2), and in 16 African nations. This report deals with an epidemiological study of druncunculiasis carried out in Niger and Ghana.

### **Life cycle of the guinea worm and clinical considerations**

Persons are infected with guinea worm when they drink water contaminated with copepods<sup>1)</sup>. The infected copepods are digested in the stomach, releasing larvae, which pass through the walls of the stomach or intestines. After the worms mate, the females migrate, usually to the lower extremities. Twelve months after the initial infection, the worms are released from the patients when they are standing water. Hundreds of larvae are so liberated into the water, where they can infect new copepods to begin another life cycle.

When the worms merge through the skin, a severely painful blister is formed, which frequently is the site of secondary infection by various bacteria that can cause abscesses, sepsis, arthritis etc. The severe pain can incapacitate individuals for several months; some patients become crippled. Because field workers are the usual victims of the disease, labor forces are

undermined , causing considerable socioeconomic hardship<sup>2)</sup>.

### **Guinea worm eradication programs**

In 1986, the World Health Assembly adopted a resolution calling for guinea worm eradication from Pakistan. Global 2000, which had agreed to provide assistance in this undertaking, organized a conference supported in part by WHO and UNICEF calling for "Guinea Worm Eradication by 1995 from the World<sup>2)</sup>." The campaign, begun in 1989, has dramatically decreased the number of patients in endemic areas. It is focussed primarily on the prevention of the disease by: (a) ensuring an uninterrupted supply of fresh water from wells; (b) educating people not to drink contaminated water; (c) use of filters when drinking questionable water; (d) spraying abate on the surface of stagnant lagoons, and (e) practicing case containment methods.

In July, 1995, as a part of a JICA investigation team on guinea worm disease, we went to Niger and Ghana, West Africa, to study the guinea worm disease situation. In 1989, there were 179,465 patients in Ghana. In contrast, there were in 1994 only 8,432 such patients ( a 95% reduction ) after the eradication campaign had been implemented (Fig.3) As of March, 1995, there still were 1,517 patients. In 1993, there were 25,346 patients in Niger; in 1994, the number had decreased to 16,562 ( 26.7% reduction ).

The highest incidence of the disease is found in remote regions such as the Zinder district, where there are 10,907 patients (Fig. 4). This observation underscores the importance of bringing the eradication program even to far outlying villages (Fig. 5). It should be noted that if the eradication program is halted then the disease will increase in frequency as has been seen in the northern region of Ghana. In 1994, this region experienced civil unrest, resulting in the cessation of the eradication program; as could be predicted, the number of guinea worm patients increased sharply.

The target date for the global eradication of guinea worm disease has been set for the end of 1995. Unless education and eradication programs remain in continuous force, it is obvious that the disease will continue sporadically to reappear <sup>3)</sup>. Although the eradication campaign for guinea worm disease has been a spectacular success, this campaign must be continued to eventually totally conquer and wipe out this scourge.

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Fig.1 Number of cases of dracunculiasis by year 1986,1989-1993 and 1994.  
(From Department of HHS Memorandum,3/6/95)

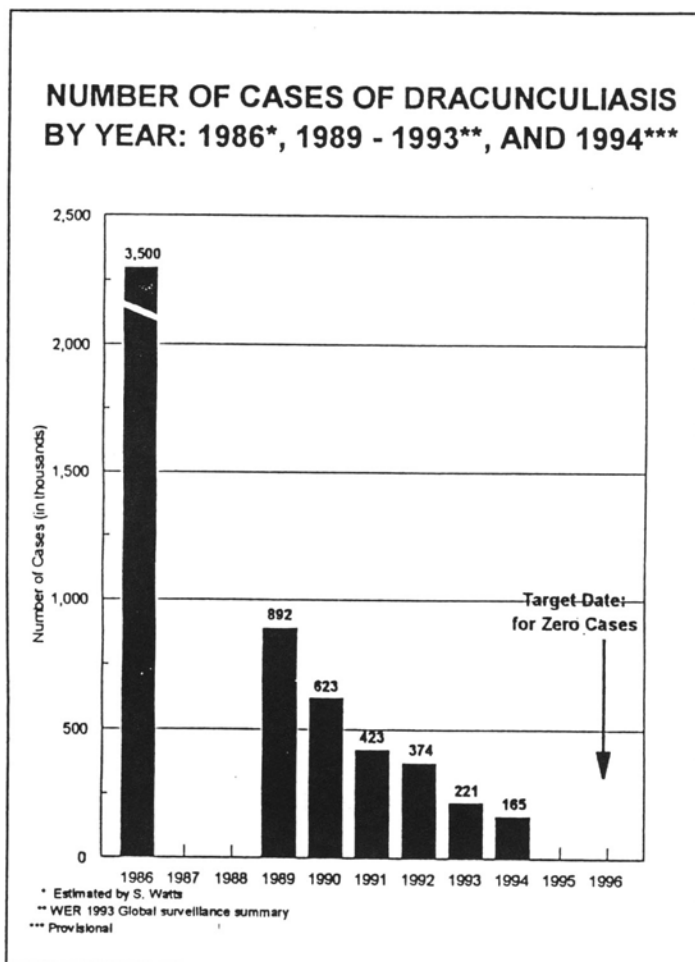


Fig.2 Decline fo dracunculiasis cases in Pakinstan and Cameroon:1987-1994  
( Hopkins,D.R. Et al., Am J. Trop. Med. Hyg., 52:14, 1995)

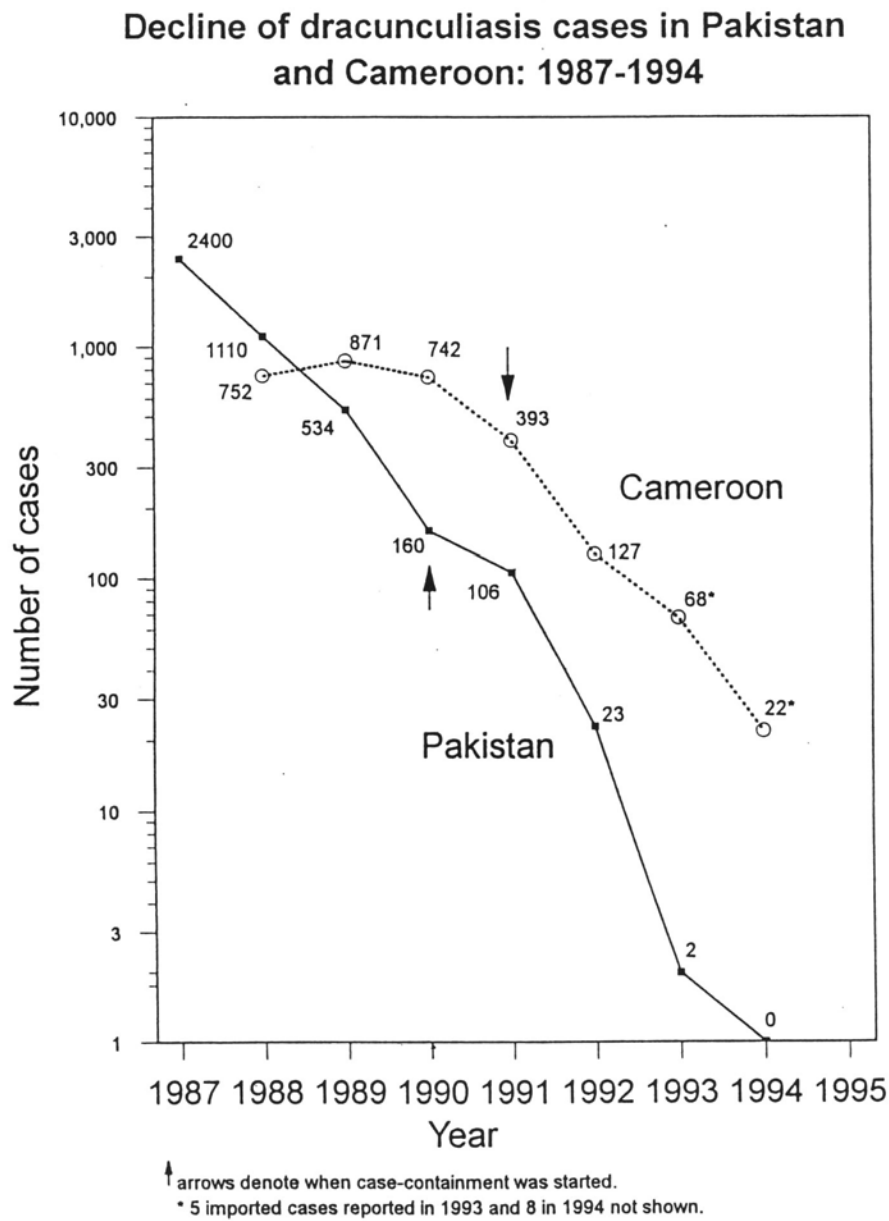


Fig.3. Number of cases of Dracunculiasis in Ghana, 1989-1994.

Number of Cases of Dracunculiasis in Ghana			
	1989	1994	reduction %
Ghana	179,485	8,432	95
ER	3,751	335	91
GA	1,553	7	99

Fig.4. Number of Dracunculiasis cases in 1994, Niger.

National Guinea Worm Eradication Programme, Niger  
NUMBER OF DRACUNCULIASIS CASES REPORTED BY DEPARTMENT, 1994  
(N=18,562)

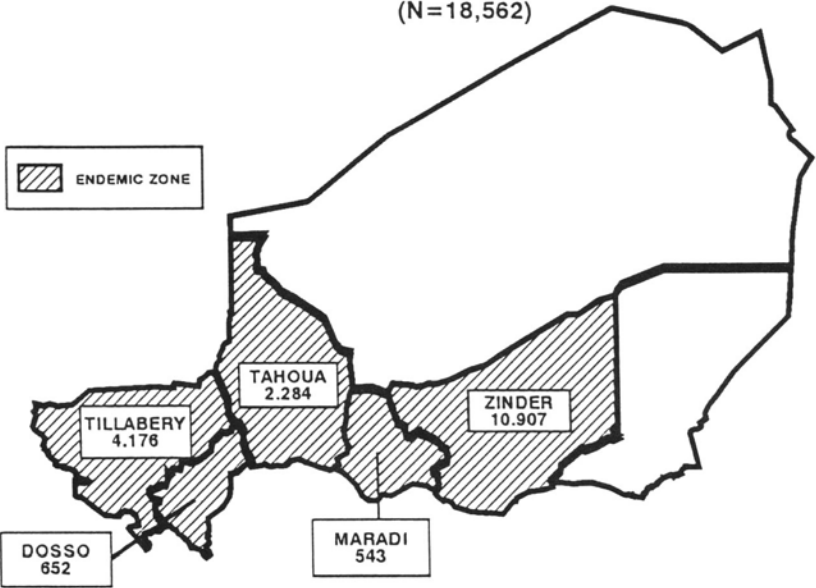
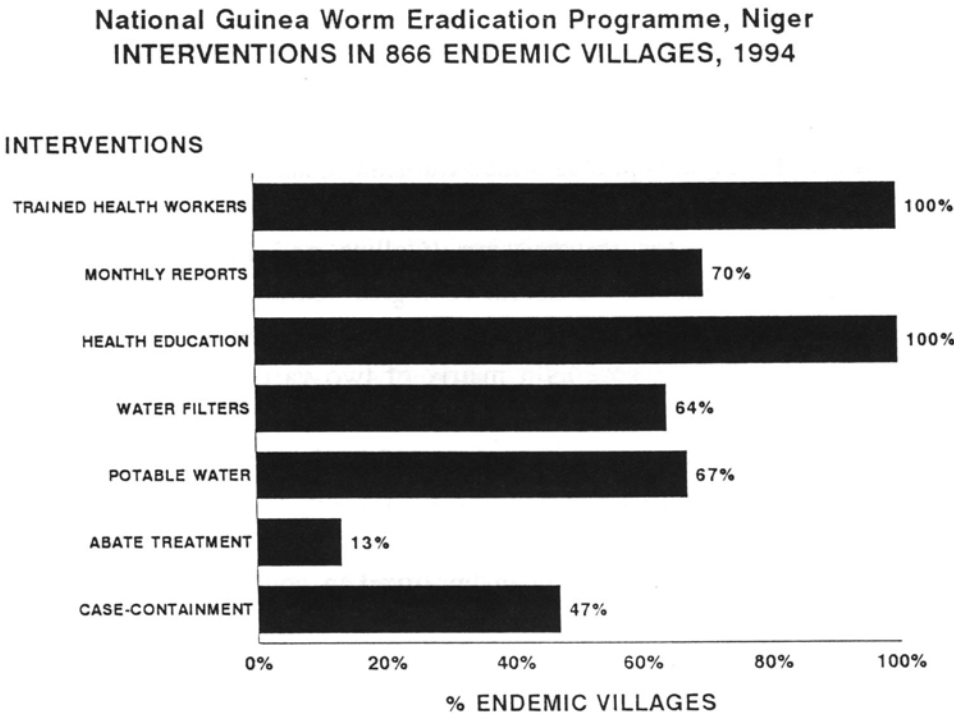


Fig.5. National guinea worm eradication programme, Niger, 1994.



PNEVG/DPSA/MSP, Global 2000/Niger

# **An ecological view on the present situation of malaria vectors and their control**

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Species of anopheline mosquitoes which transmit malaria are different from area to area, and about 100 species among 500 registered are responsible, at least to some extent, for transmission (Collins and Paskewitz, 1995). Different species should show different ecological features. Human life also has wide variety in locality after locality. Therefore, the mode of man-vector contact should become diverse as a matrix of two variables. Until 1970s, however, the indoor residual spraying with DDT was sole vector control measure in many countries. The idea of a combination of control measures adjusted to local conditions has become common only in recent 15 years or so.

Malaria situation has not been improved in countries belonging to category 1 especially in African countries located south of Sahara (WHO, 1993; Collins and Paskewitz, 1995). Drug and insecticide resistance, behavioral changes of the vectors, vector species divergence, changes of environment, human population migration, changes in human life style, rising cost of insecticides and lack of motivation of staff are considered as main problems. Among them, the environmental changes by human activity have recently received attention. They are deforestation, expanding of rice growing area, dam construction and large scale plantation of useful plants (Chandler et al., 1975; Service, 1989; Amerasinghe et al., 1991; Walsh et al., 1993; Amerasinghe and Indrajith, 1995). Global warming of the earth also is due to human activity (Loevinsohn, 1994). These man made environmental changes facilitate vector infestation, together with socio-economic changes induced by the environmental changes, and increase the probability of man-vector contact.

Ministerial Conference on Malaria was held under the above understanding about the present situation on the disease. The conference issued Global Malaria Control Strategy, and selective and sustainable transmission control was recommended prospecting the future vector control

(WHO, 1993). This recommendation seems to advise that the vector control efforts from now on is to be targetted to more strictly selected fields than before, taking into account the cost effectiveness, and the efforts are to be continued as long period as possible because malaria will not be controlled easily in the near future.

In Southeast Asia, similar problems are contributing to continuous occurrence of malaria in rural areas (Sornmani et al, 1983; Service, 1989; Rosenberg et al., 1990; Kondrachine and Rooney, 1992; Takagi, 1993; Walsh et al., 1993; Singhanetra-Renard, 1993; Meek, 1995). In this region, however, the most serious problem in malaria control may be inaccessibility to endemic areas (Meek, 1995). I worry about that the recruitment of well trained personnels who agree to engage in vector monitoring and control works, which are very laborious, will become more difficult in the near future in Southeast Asia and Middle-South America. It is urgently necessary to develop the field methodology based on easy, manpower-saved, automatic devices or tools, especially focusing to mosquito collection and identification. Otherwise we will not be able to follow continuously the up-to-date and real situation about malaria vectors. The DNA probe is a hopeful technique in the identification of vectors (Burkot and Graves, 1995), but trapping technology has little developed. Another hopeful ecological method will be the use of geographic information systems represented by the remote sensing. This method enables to evaluate the natural environment in malarious areas (Beck et al, 1994).

Intensive field tests and operational trials have been clarifying advantages and disadvantages of bednets impregnated with insecticides. This tool is recommendable in areas where transmission is less stable, seasonal, or of low intensity (Collins and Paskewitz, 1995).

From any aspects, re-establishment of philosophy on the malaria control is important now, because straightforward malaria control may face the environmental changes which will promote the social development of certain country or area, and also because the control may destroy the traditional life and culture of local people in malarious areas (Takagi, 1993). Harmonious control is desired. But what is the harmonized state?

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## **A Possible Scientific Approach for the Control of Malaria**

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**Key words:** malaria, clinical management, HLA

### **Introduction**

Research and development are critical for getting more improved and sophisticated tools for the control of malaria. One of the topics in the field is Kawamoto method that is refined for the identification of malaria parasites in the blood slides using by the simple equipments. Generally speaking , when a new method is found as that, it is not necessary for the researchers to think how it should be applied to the real field, however, we should always take care the effects of our harvested crops on the real life. After the partial failure of the previous eradication program by WHO, we are doing our research work along the policy that WHO proposed in the previous Ministerial conference on Malaria in 1992, so called "Malaria Summit". The most significant change occurred was that they focused on the mortality and morbidity control rather than the vector control or the irradiation. They also added the importance of the persistent effort to get a good vaccine.

Along this line, now we are doing several collaborative studies in the endemic area in south east Asia. For the mortality and mobility control, it is important to get more precise information about the parasite and host in the endemic area. When you treat the patients, you should always think about things like what kind of malaria your patients are infected, whether it is sensitive to you medicine, whether the patients is immune, naive, resistant, and or susceptible. We have decided to analyze the host genetic factors to predict their clinical course of malaria.

### **Results and discussion**

1. Genetic background of the resistant ethnic group in Malaysia.

Involved in the JICA project for the research on tropical diseases, between Institute of medical research (IMR) Malaysia and JICA, we have analyzed the genetic background of the aborigines in penninsular Malaysia, because they have been noticed to be highly resistant against severe malaria. First of all, we screened their blood smear for their prevalence and got DNA samples for their HLA typing . We have typed 160 aborigines for their HLA-B and noticed that HLA-B\*1513 and 5801 were frequently found in the group. Surprisingly, the antigenic peptide binding groove looked very similar to the HLA-B\*5301 that was previously reported to be dominant in the west Africa and to be associated to the resistant against severe malaria.

2. Searching for the host markers to predict the clinical course with the treatment by combination of artemisinin and mefloquine.

Minorities in Myamer mainly Karen have been fighting with the military government and many refugees are present and getting malaria. They are visiting the regional malaria clinic in Mae Sot during the season, (June to September). We are examining the drug resistance, giving medicine, and following up their clinical course. The research was focused on the markers to predict the prognosis. We have categorized the patients by their reactivity to the medication and got the DNA and serum samples to examined their genetic and immunological markers. We are now doing the evaluation of the results. We have just started the clinical research in the endemic area in Thailand and in Malaysia. Depending on the situation, the ideal approach for the mortality control of malaria changes. Our approach is one of the examples for the better management of malaria patients in future.

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# **Malaria chemoprophylaxis for Japanese residents in developing countries**

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**Key words:** Japanese residents in developing countries, malaria, chemoprophylaxis

## **Introduction**

Malaria is one of the important health problem for Japanese residents in developing countries. Although the protection from biting mosquitoes is the first line of defense against malaria, chemoprophylaxis of antimalarial drug is more effective measure especially in high risk area. At present, the information regarding to the enforcement of malaria chemoprophylaxis among Japanese residents in endemic countries is quite few. Therefore, we conducted to analyze the situation with questionnaires distributed to Japanese residents in developing countries .

## **Methods**

On 1993, missionary health consultation for Japanese residents which was organized by labor welfare corporation, was carried out in 23 malaria endemic countries. In this health consultation, each client was interviewed with questionnaires including past history of malaria infection and present enforcement of malaria chemoprophylaxis.

## **Results**

The number of the questionnaires collected was 3445 (Table). Malaria infection was high in Japanese resident of Central Africa (8.4% of the clients) when compared with that in Asia. North Africa and Latin America (less than 1% of the clients in each areas). Also, malaria chemoprophylaxis was generally performed in Japanese residents of Central Africa (18.7% of the clients), but not in other areas (less than 1 % of the clients in each areas). among Central African countries, both malaria infection rate and enforcement rate of chemoprophylaxis were high in Tanzania (10.6% and

53.2%, respectively) and Cote d'Ivoire (19.6% and 23.2%, respectively). Chemoprophylactic regimens performed by 38 Japanese residents in these two countries were as following: chloroquine alone; 25 ,chloroquine and proguanil; 4. proguanil alone; 3. mefloquine alone; 6.

### **Discussion**

This investigation suggested that malaria chemoprophylaxis was generally performed among Japanese residents in high risk area such as Central Africa. The most popular chemoprophylactic regimen there was chloroquine alone. This regimen might be inappropriate especially in Central Africa where chloroquine-resistant malaria is prevalent. World Health Organization annually informs proper chemoprophylactic regimen in each malaria endemic countries (WHO, 1995). Based on this information, each European and American countries publish original malaria manual for their native residents in endemic countries. Recently, mefloquine is widely recommended in most endemic area because of its effectiveness against chloroquine-resistant malaria (Wyler, 1993). Therefore, in Japan, it is necessary to publish original malaria manual which direct Japanese residents to perform proper chemoprophylaxis.

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Table : Malaria infection and enforcement of malaria chemoprophylaxis  
among Japanese residents in malaria endemic area

Area	Country	No. of Japanese residents interviewed	% of Japanese who had suffered from malaria	% of Japanese who had malaria chemoprophylaxis
South East Asia	Malaysia Thailand			
	Indonesia	1,117	0.5	0.0
	Bangladesh			
South Asia	India. Suri Lanka.			
	Pakistan	531	0.8	0.8
	UAE. Oman,.			
Middle East	Yemen,,. Turk.	889	0.5	0.2
	Saudi Arabia			
North Africa	Egypt. Morocco	262	0.8	0.0
	Kenya Tanzania,.			
Central Africa	Nigeria .			
	Cote ,d'Ivoire	214	8.4	18.7
	Mexico Guatemala			
Latin America	CostaRica Panama, 426		0.0	0.0
	Colombia			

# **Iron Nutrition and Anemia in Malaria Endemic Environment**

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**Key Words:** malaria, iron, anemia

## **Introduction**

Iron supplementation is widely conducted to treat anemia. However, that malaria incidence sometimes worsens anemia after iron supplementation. Kent (1992) suggests a hypothesis that hypoferrremia is likely to occur due not to dietary iron shortage but to shift of iron from serum to parenchymal tissue as a protective response against chronic infection. This hypothesis was examined for the Gidra-speaking population in lowland Papua New Guinea, by comparing iron status between malaria positives and negatives, whose iron intake was equally sufficient but who suffered from different malaria prevalence according to the residential area.

According to our food consumption survey in four ecologically diversified Gidra villages, their daily iron intake per adult male ranged from 30 mg in the coastal village to 100 mg in the northern riverine village (Hongo et al., 1989).

## **Methods**

After informed consent, blood samples were collected in 1989 from about 80% of the adults in the four villages. Indirect fluorescent antibody test revealed that malaria prevalence differed from 30% in the inland village to 100% in the coastal village (Nakazawa et al., 1994). Hemoglobin, serum iron, serum transferrin, and serum ferritin levels were measured for the same samples (N=206) with the standard methods. Transferrin saturation was calculated by the Guindi's formula (Guindi et al., 1988). The criteria recommended by the Expert Scientific Working Group (1985) were applied to judge iron deficiency.

## **Results and Discussion**

Hemoglobin and serum ferritin levels significantly differed among villages, but transferrin saturation did not. One male and five females were judged iron deficient. Inter-village comparison of hemoglobin level adjusted for

transferrin saturation revealed varying status of erythropoiesis from village to village; the southern riverine villagers needed smaller amounts of circulating iron than the northern riverine and inland villagers (Table 1). This inter-village difference was caused by combined effects of iron intake and malaria prevalence, reflecting such local conditions as the density of malaria vectors and the people's dietary habits.

Since the relationship between serum ferritin and transferrin saturation did not differ between malaria positives and negatives (Table 2) despite that hemoglobin level significantly differed (Table 3), it is concluded that malaria does not affect individual's iron nutritional status but directly causes anemia through hemolysis (Fig. 1). Thus, Kent's hypothesis was not supported in this study.

### **Acknowledgments**

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Table 1. Comparison of hemoglobin (g/L) among four villages with controlling transferrin saturation (%) as a covariate

Village	n	Unadjusted Mean*	Adjusted Mean*	S.E.M.†
Males				
N. riverine	15	158.9 <sup>A</sup>	159.4 <sup>A</sup>	3.16
Inland	17	158.1 <sup>A</sup>	158.8 <sup>A</sup>	3.00
S. riverine	40	145.1 <sup>B</sup>	144.5 <sup>B</sup>	1.96
Coastal	21	135.6 <sup>B</sup>	135.7 <sup>C</sup>	2.66
Comparison of slopes: $F = 5.39$ ( $p < 0.01$ )				
Comparison of elevations: $F = 16.6$ ( $p < 0.01$ )				
$R^2 = 0.36$				
Females				
N. riverine	26	146.2 <sup>A</sup>	146.0 <sup>A</sup>	2.37
Inland	20	146.7 <sup>A</sup>	146.5 <sup>A</sup>	2.71
S. riverine	35	132.5 <sup>B</sup>	132.5 <sup>B</sup>	2.03
Coastal	32	128.8 <sup>B</sup>	129.0 <sup>B</sup>	2.14
Comparison of slopes: $F = 0.75$ ( $p = 0.52$ )				
Comparison of elevations: $F = 14.7$ ( $p < 0.01$ )				
$R^2 = 0.31$				

\* Figures with the same character are not significantly different ( $p > 0.05$ ) from each other by Tukey's HSD test.

† Standard error of the adjusted mean estimates.

Table 2. Comparison of transferrin saturation (%) between malaria positives and negatives with logarithmically transformed serum ferritin ( $\mu\text{g/L}$ ) as a covariate

Malaria infection	<i>n</i>	Unadjusted Mean*	Adjusted Mean*	S.E.M.†
Males				
Malaria positive	67	31.9 <sup>A</sup>	32.3 <sup>A</sup>	1.4
Malaria negative	17	38.1 <sup>B</sup>	36.5 <sup>A</sup>	2.7
Comparison of slopes: $F = 1.65$ ( $p = 0.20$ )				
Comparison of elevations: $F = 2.00$ ( $p = 0.16$ )				
$R^2 = 0.31$				
Females				
Malaria positive	63	27.2 <sup>A</sup>	28.0 <sup>A</sup>	1.4
Malaria negative	27	28.1 <sup>A</sup>	26.3 <sup>A</sup>	2.1
Comparison of slopes: $F = 0.92$ ( $p = 0.34$ )				
Comparison of elevations: $F = 0.50$ ( $p = 0.48$ )				
$R^2 = 0.22$				

\* Figures with the same letters are not significantly different ( $p > 0.05$ ).

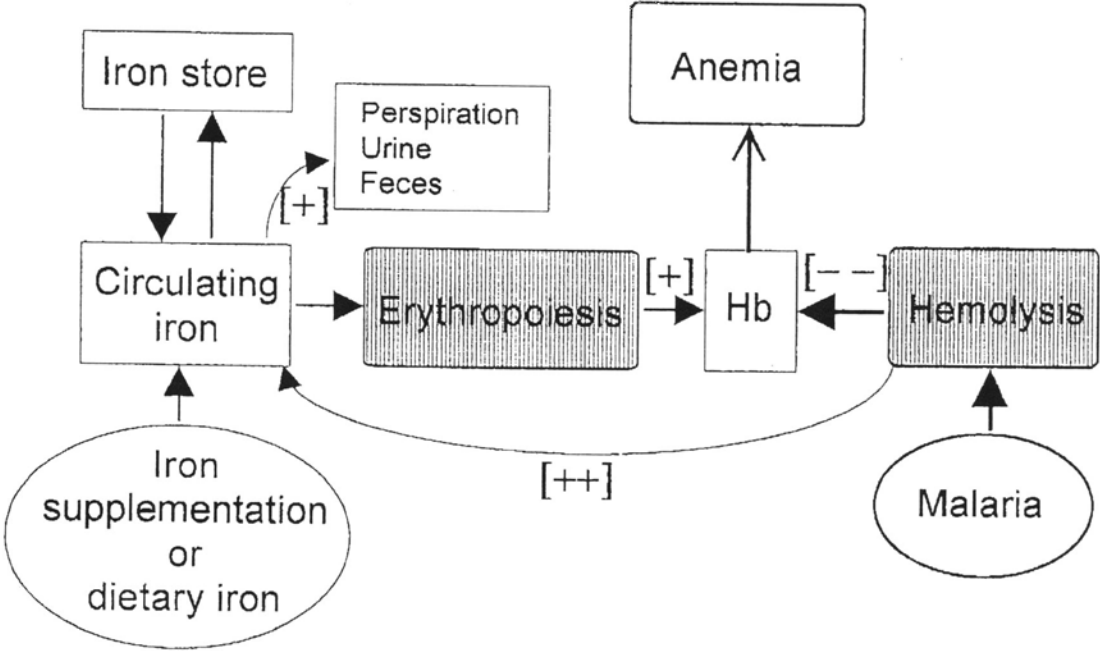
† Standard error of the adjusted mean estimates.

Table3. Comparison of hemoglobin (g/L) between malaria positives and negatives

	Males			Females		
	N	Mean*	S.D.	N	Mean*	S.D.
Malaria infection						
Malaria positive	67	145.8	13.7	63	134.9	16.0
Malaria negative	17	158.5	7.1	27	143.7	10.5

\* Means are significantly different ( $p < 0.01$ ) between malaria positive and malaria negative groups for either sex.

Figure 1. A schematic diagram showing the causal relationship of triggering anemia under malaria infection: [+], [++] and [--], affected by hemolysis.



# **Study on respiratory infection in the Kingdom of Nepal**

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## **Purpose**

The purpose of this study is to collect the primary data on the respiratory infection in Katmandu, Kingdom of Nepal, with local medical doctors.

## **Method**

Japanese pulmonologists visited the Department of Internal Medicine, Tribhuvan Medical School Hospital in Katmandu. These Japanese doctors worked with Nepali doctors in the patient ward and collected basic data from patients and doctors within the hospital. The first visit was made in September, 1993 (summer, rainy season), and the second was made during between February and April, 1994 (winter, dry season).

## **Results and Discussion**

Two hundred and seventy one patients (male:130, female:141) were examined during the first visit (summer), and 304 (male:174, female:207) during the second visit (winter).

Age distribution of the patients : (Figure-1)

In summer, age distribution displays biphasic pattern: the minimum of the male is thirties , and that of the female is forties. In winter, the patterns of the distribution of both sex are a kind of flattened.

Disease category : (Figure-2)

In summer, about seventy percent of the patients admitted due to disease of pulmonology is 26 % , cardiology 21 % and gastroenterology 21 %. In winter, the patients with the disease of pulmonology increased to 35 % and that of gastroenterology decreased to 11 % probably because of cold dried atmosphere, and patients with disease of cardiology stayed constant.

Percent of infectious disease : (Figure-3) (Figure-4)

In summer, fifty-nine percent of the patients in the wards was admitted because of infectious disease, in summer. It is increased to fifty five

percent in winter. In summer, one third of the patients in ward have pulmonary infection and other one third have infection of alimentary tract in summer. In winter, percent of pulmonary infection was increased to forty-three percent, where as infection of alimentary tract was decreased to four percent.

Category of chest disease : (Figure-5)

Forty-four percent of the patients with chest disease have chronic obstructive lung disease (COPD). This means sixteen percent of the patients in the department of internal medicine had COPD. This is probably due to the smoking custom from childhood and serious air pollution in Katmandu Valley.

Kinds of antibacterial drug : (Figure-6) (Figure-7)

From the data obtained in winter, the most commonly used antibacterial drug in this department was ciprofloxacin (41%) , and the second was the penicillin group (38%). The reason for the high usage of this antibacterial drug, comparable to the price of penicillins. Antibacterial drug used for respiratory infection is shown in Figure-7. Doctors of internal medicine was divided into four subgroups (Unit 1, 2, 3, 4). Each group has a leader and their own bed. In summer, the Japanese doctor mainly worked with Unit 3 and Unit 1. The different frequency of the usage of penicillins in winter may be explained by the difference of intensity of contact with Japanese doctors.

Figure 1

# AGE DISTRIBUTION OF PATIENTS

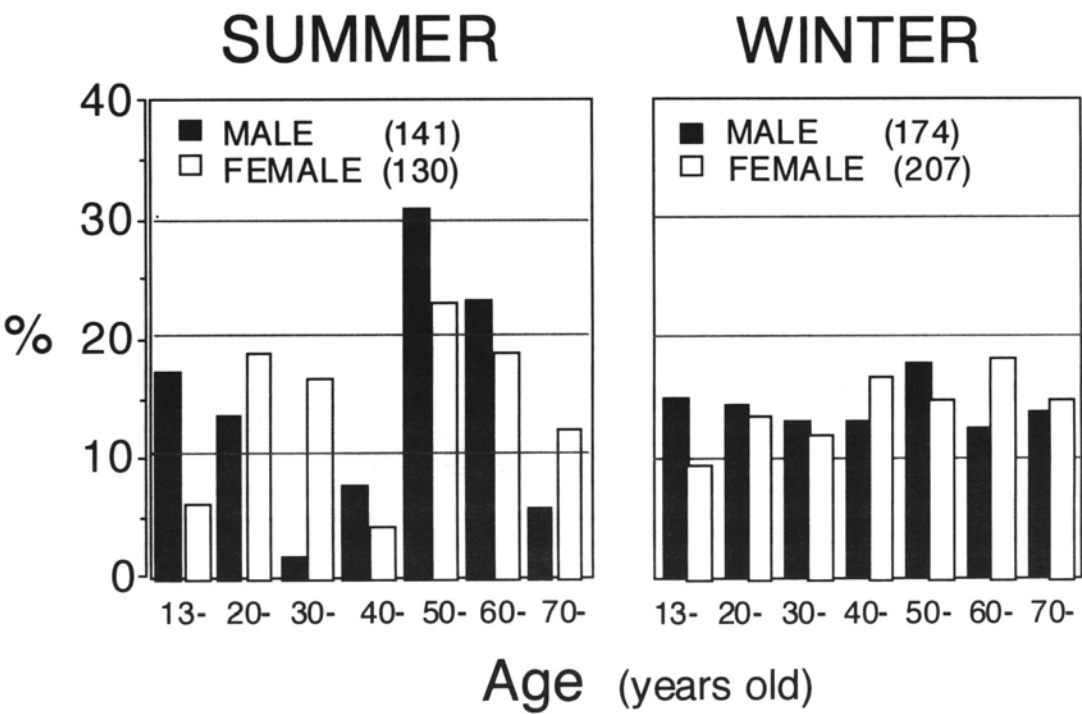


Figure 2

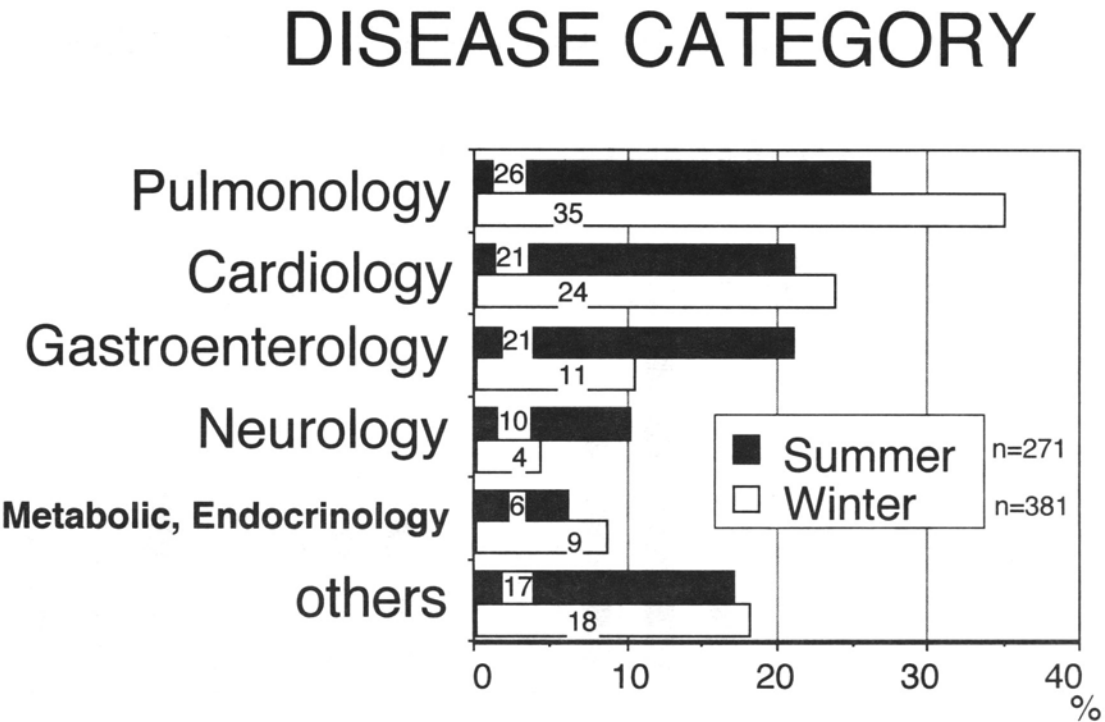




Figure 3

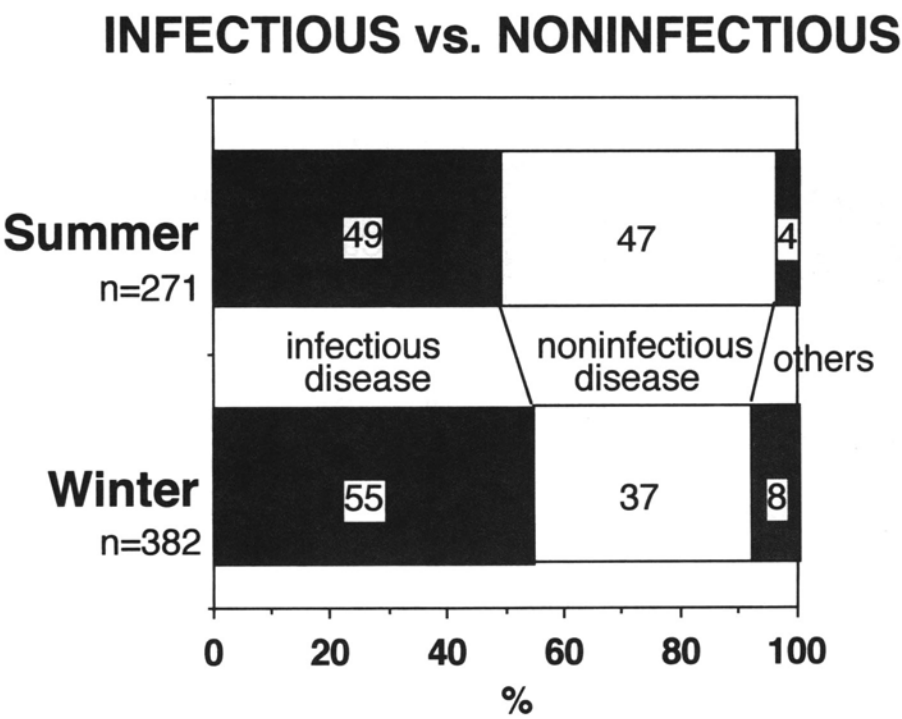


Figure 4

CATEGORY OF INFECTIOUS DISEASE

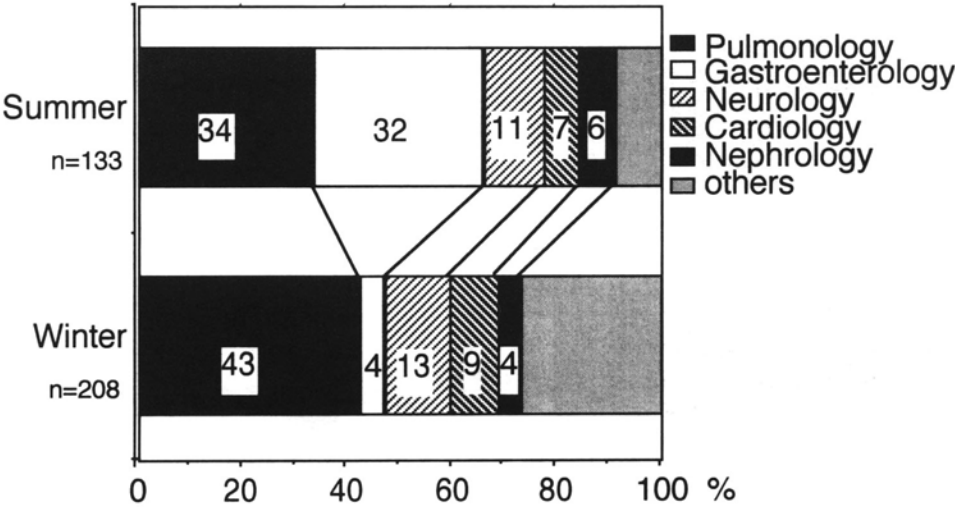


Figure 5

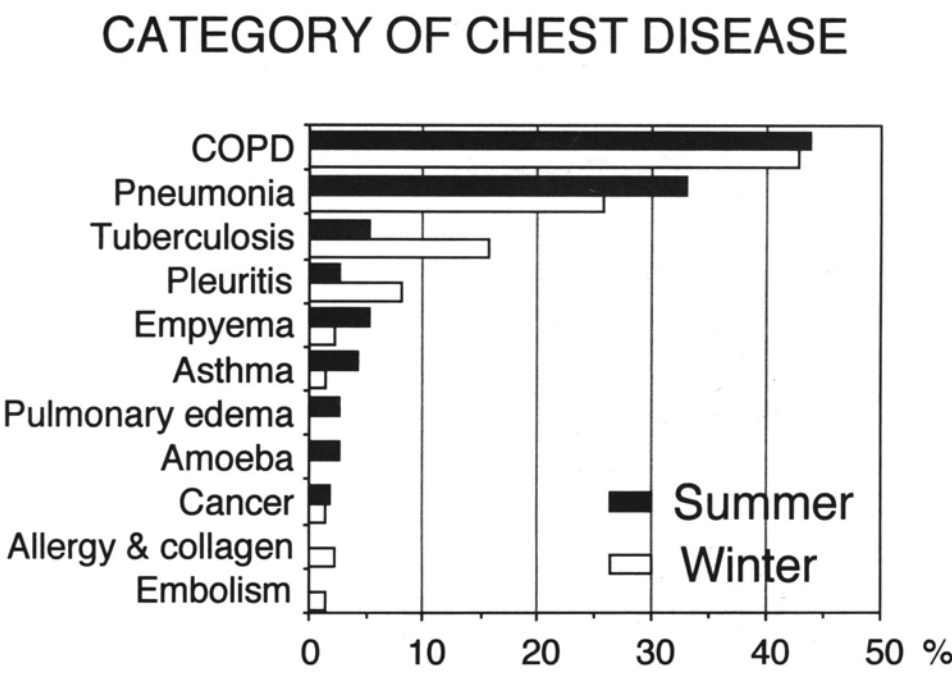


Figure 6

# ANTIBACTERIAL DRUG

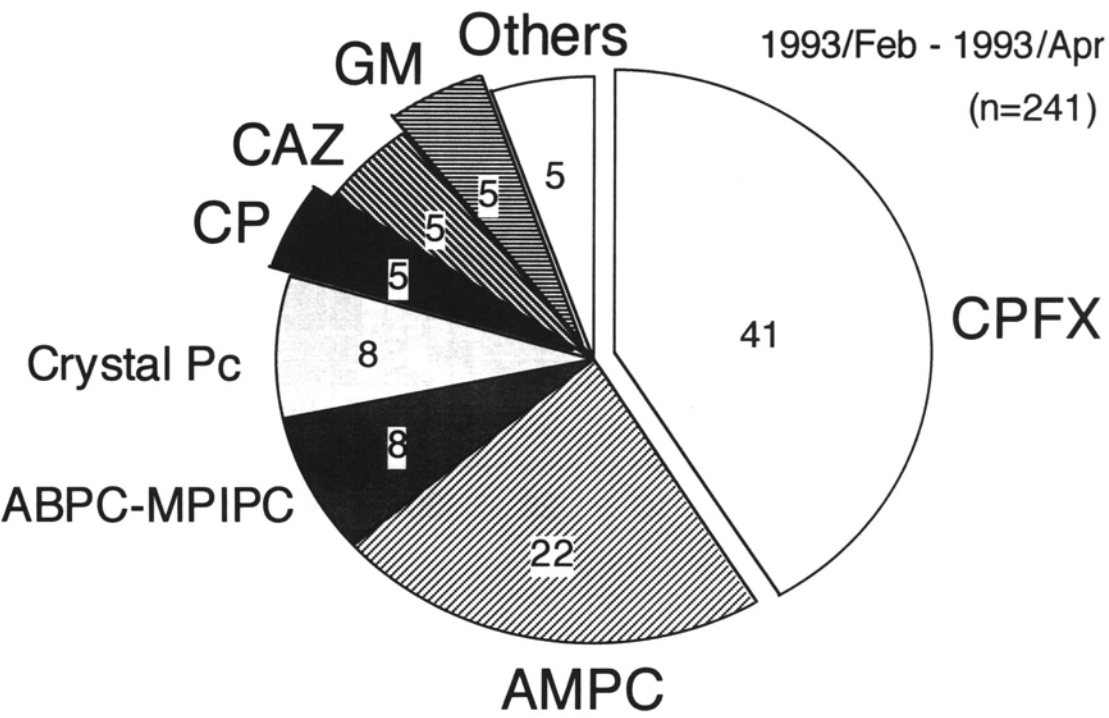
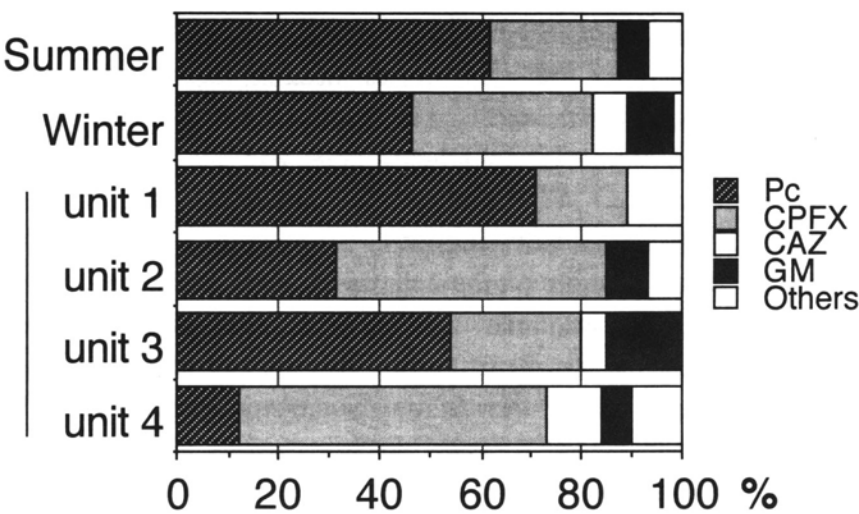


Figure 7

ANTIBIOTICS FOR RESPIRATORY INFECTION



# **Estimation of Pharyngeal Bacterial Flora of the Children in Thailand**

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Key words: acute respiratory infection, children, Thailand

## **Introduction**

In parallel to the accumulation of the reports on children's mortality in developing countries, it has been increasing recognition that acute respiratory infections (ARI), as well as diarrhea disease, is one of the leading cause of death especially among the children younger than 5 years<sup>1),2),3),7)</sup>. According to the pronouncement at the World Summit for Children in 1990, which established the goal of reducing the deaths by ARI to one-third until the year 2000, management and prevention of ARI has been a central objects<sup>9)</sup>. On the other hand, recent development of antimicrobial chemotherapy attributed to the treatment for various bacterial infections and reduced mortality of life-threatening infectious diseases in developed countries. Even though establishment of the appropriate chemotherapy must be the major strategy in global program on ARI, less informations on causative bacteria and also resistant pattern of those to antimicrobial agents are available in developing countries<sup>5),8)</sup>. In the present study, we examined the pharyngeal pathogens of children in Thailand at an interval and discussed the possibility of following lower respiratory infections. Furthermore, the resistant pattern of respiratory pathogens was also discussed based on the results of determination of antibiotic sensitivity.

## **Methods**

(1) Study population and study protocol: In December 1994, thirty four healthy children in one of the typical rural kindergarten were enrolled in this study. This kindergarten was located in Mae Sot, Thailand. Bacterial culture of throat swabs was performed on each children. At the same time, height, body weight, body temperature were measured and physical examination of upper respiratory tract, such as pharyngeal and tonsillar findings, was carried out by physical doctors. Further more history taking especially about the symptoms of upper and lower respiratory infection and

previous medication was also performed in detail by health workers in Mae Sot. At an interval of ten days after the first examination, the same population of children were examined again according to the same protocol as previous one.

(2) Bacterial examination: Specimens of throat swabs were streaked on both Trypticase Soy Agar and Chocolate Agar plates in semi-quantitative procedure. After overnight culture at 37 °C, all plates were transported to the Central Laboratory in Chiang Mai University Hospital in order to identify the bacteria. In the estimation of culture results, *a*-streptococcus, *g*-streptococcus, *Micrococcus*, non-pathogenic *Neisseria* species, *Corynebacterium* species (except *C. diphtheriae*) and *Haemophilus* species (except *H. influenzae*) were considered as commensal normal flora. For the examination of antimicrobial sensitivities of isolated bacteria, minimal inhibitory concentrations (MICs) of several antimicrobial agents were determined by standard agar dilution method.

(3) Assessment of outcome: According to the results of throat culture, the significance of the isolation of respiratory pathogenic bacteria was assessed in relation to following clinical feature of the children, such as occurrence of fever, symptoms of lower respiratory infection. Moreover, adequate chemotherapeutic strategy for bacterial respiratory infections was discussed based on the results of antimicrobial sensitivity test of isolated bacteria.

## Result

Figure 1 shows the results of the throat culture from two sequential examination at an interval of 10 days. In the first examination (Fig.1-A), no respiratory pathogenic bacteria were isolated from more than a half of the children. On the other hands, most common isolated pathogen was *H. influenzae* (non typable) in children from whom respiratory pathogenic bacteria were isolated. In contrast to the first examination, the positive isolation of the pathogens was markedly increased from 37.5 % to 78.6 % in the second examination (Fig.2-B). Furthermore, in addition to the isolation of single pathogen, polymicrobial isolation from the identical children was numbered 7 cases (25%). Eventhough it is the same as those of previous examination that most frequent pathogens from throat culture was *H. influenzae*, isolation rate of *S. pneumoniae* and *M. catarrhalis* also increased significantly. In search for the important clinical parameters in parallel to

the increased rate of positive culture on pathogens in the second survey, two factors were suggested. Namely, one is the positive symptoms based on lower respiratory infections such as cough and sputum. Another one is the positive physical findings on pharyngitis (Table 1). Figure 2 shows the MIC for 90% of the strains tested (MIC<sub>90</sub> value) against *H. influenzae* (Fig.2-A) and *S. pneumoniae* (Fig.2-B). About *H. influenzae*, MIC<sub>90</sub> of penicillins (PCG, AMPC), ST and CP were too high to achieve the clinical efficacy. The second and third generation of cepheims (CTM, CMX, CTRX) and quinolones (NFLX, OFLX, CPMX) show good anti-*H. influenzae* activity. Against *S. pneumoniae*, ST, CP, TC and NFLX show high MIC<sub>90</sub> level. Although MIC<sub>90</sub> value of penicillins and cephalosporins indicates effective anti-*S. pneumoniae* activities, 9 strains of *S. pneumoniae* resulted in MIC 0.2 mg/ml.

### Discussion

Our result of throat culture from children who attended the kindergarten showed relatively high rate of isolation with respiratory pathogens especially in the second examination. At this point, it can be said that this positive rate of pathogens in the throat was changeable according to the children's clinical conditions, even though those children seem like healthy. From the precise history taking, between our twice survey, marked occurrence of the children with common cold was observed. From this fact it is speculated that viral infection in the upper respiratory tract might cause the increased rate of positive pathogens in throat in parallel to the positive findings of pharyngitis, and lead lower respiratory infection caused by the bacteria. Major pathogens isolated from throat swabs in children were *H. influenzae* and *S. pneumoniae* in relation to increasing symptoms of lower respiratory infections. To confirm the relationship between pathogens colonizing in the throat and critical pathogens in lower respiratory infections such as pneumonia, further examination will be required. Nevertheless, if it is clear that orally colonized bacteria possess the high potency to lead the following lower respiratory infections<sup>4),6)</sup>, control of the oral bacteria may be one of the preventive strategy for pneumonia. In addition, regular estimation of antibiotic resistance in pathogenic bacteria isolated from throat swabs may give an important information for appropriate chemotherapeutic regimens. Our result on antimicrobial sensitivities of *H. influenzae* and *S. pneumoniae*



isolated from the thoroat suggested the clinical useless of ST and CP to ordinary respiratory pathogens, and also gave attention on the increased rate of penicillin-resistant strains. In vitro data showed clearly that penicillins combained with b-lactamse inhibitor, second and third generation of cepheems, and quinolones should be considered as first choice antibiotic instead of penicillins or ST. But for the establishment of appropriate chemotherapy for ARI, economical back groud and untward effects of antibiotics in children shoud be discussed in the same time.

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Table 1. Relationship between clinical feature and positive pathogens from throat culture.  
 Comparison of two studies, the increment of positive rate of pathogens from 37.5 % to  
 78.6 % was parallel to pharyngitis sign and symptoms of lower respiratory infections.

	Clinical feature :			Positive rate of pathogenic bacteria from throat swab
	Fever ( $\geq 37^{\circ}\text{C}$ )	Positive symptoms based on lower respiratory infections <sup>a)</sup>	Positive findings of pharyngitis <sup>b)</sup>	
First examination (n = 32)	50.0 %	31.2 %	46.9 %	37.5 %
Second examination (n = 28)	17.9 %	50.0 %	75.0 %	78.6 %

a) : cough, sputum  
 b) : pharyngeal erythema, exudata and other inflammatory signs.

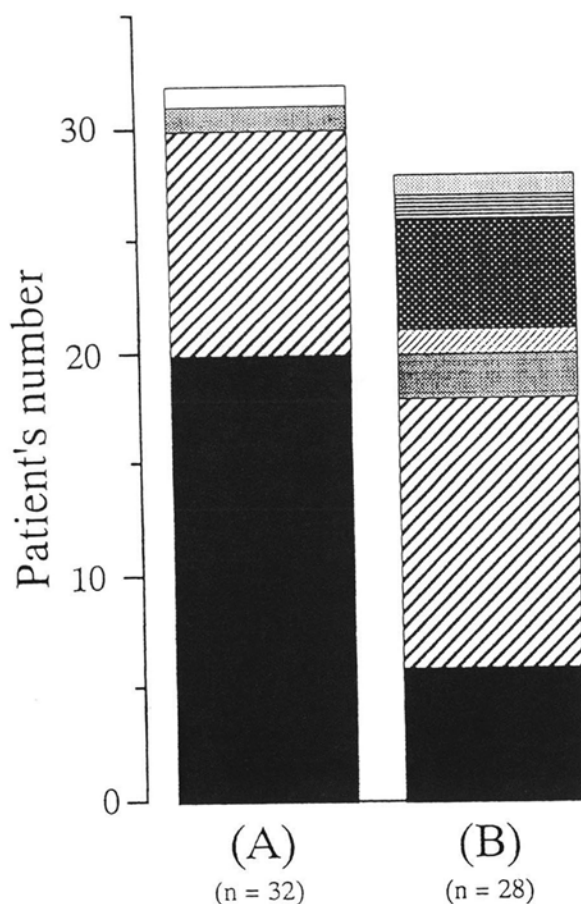
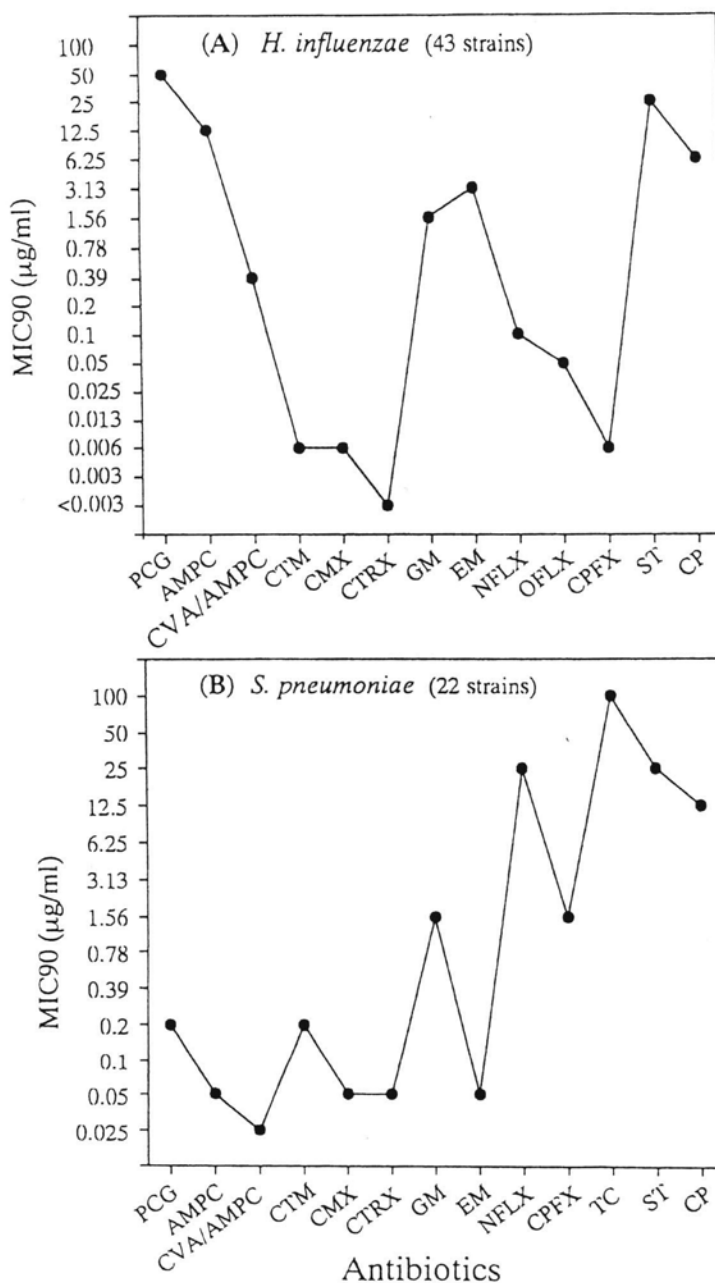


Fig. 1. Comparative results of throat culture of children from two sequential examination at an interval of 10 days. In first examination (A), respiratory pathogenic bacteria did not isolated in 62.5 % of total children. In second examination (B), number of children, from which pathogenic bacteria were isolated, markedly increased. Most frequent pathogens isolated from the throat swabs were *H. influenzae* and *S. pneumoniae*.

■: normal flora, ▨: *H. influenzae*, ▩: *S. pneumoniae*, ▧: *M. catarrhalis*  
 ■: *S. pneumoniae* + *H. influenzae*, ▨: *S. pneumoniae* + *H. influenzae* + *M. catarrhalis*  
 ▩: *S. pneumoniae* + *K. pneumoniae*, □: *S. aureus* + *S. pyogenes*

PCG: penicillin G, AMPC: amoxicillin, CVA/AMPC: clavulanic acid/amoxicillin, CTM:cefotiam, CMX: cefmenoxime, CTRX: ceftriaxon, GM: gentamicin, EM: erythromycin, NFLX: norfloxacin, CPFX: ciprofloxacin, ST: sulfamethoxazole-trimethoprim, CP: chloramphenicol, TC: tetracycline



Fi. 2. MIC 90 of antimicrobial agents against (A) *H. influenzae*, (B) *S. pneumoniae*.

(A): In contrast to high MIC 90 level of penicillins, AMPC combined to CVA( $\beta$ -lactamase inhibitor) achieves resonable MIC 90 level. Quinolones (NFLX, OFLX, CPFX) are also effective anti-*H. influenzae* activity. (B): Against *S. pneumoniae*, GM, NFLX, TC, ST, CP show higher MIC 90 level in comparison to  $\beta$ -lactams. The MIC 90 levels of AMPC, CMX, CTRX and EM are lower than 0.1  $\mu$ g/ml.

# New Approach for Dengue Fever Control in South Vietnam

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Key words: dengue fever, early detection, focal spray

## Introduction

Dengue Fever (DF), a mosquito-transmitted viral disease, is one of the leading causes of pediatric morbidity and mortality in tropical and sub-tropical areas<sup>1)</sup>. In south Vietnam, from 1963 to 1992 there were 518,332 patients with 8,958 deaths, mostly as a result of its more severe manifestations, dengue hemorrhagic fever (DHF) and dengue shock syndrome (DDS)<sup>2)</sup>.

Many attempts have been made to control DF and vector mosquito (*Aedes aegypti*) ; for instance, health education for control *Aedes aegypti* (adulticidal and larvicidal)<sup>3)</sup>, large scale fogging of insecticide<sup>4)</sup>. However, most of these control strategies have not been successful in the aspect of continuation of the effective dengue control.

Our new strategy<sup>5)</sup> is 1; dengue case detection at early stage (using IgM immuno-blot kit at health station level).2; focal fogging of insecticide around patients' house.

This strategy is based on following facts. One possible explanation of ineffectiveness of past dengue-control strategy was the time lag between the onset of dengue epidemic and the implementation of vector control, fogging of insecticide. Dengue viral incubation time in a mosquito body is around 2weeks, therefore it takes two weeks for freshly infected mosquito to transmit to human. The main vector mosquito, *Aedes aegypti*, was said to fly around 100m radius.

## Purpose

To evaluate the effectiveness of serious of our prevention strategy that the detection of dengue patients at early stage and quick focal insecticide spray

around the patient's house. This year, the study target was restricted to confirm the possibility of case detection at early stage.

### **Methods**

We chose three village according to pilot study, HN4, TB1, and TB2 located in Thong Nhat district, Dong Nai Province 30km far from Ho Chi Minh City. Each village has health station. The staff of health station made the health promotion of dengue and asked local people to go to health station when they have fever. Every febrile patient was interviewed to know the onset of fever and other symptoms. Blood samples were collected at health center, transfer to Pasteur Institute, the anti-dengue IgM antibody was checked using MAC-ELIZA method. We also studied possible family member of positive case.

### **Results**

The total 234 samples (129 male and 105 female) were studied. The total positive cases were 23 cases and positive rate was 9.8% (Table 1). Both febrile patients and positive cases were concentrated during rainy season as expected.

Six positive cases were found among 19 family members of dengue positive cases, positive rate was 31.6%.

It took maximum 7 days for every patient to know the result of IgM antibody from the onset of fever.

### **Discussion**

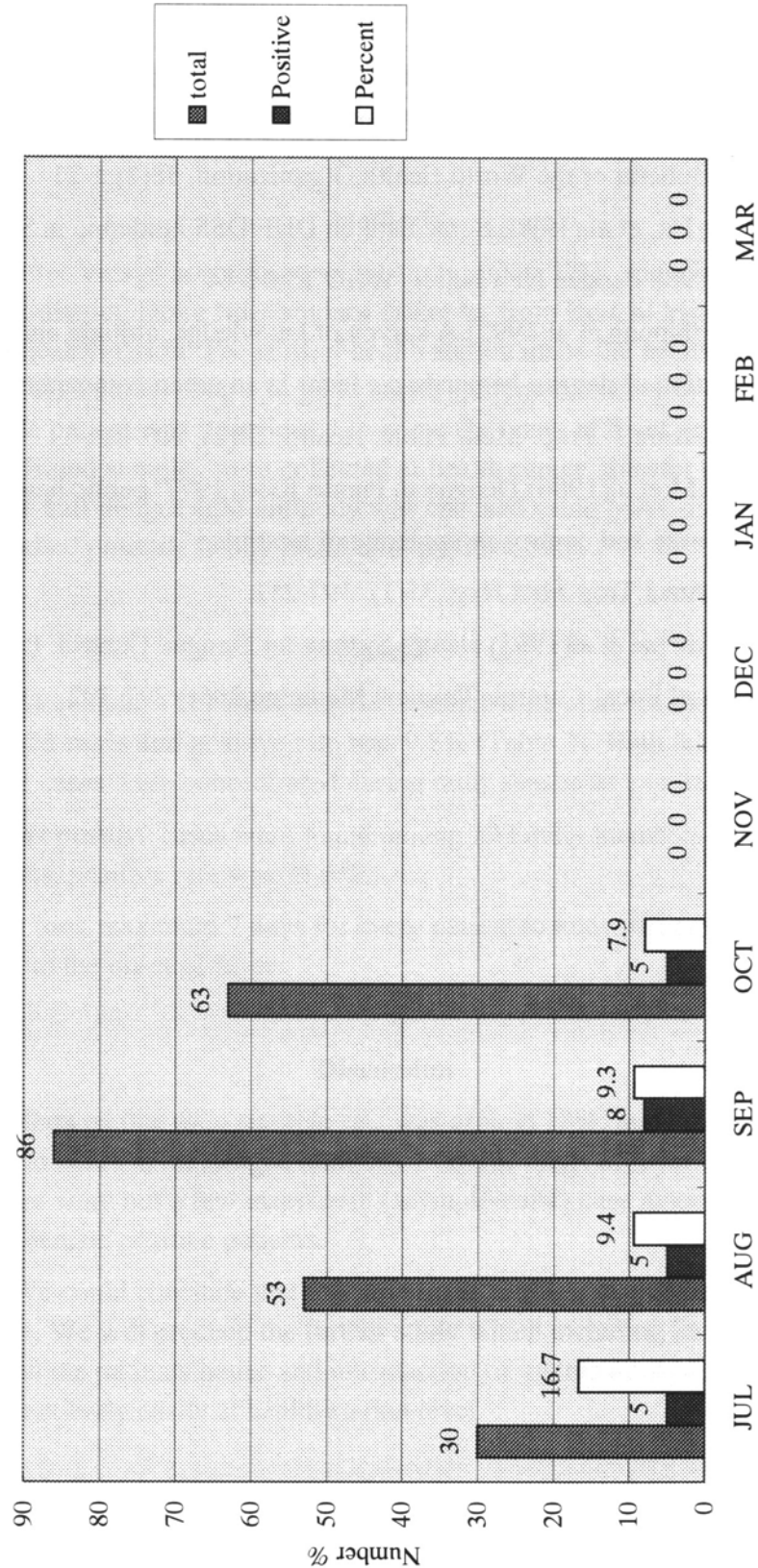
This study showed that total positive rate was around 10%, and It took at most seven days to confirm the dengue antibody from the onset of fever. We also showed there were not a few inapparent (asymptomatic) case among the family member of dengue positive patients.

We could conclude that this strategy is feasible in early detection of dengue case. We will proceed the further study which including focal insecticide spray around the patients house and introduction of immuno-dot blot kit. We can check IgM antibody easily at health station level.

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Table 1: The Number of Febrile Patients, Positive case and Positive Rate





## ***DIARRHEA***



# **Control Measures for Viral Diarrhoea in Developing Countries**

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**Key words:** rotavirus, surveillance, oral rehydration therapy

## **Introduction**

Diarrhoeal disease is one of the major causes of morbidity and mortality of children in developing countries. Infectious diarrhoea is classified according to causative enteropathogenic microorganism, that is to say, viral, bacterial, and parasitic diarrhoea. Viral diarrhoea is caused by rotavirus, adenovirus, calicivirus and calici-like viruses, astrovirus, and coronavirus<sup>1)</sup>. Rotavirus infection is the most prevalent cause among viral diarrhoea. Diarrhoea which is complicated with dehydration is often fatal especially for infants in developing countries. Control measures for viral diarrhoea are discussed in this workshop.

## **Methods**

A field survey was made in collaboration with researchers in Asian and African countries. Epidemiological surveillance, clinical manifestations, preventive and/or therapeutic strategies were investigated.

## **Results**

In Asian countries<sup>3)</sup> (Taichung, Hongkong, Beijing, Saitama and Shizuoka), rotavirus infection was prevalent in winter. Serotype 1 rotavirus was most commonly detected using the EIA method for VP7 serotype classification. Serotype 3 was frequently found in 1991, and serotype 2 in 1993. Among non-group A rotaviruses, only a few isolates of group C rotavirus were detected.

In Kenya<sup>2),3)</sup>, rotavirus was positive in 20-25% of diarrhoeal children (under 6 years old) using the EIA kit. Enteric adenoviruses and caliciviruses were positive in 1-2% of patients. As for seasonal change of rotavirus infection, they had many patients in the dry season, and sometimes detected rotavirus from more than 50% of diarrhoeal children. 80% of isolates

belonged to serotype 1, 2 and 4. Most patients with rotaviral diarrhoea were infants (more than 90% of the patients were under 2 years old, and 50% were 6-11 months old), but it was rare in patients less than 3 months old.

In Ghana<sup>2),3),4)</sup>, rotavirus was positive in 15% of diarrhoeal children (under 4 years old) and 7% of control (non-diarrhoeal) children using the electron microscope and EIA kit. Seasonal change and age distribution was similar to the Kenyan study. Non-group A rotaviruses were detected in 14.9% of rotavirus positive cases.

In Zambia<sup>2),3),5)</sup>, the viral pathogens in acute diarrhoea diseases included rotavirus 21.0% and adenovirus 1.1%. Rotavirus was more common in infants. There was a tendency of infection throughout the year with peaks in the dry season. Positive rate of rotavirus was 28.2% in non-dysentery (non-bloody stool) cases, and 6.8% in dysentery (bloody stool) cases. After the assessment of dehydration, it was found that there were more dehydration cases in the non-dysentery group.

Most diarrhoeal patients in developing countries were treated with oral rehydration therapy (ORT)<sup>2),3),5)</sup>. ORT is known to be the most effective therapy for dehydration caused by diarrhoea. WHO, UNICEF and the ministry of health in most countries promote ORT, so the popularization of ORT has made good advances recently. But we often come across obstacles when we put ORT into practice. These obstacles include cleanness and availability of drinking water, acceptability of ORT, cultural anthropological aspects and so on.

## Discussion

Viral diarrhoea is one of the most important diseases in developing countries especially in children. Rotavirus is the most common causative agent of viral diarrhoea. Morbidity and mortality of viral diarrhoea is higher in infants. Rotavirus infection is prevalent in dry and lower-temperature seasons. Group A and serotypes 1-4 rotavirus were detected frequently. The knowledge for ORT has been growing more and more among inhabitants of developing countries. But for practicing ORT, more education and enlightenment is needed. For the establishment of effective control measures against diarrhoeal diseases, global and comprehensive considerations are important. These include medical, nutritional, epidemiological and cultural anthropological aspects.

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Table 1. Viral pathogen of diarrhoea

Virus	Diagnostic Kit
Rotavirus	available
Adenovirus	available
Calicivirus	not available
Norwalkvirus	not available
SRSV	not available
Astrovirus	not available
Coronavirus	not available

Table 2. Summary of rotavirus infection in developing countries

frequency	15-25% positive in diarrhoeal patients
group	group A is prevalent
serotype	serotype 1-4 is prevalent
seasonability	dry and cool (cold) season
patients age	3 - 18 months old
diagnosis	EM, ELISA, LA, RPHA
dehydration	severe
therapy	oral rehydration therapy
future strategy	immunization

# **Present Status of Bacterial Diarrheal Diseases in Kenya and their Countermeasure**

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**Key words:** infectious diarrhea, transmission route, water-borne infection

Diarrhea is still one of the major causes of death in developing countries, Kenya is not an exception. We conducted a survey study on diarrheal diseases and their transmission route in Kenya to find the possible way of countermeasure.

## **Materials and Methods**

**Subjects:** Stools were collected from diarrheal patients under 5 years-old who attended Malindi Kitui and Nairobi hospital. Those specimens were examined for bacteria, rotavirus and parasites. **Survey of transmission route:** Well-water and house-holding water were analyzed for bacterial contamination.

## **Results and Discussion**

We investigated pathogenic agents of 939 patients with diarrhea found in Malindi, a tropical, coastal town. The results (Table 1) indicated that many of the causative bacteria were those arising from faces-to-mouth infection, eg. pathogenic *E. coli*, *Salmonella*, and *Shigella* spp. Water-born infection was strongly suspected. In order to grasp diarrhea spectra in the whole of Kenya, the causative agents of diarrhea in patients from Kitui (N=111), a semi-desert area and Nairobi (N=173). The results were those similar to that obtained in Malindi.

We also conducted a community-based study and compared the isolation frequency of enteropathogens from both diarrheal patients (N=194) and healthy controls (N=160) (Table 2).

High prevalence of enteropathogens in apparently asymptomatic

children was noted, although some pathogens (such as Pathogenic *E. coli*, *Salmonella* spp. and *Shigella* spp) were more predominantly isolated from diarrheal specimens.

A possible transmission route was also examined, and we found that house-keeping drinking water is highly contaminated by bacteria (Table 3). The total viable bacteria at the concentration of  $10^4$ - $10^5$  CFU/ml and more than  $10^5$  CFU/ml was detected in 53% and 21% of house-hold examined, respectively. Coloform bacteria at the concentration of more than  $10^4$  CFU/ml was found in 8% of household. The bacteria isolated from the water are mainly following species; *Escherichia*, *Aeromonas*, *Serratia*, *Proteus*, *Streptococcus*, *Chromobacterium* and *Vibrio* ,*Salmonella* spp. was isolated from a sample.

From these results, we suppose that the main causes of diarrhea, are water-borne (with fecal-oral transmission) infection. We are now introducing a moderate heat-treatment (70°C, 10 min for obtaining safe, clean water in Kenya, A preliminary results suggest a great improvement to reduce bacterial contamination in house-keeping drinking water after introducing this treatment. We believe that it would be necessary and to improve crucial to improve hygiene level by practice change through health education.

### **Acknowledgment**

We thank all the contributors for JICA/KEMRI Bacterial Diarrhoea Project.



Table 1. Causative agents of childhood diarrhea in Malindi, a coastal town

Causative agent		Incidence(%)
Bacterial diarrhea	1.33 %	
Pathogenic <i>E. coli</i>		17.3 %
<i>Salmonella</i> spp.		7.1 %
<i>Shigella</i> spp.		6.3 %
<i>Campylobacter</i> spp.		4.5 %
<i>Vibrio</i> spp.		0.4 %
Mixed infection		4.3 %
Viral diarrhea	17.2 %	
<i>Rotavirus</i>		17.2 %
Parasitic diarrhea	12.3 %	
<i>Entamoeba histolytica</i>		7.5 %
<i>Giardia lamblia</i>		4.8 %
Mixed infection	9.6 %	

N=939

Table 2. The detectin of enteropathogens in diarrhoeal patients and controls

Enteropathogen	Diarrheal group N=194 (%)	Healthy Control N=160 (%)
Pathogenic <i>E. coli</i>	51(26.3)	27(16.9)
<i>Salmonella</i> spp.	15(7.7)	4(2.5)
<i>Campylobacter</i> spp.	9(4.5)	1(1.3)
<i>A. hydrophila</i>	2(1)	0(0)
<i>G.lamblia</i>	19(9.8)	5(3.1)
<i>Ascaris lumbricoides</i>	11(5.7)	3(1.9)
Hook worms	6(3.1)	1(1.3)
<i>Trichuris trichura</i>	5(2.6)	0(0)
<i>T. Hominis</i>	3(1.5)	3(01.9)
<i>Ent.histolytica</i>	2(1)	1(1.3)
<i>Strongyloides</i>	0(0)	
<i>E. vermicularis</i>	1(0.5)	0(0)
Rotavirus	56(29.1)	14(9)

Table3. Bacterial number in the water stocked in houses

CFU/ml	Number of household	
	Total viable count	Coliform
<10	1	15
10 <sup>1</sup> -10 <sup>2</sup>	1	13
10 <sup>2</sup> -10 <sup>3</sup>	0	26
10 <sup>3</sup> -10 <sup>4</sup>	24	38
10 <sup>4</sup> -10 <sup>5</sup>	53	8
10 <sup>5</sup> -10 <sup>6</sup>	21	0
N=120		

# **Pandemic of Cholera due to a New Serogroup of *Vibrio Cholerae* O139 Bengal**

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**Key words:** Cholera, *Vibrio cholerae* O139 Bengal, new serogroup.

Epidemic and pandemic cholera has been considered to be associated only with the O1 serogroup of *Vibrio cholerae* while strains which did not agglutinate with the O1 antiserum (non-O1 *V. cholerae*) are widely distributed in the aquatic environment and are responsible for sporadic cases of gastroenteritis and occasionally associated with extraintestinal infections. In October 1992, a large explosive outbreak of cholera-like illness due to a non-O1 *V. cholerae* occurred in Madras, India (Ramamurthy et al., 1993).

Extensive characterization of the *V. cholerae* non-O1 strains showed that all the isolated non-O1 strains had the following characteristics: i) all the strains did not agglutinate with polyvalent O1 antiserum or with monoclonal antibodies against factors A, B and C of the O1 serogroup, ii) all the strains did not agglutinate with antisera against any of the existing 137 serogroups of *V. cholerae* non-O1 recognized at that time, and iii) all the strains produced cholera toxin (CT). This was followed by a large outbreak of clinical cholera due to strains of *V. cholerae* that did not agglutinate with the O1 antiserum in the southern coastal belt of Bangladesh between December 1992 and January 1993 (Albert et al., 1993).

Serological studies revealed that the non-O1 outbreak strains from India and Bangladesh were similar and distinct from the existing 138 serogroups of *V. cholerae*; consequently these strains were assigned to a new serogroups, namely O139 and given a synonym "Bengal" to symbolize the first isolation of these strains from coastal areas located on the Bay of Bengal (Shimada et al., 1993).

*V. cholerae* O139 Bengal spread rapidly, and in the span of one year since the first outbreak in October 1992, the O139 Bengal strains were isolated in several Asian countries such as Thailand, Nepal, Myanmar, China, Malaysia and Srilanka. Imported cases of cholera due to O139 Bengal strains were also reported from several countries in the world. The spread of *V. cholerae* O139 within India and Bangladesh have been monitored in detail

(Nair et al., 1994; Albert et al., 1993). Both in India and Bangladesh, the earliest incidence of O139 outbreaks occurred in southern parts and then rapidly spread into inland areas. In Calcutta, India, the O139 appeared to have completely displaced the O1 *V. cholerae* from January to June 1993 (Nair et al., 1994) while in Bangladesh the incidence of O1 during the O139 outbreak reached an all-time low of 3% (Mahalanabis et al., 1994).

The clinical features of the disease caused by the O139 serogroup was indistinguishable from that of cholera caused by the O1 serogroup of *V. cholerae*. In a study on 113 patients admitted to the Infectious Diseases Hospital in Calcutta, it was observed that a high proportion of cases (85%) had severe life-threatening dehydrating diarrhoea with serum and stool electrolytes of O139 infected patients being similar to that observed in cholera patients infected with the O1 serogroup. Based on the similarities in the clinical presentation of the disease caused by *V. cholerae* O1 and O139, Bhattacharya et al. (1993) designated the disease caused by *V. cholerae* O139 as cholera. Based on this report and on those from Bangladesh (Albert et al., 1993; Mahalanabis et al., 1994), and because the O139 strains possessed similar epidemic potential as that of the O1 serogroup, the World Health Organization (1993) has requested all nations to report the disease caused by O139 as cholera.

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## **Increasing trend of cholera cases among Japanese travelers visiting Cholera endemic countries**

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**Key words :** cholera endemic countries, Japanese travelers, cholera infection rate

### **Summary**

Cholera outbreaks still continue to occur in different parts of the world as seen in the big epidemics in Central and South American countries in 1991 and 1992. Although, Cholera accounts for least number of cases among infectious diseases which Japanese travelers contract while visiting developing countries, it should be noted that the trend of annual incidence rate of Cholera among Japanese travelers visiting Cholera endemic countries has been increasing in the past 15 years. Thus, continued efforts for raising awareness on Cholera as well as other communicable diseases among Japanese travelers to such countries is essential.

### **Introduction**

Number of Japanese travelers arriving from Cholera endemic countries has been increasing and reaches to more than 3 million in 1994<sup>1)2)</sup> and Cholera outbreaks still continue to occur in different parts of the world<sup>3)</sup>. Presently, Cholera accounts for least number of cases among infectious diseases which Japanese travelers suffered while visiting developing countries. Despite the fact, however, it is important to note that Cholera is potentially fatal although it can be prevented and easily be treated at present. This paper is intended to analyze present situation of cholera infection among Japanese travelers visiting cholera endemic countries and discuss strategy for prevention of cholera infection among Japanese travelers.

## Materials and methods

The number of arrivals from cholera endemic countries to Japan and detected number of cholera cases among them were collected from the Annual Report of Quarantine Services<sup>1,2)</sup>. The number of Japanese travelers visited India and the Philippines was collected from the Annual Report of Immigration Services<sup>4)</sup>. In the view to make a comparison, the number of US travelers visited India and the Philippines and detected cholera cases among them were collected from US Travel and Tourism Administration (USTTA) In-Flight Survey<sup>6)</sup> and the data of National Center for Infectious Diseases, USA respectively<sup>5,6)</sup>. Incidence of cholera cases was analyzed by the number of cases detected / the total number of travelers. The statistical significance for comparison of incidence of cholera between US travelers and Japanese travelers visited India and the Philippines was tested by O / E ratio according to J.C.Bailar's method<sup>7)</sup>.

## Results

Out of past 18 years (1977-1995) annual number of cholera cases were below 50 in 13 years and rest 5 years had number of cholera cases ranging from 68 to 101. But in 1995, there was an epidemic and number of cholera cases sharply increased to 341 cases (table 1)

Among 341 Cholera cases in 1995, 296 were the travelers who visited Bali, Indonesia. It is interesting to observe that along with the increasing annual number of travelers arriving from Cholera endemic countries, which reached more than 3 million in 1994 (Fig 1), the trend of annual incidence of cholera infection among Japanese travelers has been increasing trend in the past 15 years (Fig 2). In this connection, 98 percent of total number of cholera cases detected during the period (1977-1995) were Japanese travelers arrived from cholera endemic countries.

Table 2 shows the comparison of the incidence of cholera cases among the US travelers and the Japanese travelers visiting India and the Philippines in 1992 and 1993. It was found that the incidence of Cholera cases was significantly higher ( $P < 0.01$ ) among the Japanese travelers compared to that of US travelers who visited India. Similarly, the incidence of cholera cases was significantly higher ( $P < 0.01$ ) among Japanese traveler compared to that of US travelers who visited the Philippines.



## **Discussion**

The higher incidence of cholera cases among Japanese travelers than that of US travelers visiting India and the Philippines suggests that the Japanese travelers are more liable to contract cholera in Cholera endemic countries. The suggestion may further be supported by the findings that the Cholera epidemic among travelers visiting Bali in 1995 was reported only among Japanese travelers but not among non-Japanese travelers. The reason for the higher incidence of cholera cases among Japanese traveler is not clear, however, it may be correlated to the fact that the Japanese people like to eat raw fish food more than the Americans and the people of other countries.

In this regard, raising awareness to cholera as well as other communicable diseases among the Japanese travelers is essential. To do this, development of a system for information, education and communication for presenting communicable diseases including Cholera is important. The suggestion should be explored urgently in view of the increasing trend of cholera case among the Japanese travelers visiting cholera endemic countries.

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Table 1 : Annual number of cholera cases detected from among overseas travelers ( 1977-1995 )

Year	No. of cholera cases (1977-1995)	Year	No. of cholera cases (1977-1995)
1977	7	1987	32
1978	18	1988	34
1979	21	1989	36
1980	34	1990	68
1981	19	1991	72
1982	33	1992	49
1983	29	1993	101
1984	88	1994	90
1985	37	1995	341
1986	27	<b>Total</b>	<b>1,136</b>

Table 2 : Incidence of Cholera cases among US and Japanese travelers  
visited India and the Philippines in 1992 and 1993

	India		the Philippines	
Travelers	Japanese	USA	Japanese	USA
Number of Travelers	468,000	529,000	72,100	428,000
Cholera cases	1	3	9	17
Incidence per 10,000 travelers	0.21	0.57	12.48	3.97
Statistical significance	P<0.01		P<0.01	

Table 2 : Incidence of Cholera cases among US and Japanese travelers  
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Cholera cases	1	3	9	17
Incidence per 10,000 travelers	0.21	0.57	12.48	3.97
Statistical significance	P<0.01		P<0.01	

Figure 1 : Number of arrivals from Cholera endemic countries to Japan by  
airplane, by year, 1977-1995

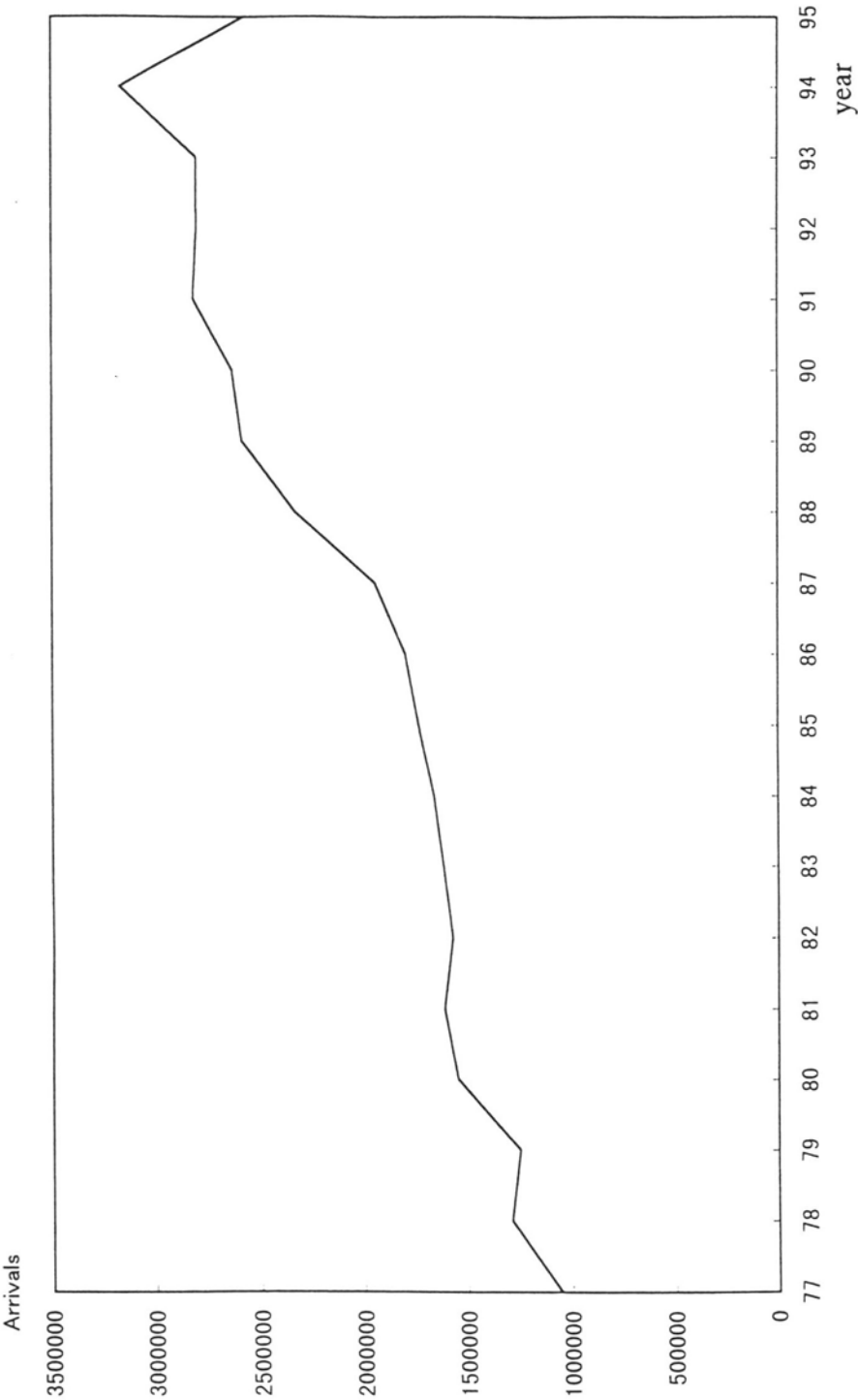
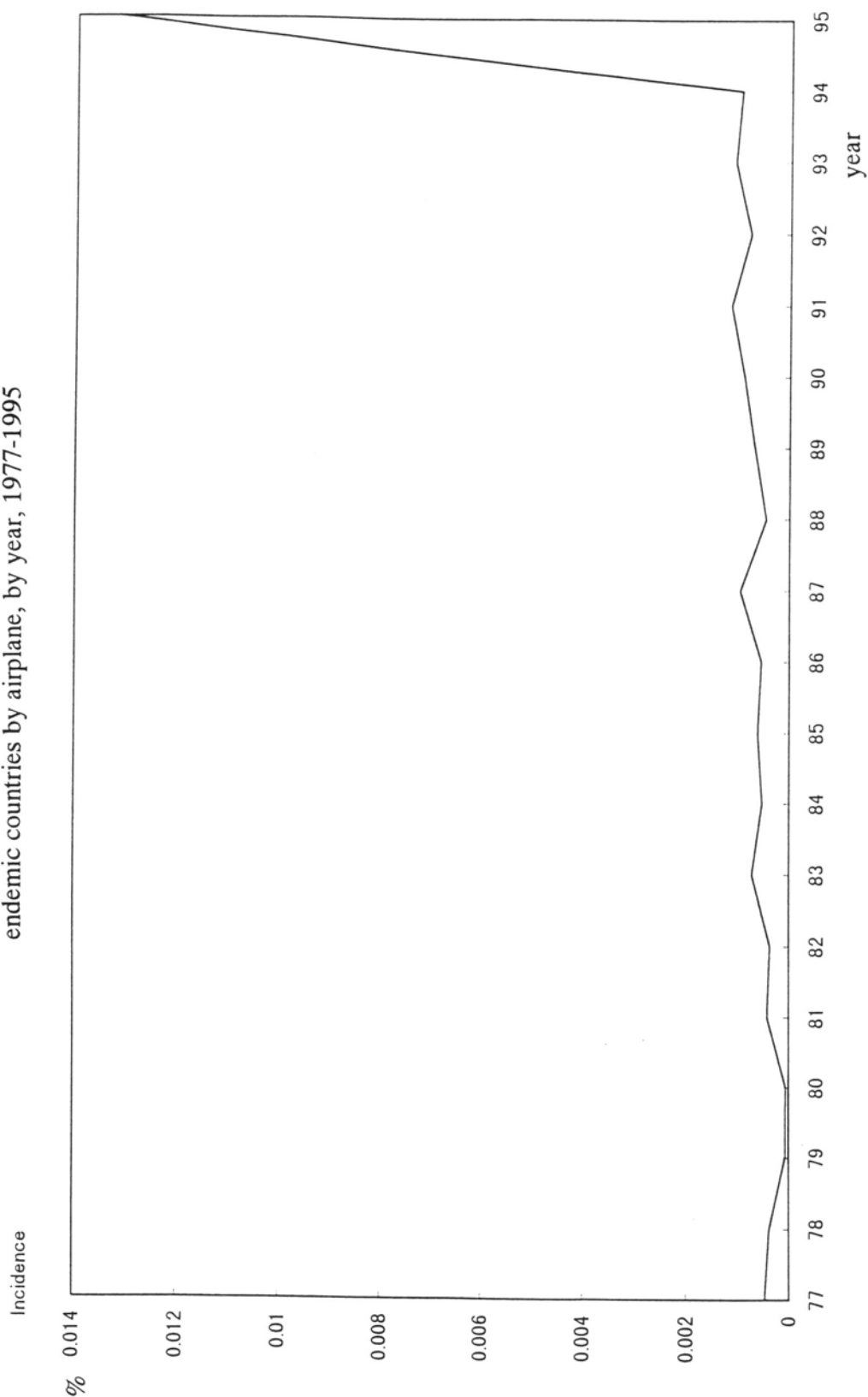


Figure 2 : Incidence of Cholera cases detected from arrivals from Cholera endemic countries by airplane, by year, 1977-1995



# **Viral Infection among Infants with Diarrhea in Pakistan**

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**Key words:** group A rotavirus, enteric adenovirus, astrovirus

## **Introcuccion**

The death rate caused by diarrheal diseases in infants is very high in developing countries; especially group A rotavirus kills infants at the highest rate. Other viruses such as enteric adenovirus and astrovirus are also noteworthy <sup>2)</sup>. In this study, we examined the etiological viruses focusing on period- and age- dependency in order to pay a foundation for vaccine development.

## **Materials and Methods**

Stool samples were collected from the outpatient clinic of pediatrics, Karachi City Hospital, Pakistan from November 1989 to October 1994. 644 were from infants with diarrhea, 244 from infants with poliomyelitis, and 249 from healthy infants.

Stools were diluted to 10% suspension with minimum essential medium and then centrifuged at 10,000 x g for 20 min. The supernatant was stored at -20C until use. Group A- and group C rotaviruses, enteric adenovirus and astrovirus in stools were examined by sandwich enzyme immunoassay (EIA). Group A rotavirus - positive specimens were further subjected to serotyping by EIA with four serotype-specific monoclonal antibodies (VP7: G1, G2, G3 and G4). Adenovirus antigen-positive stools were serotyped by EIA with Ad40 and Ad41 specific monoclonal antibodies.

## **Results**

### **1. Yearly distribution of group A rotavirus, enteric adenovirus and astrovirus.**

92 samples (14.3%) of Group A rotavirus was detected from the 644 samples, mostly in 1991. Among group A rotaviruses, 24 samples were serotype 4, 21 were serotype 1, 10 were serotype 2. Serotype 3 was not detected at all. Group C rotaviruses were never detected in this study period as well. Enteric adenovirus was detected in 15 samples (2.3%). Three infected patients (3.2%) were detected in 1994 at the highest degree and 1 patient

(0.9%) was detected in 1991 at the lowest degree.

Astrovirus was detected in 11 patients (1.7%). The peak came in 1990 with five infected patients.

2. *Monthly distribution of rotavirus, enteric adenovirus and astrovirus.*

The detected time of the year differed depend on viruses. Group A rotavirus was detected from May to September, enteric adenovirus was in May and June, and astrovirus was mostly in September.

3. *Age distribution of rotavirus, enteric adenovirus and astrovirus.*

Rotavirus, enteric adenovirus and astrovirus were mostly detected in infants between 6 months and 1 year old. 97% of rotavirus, 73% of enteric adenovirus and 94% of astrovirus were detected in the age.

4. *Detection of the viruses in various health conditions.*

Rotavirus was detected in 14.3% of diarrheal children. The ratio is much higher when compared with poliomyelitis (1.3%) and with healthy control (0.8%).

Enteric adenovirus was detected in 2.3% of diarrheal children, 0.9% of patients with poliomyelitis and 0.4% of healthy control.

### **Discussion**

This study was focused on detection of rotavirus, enteric adenovirus and astrovirus in Pakistan. Our results were similar to the previous reports; diarrhea caused by rotavirus was most frequently found in Pakistan as in other developing countries <sup>1,3</sup>. As far as viral diarrheal diseases are concerned, the second major cause is enteric adenovirus followed by astrovirus <sup>4</sup>. These viruses stated above were recognized mainly between May and September among infants of 6 months to less than 2 years of age <sup>1,3,4</sup>. The study will be important not only to know the epidemiology of diarrheal viruses but also to develop vaccine.

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# ***TUBERCULOSIS***



## **Tuberculosis Control in Developing Countries-facing with a new global strategy of WHO**

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key words; tuberculosis, developing countries, strategy

This workshop aimed to examine the current situation of tuberculosis control in developing countries coping with a new strategy of WHO. Speakers were the experienced Drs. or public health nurse and laboratory scientist who had worked in the Philippines, Bangladesh, Cambodia etc. Dr. Suchi and Ms. Fujiki belonged to the projects of JICA-Governmental organization-, and Dr. Takahashi and Ms. Shoji belonged to the NGO projects. So they were good combination of national level programmes and grass-root programmes. Dr. Fujita belonged to public health school and he bridged those two groups of speakers from the viewpoint of participatory action research.

The Chairman explained a new strategy of WHO on tuberculosis control at the opening point of the workshop. Namely, the targets for global TB control <sup>1)</sup>are

To cure 85% of the detected new smear positive TB cases and  
To detect 70% of existing cases by the year 2000.

WHO also proposed TB control policy package 1), which consisted of the following five elements.

1. government commitment
2. case detection through passive case finding
3. standardized short-course chemotherapy to all confirmed sputum smear positive cases of TB
4. regular drug supply
5. monitoring system

Those policy were established based on the current TB global emergency <sup>2)</sup>and the TB epidemic <sup>3)</sup> which claimed 12 million people dying of TB in the next decade. After the presentations of speakers, Dr. T. Shimao, the president

of JATA and Dr. T. Mori, the deputy director of RIT, JATA, gave the useful comments on the policy issue of global TB programme to the audience.

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## **Assessment of Case-Finding of Tuberculosis Patients in a District in Cambodia**

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**Key words: tuberculosis, case-finding, delay of diagnosis**

### **Introduction**

When we started working at a tuberculosis ward in the Bati District Health Center (BDHC), we were surprised that some patients spent a long period and wasted a lot of money before reaching a correct diagnosis and treatment. According to the government policy the public system is free of charge and the district health center is the only health service able to provide the facilities for the diagnosis of tuberculosis in the district. Why do so few patients use this important health service? We needed to know the reason for the low utilization of the district health center. And we hoped that the results would assist our program.

### **Background**

In Cambodia, the tuberculosis control system had been destroyed almost completely by 1979 because of prolonged civil war. From 1980, the National Tuberculosis Program(NTP) was supported by the French Red Cross. Throughout the last ten years social and economical factors such as lack of drugs, the insecurity limiting travel, etc., hindered the progress of the NTP. Under such situation, the Annual Risk of Infection of tuberculosis is estimated to be 4.5%.<sup>1)</sup>

After the national election in 1993, a new NTP which includes implementation of short term chemotherapy was adopted by the Ministry of Health. Meanwhile Japan Overseas Christian Medical Cooperative Service (JOCS) has been involved in developing a primary health care program in the Bati district since 1989. During the post-election period, we decided to focus on the tuberculosis program in Bati District Health Center (BDHC).

Bati district, located in Takeo province, which is one of the highest

tuberculosis affected provinces in Cambodia, is 40 km south of Phnom Penh. Population figures almost 100,000. The Bati district is divided into 15 communes and there are 168 villages. BDHC is the only health center in the Bati district where diagnosis and treatment of tuberculosis can be done.

### **Subject and Method**

As a pilot study, in 1993 we started interviewing using a questionnaire translated into the Khmer language. We revised the questionnaire based on consultation with the staff of BDHC.

From April 1994 to January 1995 we studied patients admitted to the tuberculosis ward of BDHC. During those nine months 163 tuberculosis patients registered at BDHC. We could not interview all the in-patients because of the limitation of time, and obtained data of 100 cases. As six of these were re-treatment cases and three were patients from other districts, we analyzed 91 cases.

### **Results and Discussion**

Sex and age distribution reveals that in Cambodia female ratio of the patients is higher than male compared with other countries (Table 1). This comes from the difference of sex ratio of the general population. As a result of war there is a high female ratio of the age group between 15 and 64 years old.

Geographical distribution of patients and the general population is shown in Figure 1. As suspected, patients living near BDHC come more than those in distant area. Also there are many patients in the communes where BDHC staff members live.

First choice of treatment for initial symptoms (Figure 2) coincide with the results of a survey done in other district in 1992<sup>1</sup>. The percentage of utilization of private sectors is very high. It is clear that the use of the public system is very low. As shown in Figure 3, the patient's delay (delay in obtaining consultation) is not so long when comparing the data in Cambodia with that of other countries<sup>2</sup>). If we define that the patient's delay is the interval between the onset of symptoms and the first visit to any health institution including private pharmacies and traditional healers, the delay become much shorter.

Doctor's delay (delay in providing health service) is defined as the interval between the first visit to some health institution, the diagnosis of tuberculosis, registration, and the start of chemotherapy. Distribution of doctor's delay is shown in Figure 4. When comparing the median of doctor's delay in Cambodia with those

of other countries<sup>3</sup>, the delay in Cambodia is the longest. The contributing factor to that result must be the group suffering in a prolonged pattern of chronic illness, which we shall designate “chronic-course” patients.

When we consider the reasons for the long delay in providing service in a district in Cambodia, we must point out two factors. One is the possibility of the mingling of symptoms from other diseases. As this survey is based on patient interviews, it is not so easy to make a differential diagnosis of initial symptoms. The other factor is due to the chronic-course patients. Insufficient and intermittent treatments for tuberculosis by private sectors in villages might produce chronic-course patients as in the case study above.

Because civil wars broke out one after another in Cambodia, the tuberculosis control system was destroyed by 1979. After that the rehabilitation of the public health service made little progress. As a result unqualified private practitioners proliferated in the villages.

In the past, when we asked patients who advised them to come to BDHC, most of them answered it was their own decision. These days, however, especially after implementation of the new NTP in June 1994, their replies have been changing (Figure 5). Recovered Tuberculosis patients treated at BDHC spread word of the new NTP.

### **Conclusion**

In Cambodia, the existence of chronic-course tuberculosis patients must be due to the long delay in health service on tuberculosis. Because of the destroyed public health system the private sectors spread broadly and chaotically, and they have played an important role in “primary health care”. In the other hand the lack of their basic medical knowledge produced many “chronic- course” tuberculosis patients.

The new NTP was implemented and the recovered patients have advised their neighbors to get treatments at the public health service. This is a new trend. Though as Willem Van de Pot <sup>2</sup> describe, exogenous and endogenous sociological factors surrounding patients strongly tied with the private sectors. To stimulate the new NTP, the coordination of private sectors might be as important as strengthening commune health workers.

### **Acknowledgment**

We would like to thank the staff of the Bati District Health Center for cooperating

this research, the staff of National Anti-Tuberculosis Center, Phnom Penh, Cambodia for their assistance, We also thank Sin Sarana who spent many hours for adjusting the data.

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<sup>1</sup> MSF

<sup>3</sup>

<sup>2</sup>



Table I Sex and Age Distribution

Country	Total	SEX		AGE					
		Male	Female	Unknown	-29	-39	-49	-59	60- Unknown
Nepal	149	95	54	-	87	30	17	7	8 -
		63.8	36.2	-	58.4	20.1	11.4	4.7	5.4 -
Yemen	181	85	88	8	93	38	16	15	16 3
		47.0	48.6	4.4	51.4	21.0	8.8	8.3	8.8 1.7
Philippines	122	83	39	-	19	18	28	29	28 -
		68.0	32.0	-	15.6	14.8	23.0	23.8	23.0 -
Korea	1073	608	456	9	486	210	102	120	147 8
		56.7	42.5	0.8	45.3	19.6	9.5	11.2	13.7 0.7
Bangladesh	290	206	84	-	140	77	42	42	8 -
		71.0	29.0	-	48.3	26.6	14.5	7.9	2.8 -
Cambodia	91	44	47		12	10	19	28	22
		48.4 %	51.6 %		13.2	11.0	20.9	30.8	24.2

Figure 1 Geographical Distribution of Patients  
(A map of Bati District)

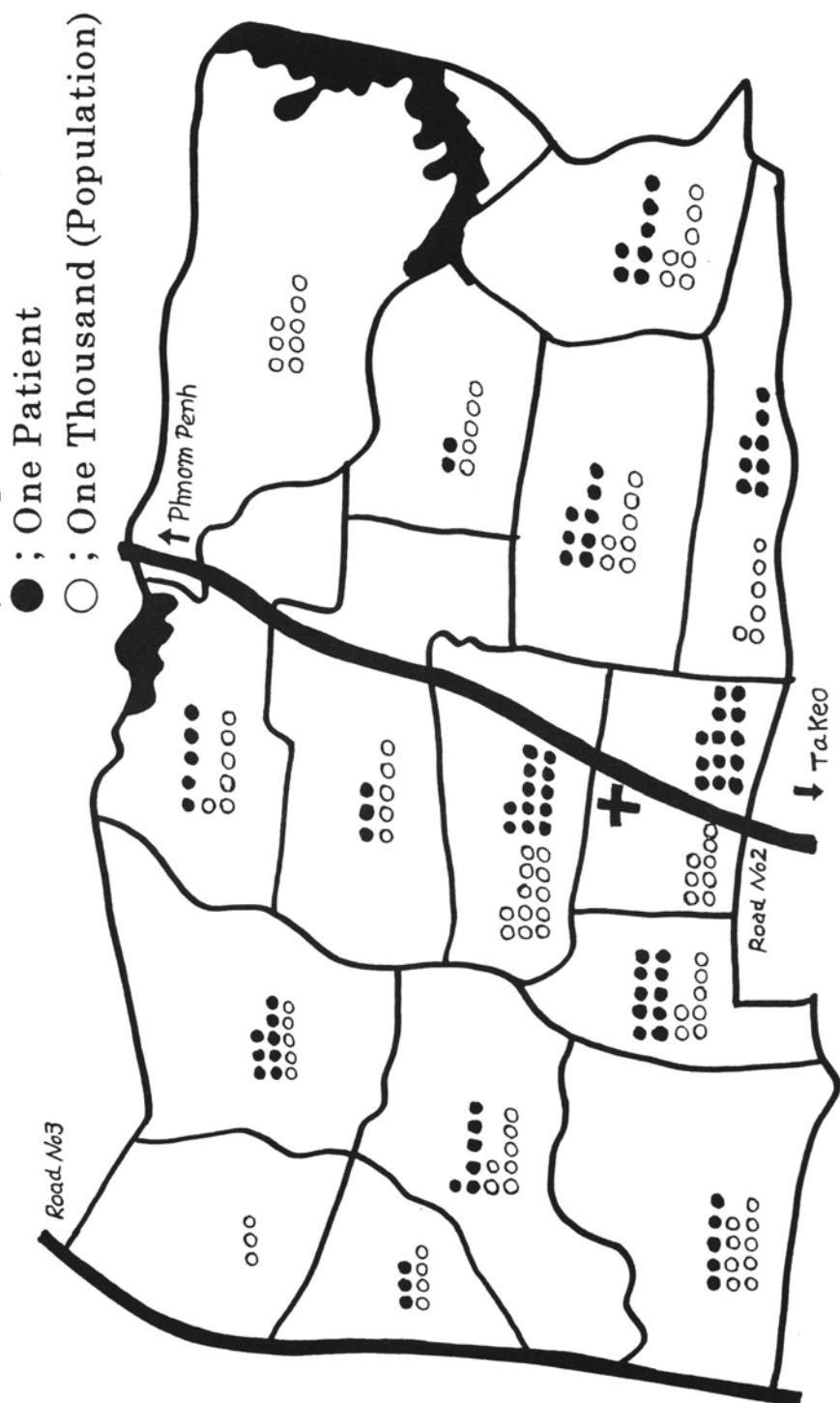


Figure 2 First choice for initial symptoms

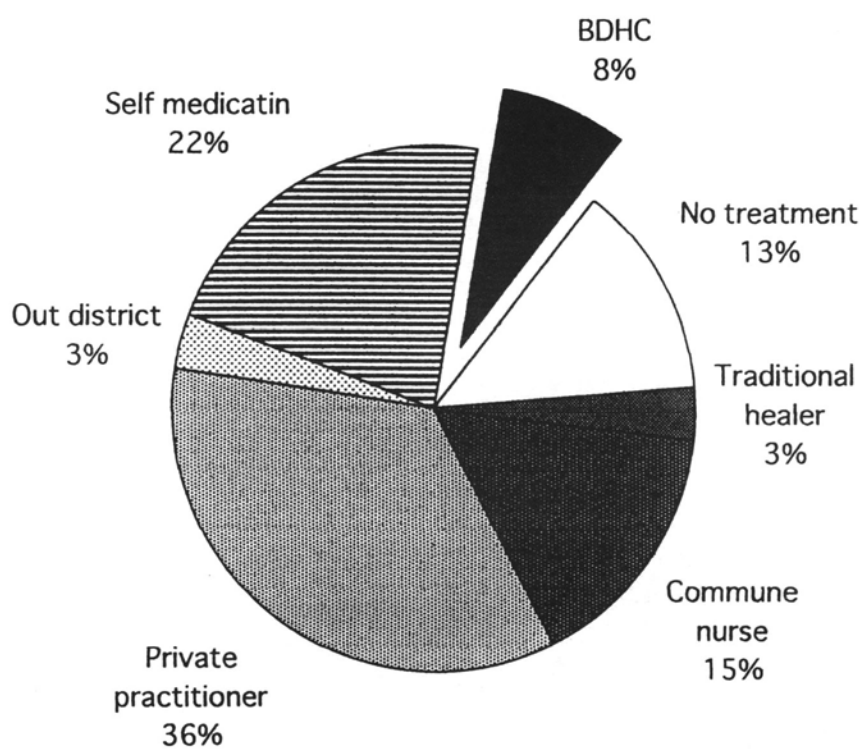


Figure 3 Patients' Delay

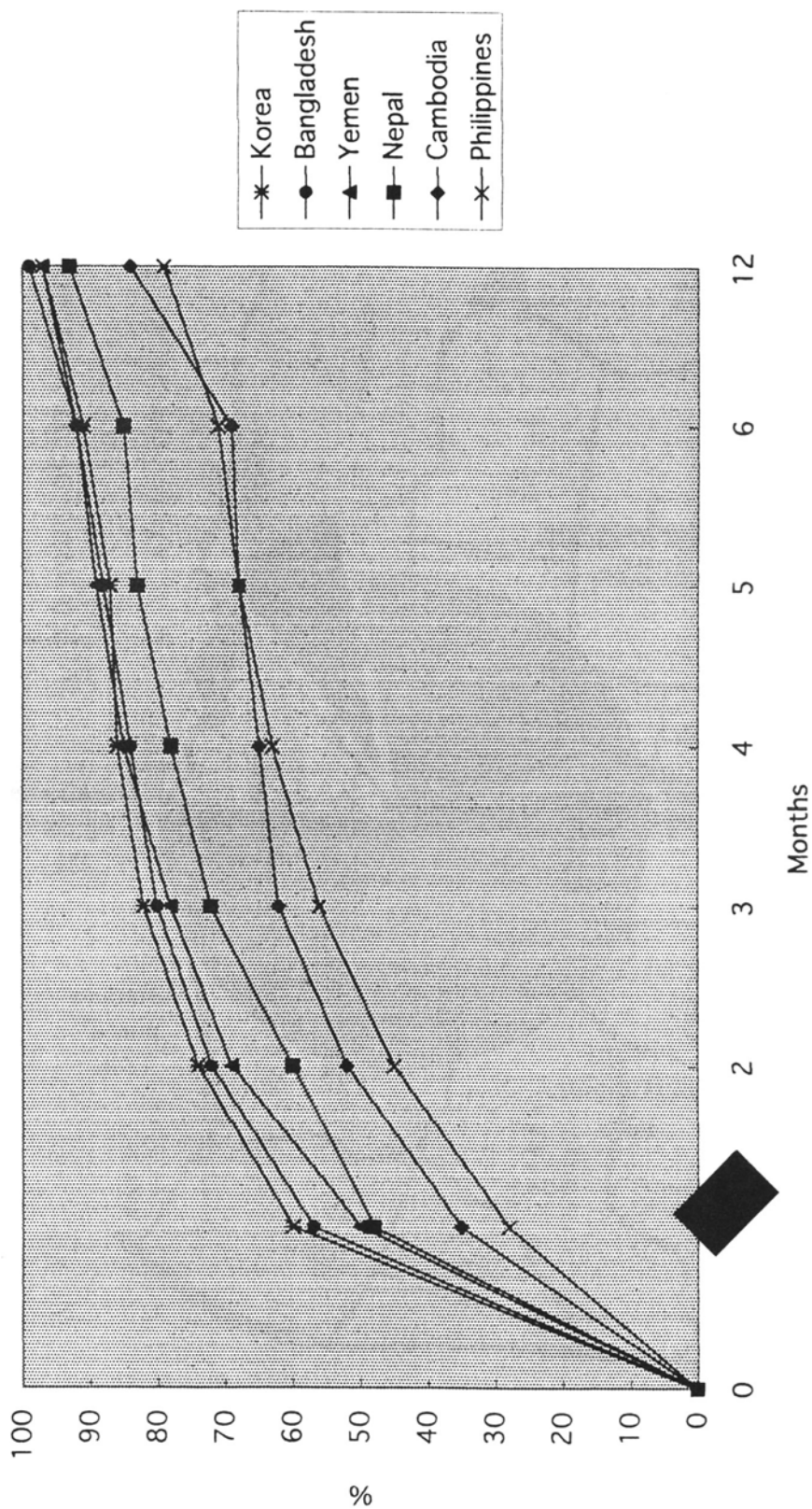


Figure 4 Delay of health service

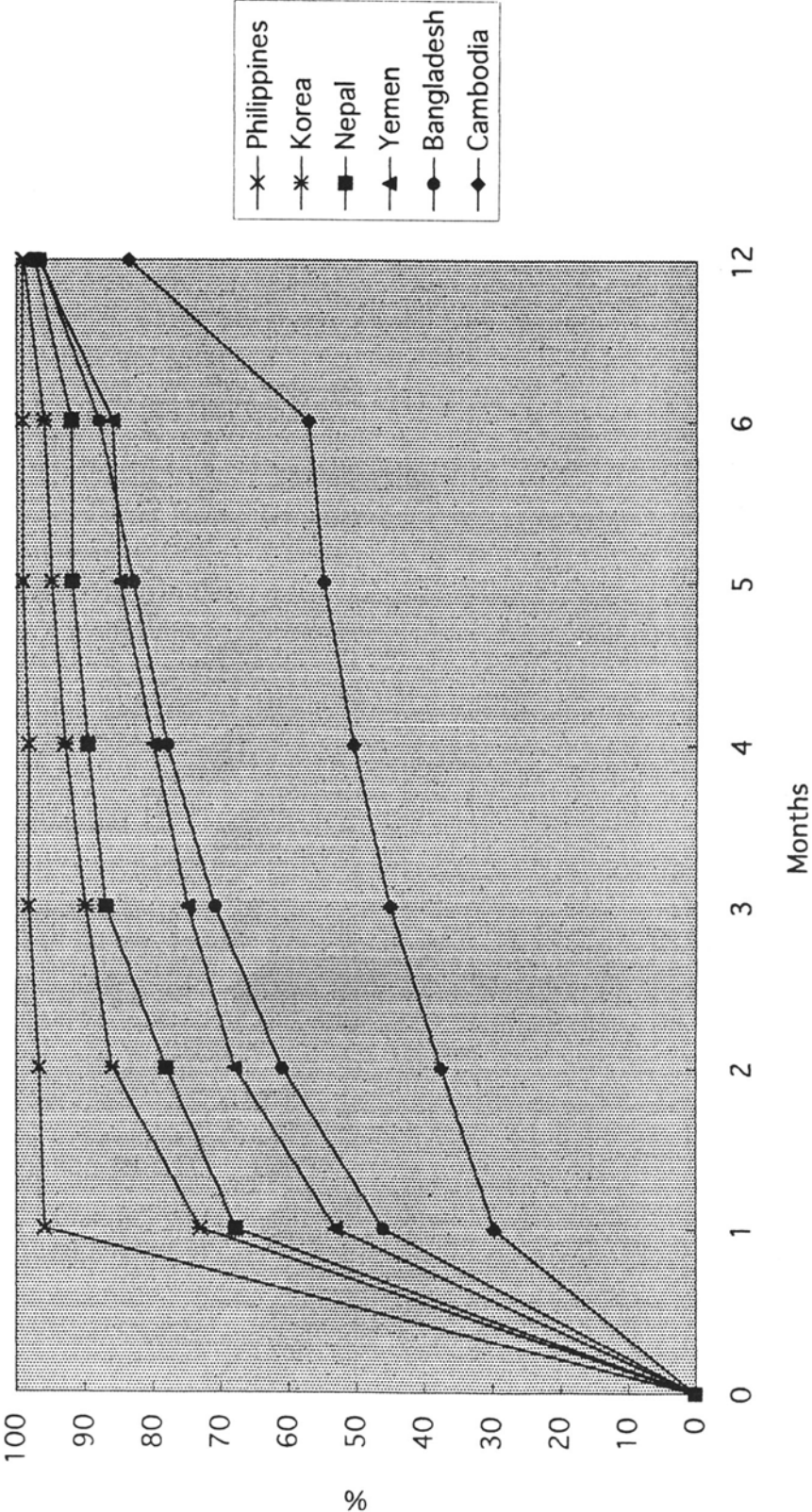
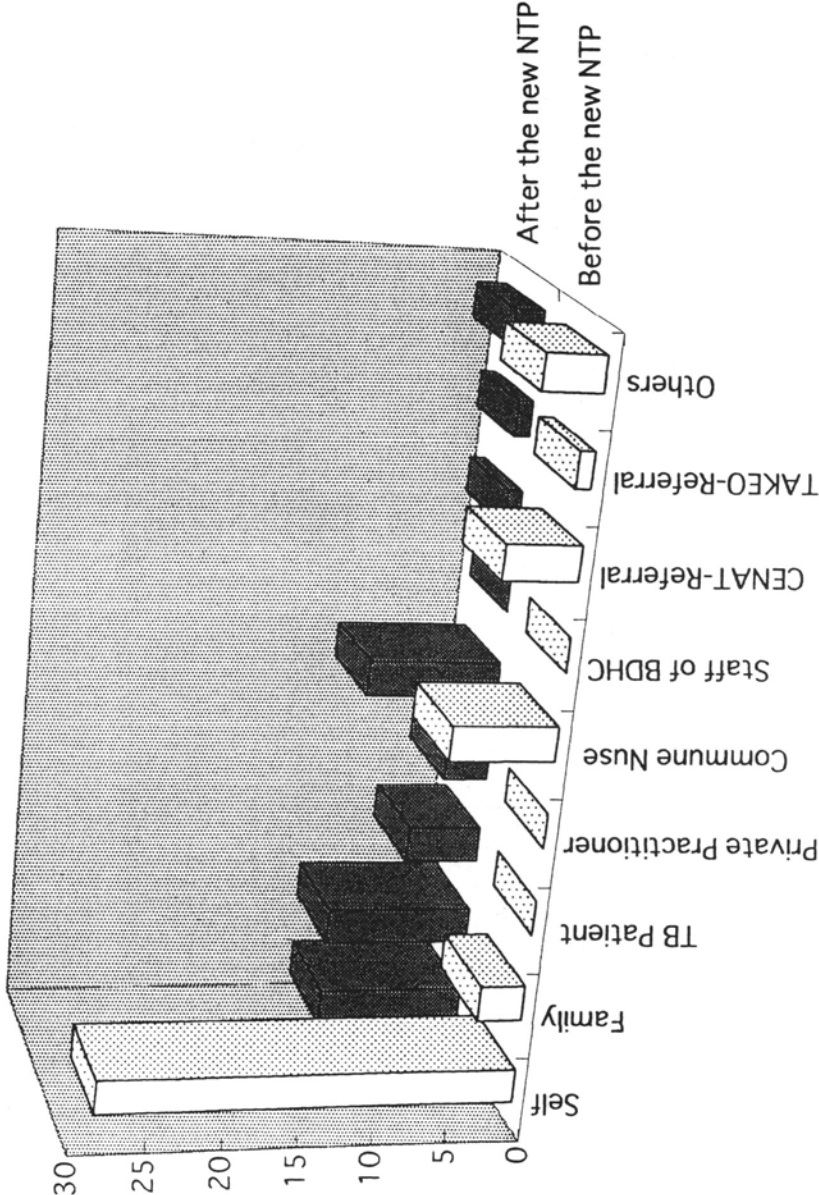


Figure 5 Who advised the patients to come to the Bati District Health Center(BDHC)



# **Present Situation and Problems of National Tuberculosis Control Program in the Philippines**

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**Keywords;** tuberculosis control, WHO, Philippines

## **Introduction**

The Philippines Public Health Development Project (the project) under JICA started in September 1992. The purpose of the project is to improve the public health services in Cebu through strengthening the tuberculosis control program as a model disease control program. The author worked as the chief adviser to the project from the beginning of the project. During his assignment, the revised National Tuberculosis Control Program (NTP) guidelines were field-tested to study its feasibility in the project area.

## **Methods**

Mandaue city and Dalaguete rural health unit-I (RHU-I) catchment area, representing the urban and the rural area respectively, were selected as the field test sites for the revised NTP guidelines. The field tests have been on-going since June 1994. Prior to the implementation of the field tests, the NTP guidelines were revised, selection of the field test sites was finalized, staff training was conducted, and the supplies and equipments such as necessary forms and drugs were prepared. Based on the WHO Framework for Effective Tuberculosis Control, the following changes in the guidelines were made; introduction of passive case-finding with three sputum collections, sputum smearing by medical technologist, standardized recording system with record linkage among registries, simplified and standardized quarterly reports, cohort analysis of treatment outcomes and regular supervision and monitoring of the program.

## **Results**

1) Program management (Table 1)

It is the governments' policy to integrate the NTP into the existing health care structure. As shown in the Table 1, the health unit responsible for case-finding and treatment, and the population covered by this unit are both smaller than those recommended by the WHO. Especially the Key Person (the officer in charge of the unit) has numerous duties and tasks other than TB program.

#### 2) Case-finding activities (Table 2)

The proportion of pulmonary sputum smear positive new cases among newly registered tuberculosis cases was 31% in Mandaue city and 44% in Dalaguete RHU-I.

#### 3) Age distribution of pulmonary sputum smear positive new tuberculosis cases (Table 3)

Forty-seven (47) % of pulmonary sputum smear positive new tuberculosis cases in Mandaue city were found in the population between 15 and 34 years of age. In Dalaguete RHU-I, however, 55% of those cases were identified among the age groups between 35 and 54. Tuberculosis cases in the urban area might occur in younger age group compared to those in the rural area.

#### 4) Laboratory services (Table 4)

Among those with pulmonary symptoms, approximately 80% were examined for three sputum specimens both in the urban and the rural areas. The sputum smear positive rate in these examined increased from 3% to 10% in Mandaue and to 7% in Dalaguete. It was clearly recorded and reported whether the sputum examination was performed to diagnose a case or to follow-up a case under treatment.

#### 5) Treatment outcomes (Table 5)

The cure rate of pulmonary sputum smear positive new tuberculosis cases was 81% in Mandaue and 73% in Dalaguete. In Dalaguete, the reason for defaulting was the development of adverse reactions, such as nausea, vomiting and skin rash.

### **Discussion**

To improve the tuberculosis control program in the Philippines under the current program structure, one of the factors of primary importance is the training of the health workers in the district level such as district nurse coordinators (DNCs). The health workers carry out the day to day activities of the NTP in the community, such as RHU public health nurses



and midwives in barangay health stations are heavily overloaded at present. The regular supervision and support for the program implementation is, therefore, crucial. It also appears important to establish a reliable system for monitoring the overall program and constraints of the program. In view of this, the field test of the revised NTP guidelines has been expanded to other areas with emphasis on strengthening of recording and reporting, supervision and monitoring, and training activities by the well-trained DNCs. The cure rate of pulmonary sputum smear positive new tuberculosis cases in the field test sites has not reached 85%, which is the goal recommended by the WHO. Since the main reason of default from the treatment is the adverse reactions, the close observation and management of these patients is critical. Lately the WHO emphasizes the effectiveness of the directly observed treatment, shortcourse (DOTS). To achieve the higher cure rate in the field test sites, introduction of DOTS as well as reactivating volunteers in the community, such as Barangay Health Workers, may be considered.

Table 1

Comparison between Tuberculosis Control Programs by the WHO and the Philippines

	WHO	Philippines
Structure	Semi-vertical	Fully-integrated
Case-finding and Tx. Unit	District Hospital	Rural Health Unit
Population covered	100,000-300,000	20,000-30,000
Key Person	District TB Coordinator	Multi-purpose Worker
Case-finding Policy	Passive	Active (with Target)
Main Tool	Sputum Smear Examination with 3 Specimen	Sputum Smear Examination with 1 Specimen
Treatment Regimen	Short Course Chemotherapy with 4 Drugs	Short Course Chemotherapy with 3 Drugs
Re-treatment	5 drugs	
Supervision of Tx.	Directly Observed Treatment	Weekly Collection
Recording / Reporting	Quarterly Report Record Linkage among Registries	Monthly Report No Record Linkage
Supervision / Monitoring	Regular, Problem solving	Irregular, Data Collection
Evaluation	Cohort Analysis on Treatment Outcomes	Case-finding Activities
Logistics	Regular Supply with Buffer Stock based on Previous Consumption	No shortage in the past 4 years

Table 2 Case-finding Activities on New and Relapse Tuberculosis Cases in Mandaue City and Dalaguete RHU-I from June 1994 to June 1995

Smear results / Type	Mandaue City		Dalaguete RHU-I	
	No.	%	No.	%
Pulmonary Sm(+) New	154	30.9%	38	43.7%
Pulmonary Sm(+) Relapse	8	1.6%	1	1.1%
Pulmonary Sm(-) New	334	66.9%	48	55.2%
Extra-Pulmonary New	3	0.6%	0	0.0%
Total	499	100.0%	87	100.0%

Sm(+):Sputum smear positive, Sm(-):Sputum smear negative

Table 3 Age Distribution of New Cases of Pulmonary Sputum Smear Positive TB in Mandaue City and Dalaguete RHU-I from June 1994 to June 1995

Age Group	Mandaue City		Dalaguete RHU-I	
	No.	%	No.	%
0-14	3	1.9%	0	0.0%
15-24	31	20.1%	4	10.5%
25-34	41	26.6%	4	10.5%
35-44	27	17.5%	11	28.9%
45-54	20	13.0%	10	26.3%
55-64	18	11.7%	6	15.8%
65+	14	9.1%	3	7.9%
Total	154	100.0%	38	100.0%

Table 4 Laboratory Services in Mandaue City and Dalaguete RHU-I for Diagnosis and Follow-up from June 1994 to June 1995

Diagnosis / Follow-up	Mandaue City		Dalaguete RHU-I	
	No.	%	No.	%
For Diagnosis	1480	100.0%	581	100.0%
3 Specimen	1265	85.5%	460	79.2%
Positive	162	10.9%	39	6.7%
Doubtful	24	1.6%	6	1.0%
For Follow-up	1121	100.0%	200	100.0%
Positive	25	2.2%	15	7.5%

Table 5 Cohort Analysis on Treatment Outcomes of Pulmonary Sputum Smear Positive New Tuberculosis Cases registered from June 1994 to Dec. 1994

Outcomes	Mandaue City		Dalaguete RHU-I	
	No.	%	No.	%
Cure	61	81.3%	16	72.7%
Tx. Comp.	0	0.0%	1	4.5%
Died	1	1.3%	0	0.0%
Failure	3	4.0%	1	4.5%
Lost	6	8.0%	3	13.6%
Tr-out	4	5.3%	1	4.5%
Total	75	100.0%	22	100.0%

Tx. Comp.:Treatment Completion, Lost:Default, Tr-out:Transferred-out

# **Situation and Problems of TB Laboratory Services in Developing Countries**

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**Key words:** TB laboratory services, direct smear examination, quality control

## **Introduction**

Bacteriological examination, especially sputum smear examination is considered as a pillar of TB control programme. However, the laboratory work has been given less importance, although it plays important role in the diagnosis and treatment monitoring of tuberculosis.

In consequence, many problems/short comings occurred in laboratory network system, laboratory environment or facilities, laboratory management, reagents and equipments supply system, manpower development, quality of sputum smear examination and etc. Particularly, sputum smear examination is given less interest even by laboratory workers, though it is the most important examination in national TB control programme. Improvement of quality for direct smear examination is an important issue and urgently needed.

## **TB Laboratory Service**

TB laboratory service in developing countries can be classified into 3 types;

- 1) Peripheral laboratory or multipurpose laboratory, where only microscopic examination of direct smear by Ziehl-Neelsen method is carried out.
- 2) Intermediate laboratory or specialized TB section in general laboratory, where microscopy by Ziehl-Neelsen method, isolating culture and identification test by colony morphology can be done.
- 3) Central laboratory or specialized laboratory in capital city, where isolating culture, identification test by biological and biochemical method and drug susceptibility test can be done.

In most of developing countries, peripheral type of laboratory is usually available at district level.

### **TB Laboratory Situation**

TB laboratory situations for sputum smear examination in developing countries are generally evaluated as follows;

- 1) Working environment ----- poor
- 2) Reagents and equipments supply ----- non or short
- 3) Manpower ----- insufficient in quality  
and in quantity
- 4) Manpower training ----- insufficient contents
- 5) Standard manual ----- non or insufficient  
contents
- 6) Workload ----- less or too much
- 7) Quality control system ----- non or poorly  
functioning

### **Discussion and Conclusion**

In many developing countries, these are many difficulties in facilities, equipments and reagents supply system and management. Some of these difficulties may be solved by the effort of laboratory side but some are beyond the limits of their efforts. Under such circumstance, there is a limitation in keeping and maintaining the examination quality. To improve this;

- 1) Working environment under the poor condition should be improved to motivate the laboratory side.
- 2) Supporting system to the laboratory by responsible persons is needed to encourage and strengthen their work.
- 3) Importance of quality control for sputum smear examination should be well understood both by laboratory technicians and the responsible persons.
- 4) Establishment or strengthen of quality control system for direct smear examination is necessary.
- 5) To strengthen national TB control programme, active commitment to managerial aspect in laboratory activities should be further emphasized by laboratory side and their managers.

# **Modeling of Participatory Community Health Activities in Support of Disease Control Programme**

**Masami Fujita**

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## **INTRODUCTION**

This workshop aims to discuss about the relationship between WHO package on Tuberculosis (TB) and various field experiences in several countries. Although other speakers present on their own field activities on TB control, audience of the workshop may have diverse background other than TB. Therefore my presentation try to bridge the gap between TB and other health problems from the view point of participatory development and participatory community health activity. Several concepts recently argued in international journals are introduced for promoting discussion on the process and difficulties of projects management.

## **METHOD**

1. The author selects keywords of other presentations from the abstracts and rearrange them according to the level such as national, district or community level.
2. Several concepts approaches recently argued in international journal are introduced. The concepts include such as participatory action research, district health management strengthening, community participation and community empowerment

## **RESULT and DISCUSSION**

1. Keywords of other presentations  
We can identify so many problems as below. Participatory action research is one of the possible approach to tackle them.  
\*Achieving a high cure rate is the highest priority .....National Level  
\*Recovering and reporting system  
\*Effective supervision .....District Level  
\*Establishing treatment service  
\*Establishing microscopy services  
\*Collaboration between district health system and traditional healers  
\*Patient's delay and doctor's delay .....Community Level
2. Concepts and approaches
  - 1) Participatory action research (PAR)
    - A) Characteristics of PAR  
PAR can be characterized as collaboration between researcher and practitioner, solution of practical problem, change in practice, development of theory, development of system, empowerment of personnel concerned

and creation of policy.

## B) Conditions and perspective of PAR

We should consider various factors that influence the process of planning and implementation of PAR. Those factors might be political commitment, perspective of expansion, decentralization, situation of other places, settings (public health services, private services, NGO, other sector, community organization), flexibility (blue print approach, participatory approach) and roles of actors (Enable, Change facilitate, Research, Advocate).

## C) Three types of PAR

Holter (1993) developed three approaches of action research. Although it is very difficult to distinguish three approaches clearly, we could utilize them as reference and guideline for planning, implementation and evaluation of action research in TB control.

Approaches to action research	Philosophical base	Problem	Focus of collaboration	Theory	Type of knowledge produces
Technical approach	Natural sciences	Defined in advance	Technical	Validation Refinement Deductive	Predictive
Mutual approach	Historical-hermeneutic	Defined in the situation	Mutual understanding	New theory Inductive	Descriptive
Enhancement approach	Critical sciences	Defined in the situation based on values clarification	Mutual emancipation	Validation Refinement New theory Inductive Deductive	Predictive Descriptive

(Holter, 1993)

## 2) District Health Management Strengthening (DHMS)

A framework of district health management strengthening (DHMS) could be used for conducting action research regarding health services.

		Means of management strengthening			
		Structure	Systems	Personnel	Culture
Areas of management strengthening	Planning				
	Transport management				
	Financial management				
	Human resource management				

(Collins, 1994)

### 3) Community participation and community empowerment

One of the main topics of the presentations of Dr. Takahashi and Ms. Shoji might be community participation. Rifkin (1988) proposed five indicators for

measuring community participation in primary health care, which were needs assessment, community organization, leadership, management, resource mobilization. However, community empowerment has been frequently argued rather than community participation. The purpose of action research in TB should be community empowerment as well as improving TB situation.

PERSONAL EMPOWERMENT	SMALL GROUP DEVELOPMENT	COMMUNITY ORGANIZATION	COALITION ADVOCACY	POLITICAL ACTION
*developmental casework	*improving social support	*developing local actions on community-defined health issues	*lobbying for healthier public policies	*support for broad-based social movements
*enhancing personal perception of control and power	*promoting personal behaviour change	*critical community / professional dialogue	*achieving strategic consensus	*creating vision of sustainable preferred future
	*providing support for lifestyle choices	*raising conflict to the conscious level	*collaboration and conflict resolution	*enhancing participatory democracy
				(Labonte, 1992)

### ACKNOWLEDGEMENT

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## ***MOTHER AND CHILD HEALTH***



# **Pediatric Morbidity Pattern in a District Hospital of Cambodia**

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**Key words:** morbidity , district, resources

## **Introduction**

Cambodia occupies a territory covering 181,035 sq. Km in the south western corner of Indochina. The country has tropical monsoonal climate with wet and dry seasons and temperature ranges from 21<sup>0</sup>C to 35<sup>0</sup>C with highest temperature in March and April.

From 1969 onward , Cambodia suffered from civil war and political instability for nearly two decades. After the fall of Khmer Rouge reign , the government of Cambodia is working for restoration of its organizations including health institutions, The present organization of health care system is based on commune (Khum), district (Srok), province (Khet) and central district hospital level health service being the most specialist centers an vital

There is a severe shortage of scientific child health information and research specially in the district level. The present study summarizes the six months childhood morbidity data of a NGO (AMDA) supported district located 70 Km. Southwest of Phnom Penh. This study is based on a total number of 6728 OPD patients consulted over a period of six months . 39.7% of the patients treated in the district hospital consulted of 0-14 years age group children. All the top major 11 causes of childhood illness comprises 80.2% of the total pediatric patients all of them are treatable as well as preventable. A maximum number of cases (43.4% of the total OPD patients) have been treated in the month of October. Only upper and lower respiratory infection and Malaria caused the morbidity of 50.2% of the children. The pediatric morbidity data have shown a very high occurrence of infective and communicable diseases. Most of the cases can be managed by simple anti-infective, anti-mosquito measures and simple environmental manipulation.

## **Methods**

Pediatric morbidity data had been collected from a remote district hospital of Cambodia from 1st August 1994 to 31st January 1995. OPD Record Form consisted of patient's identification, clinical and laboratory information, diagnosis and management. All the data have been recorded by medical doctors. Some laboratory tests which were not possible in the hospital had been sent to provincial and central hospital under NGO's financial support. Except the emergency cases, all the patients who received the treatment from the district hospital are included in the study. Patients from birth to 14 years of age have been recorded in a pediatric OPD Record Form and those more than 15 years and above are recorded in the adult record form. A six month pediatric illness has been analyzed and identified 11 major pediatric diseases in a district level hospital. A monthly pattern of diseases have been identified. The simple statistical analysis have been done to identify the morbidity pattern of the district level hospital. All the skin cases were diagnosed by a trained dermatologist. The financial support to the health care in the district was provided by the Cambodian government and NGO (Association of Medical Doctors of Asia) without burden to the patients.

## **Results and Discussion**

Of the total 6728 OPD patients managed in the district hospital 2671 (39.7%) were under the age of 14 years and 4057 (60.3%) were above 15 years. 587 (43.4%) pediatric cases were managed in the hot and wet month of October which is the maximum in six months duration (Table 1). In a systemwise study of illness in children, respiratory disorders, infectious diseases, dermatological problems, ENT problems accounts 36.8%, 36.3%, 14.2% and 4.1% respectively. The highest number of respiratory diseases (265 cases) and infectious diseases (200 cases) received treatment only in the month of October. A low percentage of respiratory illness(3.8%) and infectious diseases (4.9%) were observed in the months of August and December respectively (Table 2).

The major 11 commonest causes of illness in children in the district hospital have been identified and includes 80.2% of the total pediatric morbidity. The etiology of 10 out of 11 common causes of children morbidity have been observed infections and treatable / preventable by simple medications, anti-mosquito measures, water / food sanitation, personal

hygiene, vaccination and basic environmental measures. A total number of 577 cases (21.6%) of Pneumonia / bronchopneumonia, 398 cases (14.9%) of upper respiratory tract Infection, 367 cases (13.7%) of malaria, 221 cases (8.3%) of worm infestation, and 175 cases (6.6%) of diarrhoea have been found the commonest diseases in the district (Table 3). A similar study done in National Pediatric Hospital (NPH), Phnom Penh has shown ARI (45.6%), Diarrhoea (18.9%), Skin diseases (8%), Parasites (5.6%) Conjunctivitis (4.2%) being the top 5 common illness. The commonest disease treated in the children was different grades of acute respiratory infections (36.5%) which is less than that recorded in NPH (45.6%). Among the pediatric patients in each month, a maximum number of ARI cases were treated in the month of October (28.6%) and November (24.4%) (Table 4). A significantly high percentage of malaria (13.7%) have been found in PSDH in comparison to the same disease (1.1%) in NPH . Children (13.7%) were more affected by malaria than adults (11.0%). Most of the malarial cases were recorded in the month of August both in children (18.6%) and adults (19.3%) (Table 5). Previous data from the district revealed that malaria is an endemic disease in the district. A high number of cases of worm infestations, diarrhoea, dysentery are the indicators of unsafe food and water. A significant number of skin cases have been treated in the hospital. A study done in the same hospital has shown that 12.3% of all pediatric cases were affected by various dermatological problems<sup>3)</sup>, a slightly less than the present (14.2%) situation. Malnutrition comprises of 1.7% of the total cases in the district hospital in comparison to a high number of cases (4.1%) in NPH.

Dengue Hemorrhagic Fever (DHF) (3.9%) has been observed as a major pediatric problem in NPH whereas an insignificant number of cases has been treated in this period There were only 5 diagnosed cases of tuberculosis (0.2%) in children and 54 cases in adults (1.3%). All the adult cases of tuberculosis were acid bacilli positive .It has been suspected many more cases of TB in the adults which might predisposes childhood TB due to close contact at home and the low socio-economic status. Only 7 cases of vaccine preventable diseases have been recorded and the reasons can not be explained.

The pediatric morbidity pattern have shown a very high occurrence of infective and communicable diseases. An appropriate and practical implementation of basic food , water and personal sanitation; anti-mosquito

measures; vaccination , nutritional rehabilitation and proper distribution of health resources could result better result Out of all OPD cases a higher proportion (5.8%) of pediatric cases have been admitted than the adults (4.3%) in each month. In the district hospital outside Phnom Penh, security condition has played the key role not only in the accessibility of resources but also in the utilization of already available resources. It has been observed at the same period that the children of the parents who have woodcutter occupation had a high morbidity. Mass corruption in the different level of institutions has further aggravated the general morbidity of the children.

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Table 1: Percent Distribution of pediatric and adult OPD patients in Phnom  
Srouch Hospital (PSDH) from 1st August 1994 to 31st January  
1995.

Month	0-14years (%)	>14years(%)	Total(%)
August '94	377 (37.1)	638 (62.7)	1015 (100)
September	516 (36.6)	895 (63.4)	1411 (100)
October	587 (43.4)	766 (56.6)	1353 (100)
November	479 (40.5)	703 (59.5)	1182 (100)
December	323 (37.9)	530 (62.1)	853 (100)
January '95	389 (42.6)	525 (57.4)	914 (100)
Total	2671 (39.7)	4057 (60.3)	6728 (100)

Table 2. Systemwise monthly distribution of pediatric cases (0-14years) in PSDH from 1st August, 1994 to 31st 1995.

System/Diseases	Aug	Sep	Oct	Nov	Dec	Jan	Total (%)
Respiratory diseases	102	158	265	198	114	145	982(36.8)
Infectious diseases	163	189	200	155	130	132	692(36.3)
Skin diseases	57	94	60	71	36	62	380(14.2)
ENT Problems	19	22	18	19	12	19	109( 4.1)
Bones/joints*	11	13	6	7	9	12	58( 2.2)
Nutritional disorders	9	8	12	8	5	4	46( 1.7)
Genito-Urinary diseases	5	9	6	11	3	3	37( 1.4)
Eye diseases	5	9	7	5	4	2	29( 1.1)
Cardiovascular/Blood dis.	3	4	6	4	4	4	25( 0.9)
Git/ Hepatic diseases	3	2	1	2	2	4	14( 0.5)
Lymphatic disorders	0	7	3	1	1	1	13(0.5)
Neuro~psychiatric dis-	0	0	2	0	2	0	4(0.2)
Neuro-muscular diseases	0	1	0	0	1	1	3(0.1)
Dental diseases	0	0	1	1	0	0	2(0.1)
Total	377	516	587	479	323	389	2,671
	(14.1)	( 19.3)	(22.0)	(17.9)	(12.1)	(14.6)	(100.0)

\*Disease of Bones, joints and connective tissues

Table 3: Percentage distribution of top 11 causes of pediatric morbidity in PSDH from 1st August 1994 to 31st January 1995.

Disease	Number of cases	Percent.
1. Pneumonia/ Bronchopneumonia	577	21.6
2. URTI	398	14.9
3. Malaria	367	13.7
4. Worm infestation	221	8.3
5. Diarrhoea	175	6.6
6. Scabies	113	4.2
7. Dysentery	79	3.0
8. Bacterial skin infection	73	2.7
9. Ac.1 Chr. Otitis media	55	2.1
10. Tonsillitis/Pharyngitis	48	1.8
11. PEM	46	1.7
12. Others	519	19.4
Total	2,671	100

Table 4: Monthly variation of Malaria cases in PSDH from 1st August 1994 to 31st January 1995.

Month	Number of ARI cases	Percent/month	Total cases
August '94 .	69	18.3	377
September	74	14.3	516
October	168	28.6	587
November	117	24.4	479
December	69	21.4	323
January '95	80	20.6	389
Total	577	21.6	2,671

Table 5: Monthly Malaria cases in pediatric and adult group in the district hospital .

Percentage distribution per month per total cases.

Month	0-14 years No. of cases	> 14 years No. of cases	Total malaria cases(%)
August '94	70	123	193
September	56	88	144
October	84	58	142
November	76	62	138
December	53	68	121
January '95	28	47	75
Total Cases	367	446	813
Mean % per month	13.7	12.1	12.1

# **The Transition of Child Mortality in Japan**

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**Key words;** child mortality, health transition, Japan

During the five decades after the Second World War, the infant mortality rate (IMR) in Japan has decreased constantly and become the lowest in the world. During this period, Japan's economic and social conditions also changed dramatically. There are, however, only a limited number of literatures to explain the factors that contributed to reducing IMR in Japan.

## **Population and Birth Rate**

The total population of Japan as of October, 1993 was 122.8 millions. The rate of people aged 65 or over to the whole population rose markedly from 4.9% in 1950 to 12.0% in 1990. On the other hand, the rate of children aged 14 or younger decreased rapidly from 35.4% in 1950 to 18.2% in 1990.

Soon after the Second World War, the crude birth rate dropped sharply from 34.3 per 1,000 population in 1947 to 9.6 in 1993. The total fertility rate also declined rapidly from 4.32 in 1949 to 1.46 in 1993.

## **Infant Mortality Rate**

The infant mortality rate (IMR) has shown a drastic decrease from 76.7 in 1947 to 4.4 in 1991. IMR decreased by about 50% for every decade; IMR was 60.1 in 1950, 30.7 in 1960, 13.1 in 1970, 7.5 in 1980 and 4.6 in 1990. Firstly, death of infants aged one to eleven months decreased markedly. Neonatal and perinatal deaths started to decrease in the 1960s. In 1990, the total number of infant deaths was 5,616; 22.5%, 40.0% and 65.0% occurring within the first day, first week or first month of life respectively.

In 1950, pneumonia and diarrhea were the leading causes of infant deaths but the mortality rates specific to these diseases decreased drastically. Diarrhea caused 827.6 infant deaths per 100,000 newborns in 1950 but only 1.2 in 1990. As mortality by congenital anomalies remained constant, it

eventually became one of the main causes of infant deaths. In 1990, congenital anomalies, birth injuries and asphyxia, and accidents were the top three causes of infant deaths.

### **MCH Handbooks**

The mother and child handbook with 70 pages is a pocket size book given to all women who report pregnancy. It contains not only the record of pregnancy, child development and immunizations, but also health education record for child rearing and child care. The handbook is useful for maternal and child health promotion. A mother can keep all the health records of her baby and health professionals may have an access to information about pregnancy and child development of the holder of the book. The mother and child handbook was originally issued in 1942, but has since been revised many times. Throughout its history, the Handbook has played a substantial role for promotion of maternal and child health services in Japan.

### **Challenge for a Better Future**

Japan's IMR which has become very low is no longer a health indicator for maternal and child health care delivery. We are, however, faced with several problems, which should be overcome in a near future.

Firstly, from the viewpoint of child deaths, the rate of death by accidents in children aged one to four is still very high and a safety education program against accidents is warranted. Secondly, total fertility rate in Japan dropped to 1.54 in 1990, creating a social problem, as politicians and economists are concerned over the anticipated decrease of working population twenty years later. The low total fertility rate is probably due to increase of unmarried young women. Thirdly, most young women feel uneasy and anxious about child care, because they have few chances of caring after a baby before they deliver their own, and it is very difficult to obtain suitable advice on child care from their neighbors or relatives. Health officials are now encouraging self-help groups involved in child caring and fathers' participation to reduce mothers' anxiety over child caring.

Japan has successfully decreased IMR during the last forty years and is still trying to overcome many problems to improve quality of maternal and child life.



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# **A Study on the Clinical Laboratory System for Maternal Health in Developing Countries**

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**Keywords :** clinical laboratory system, referral system, maternal health

## **Introduction**

During the last decade there has been a growing awareness to improve the clinical laboratory in developing countries. With the recognition of the important role played by a clinical laboratory service in the fields of curative and preventive medicine, the need to consider an integrated clinical laboratory system, particularly in developing countries, becomes apparent and urgent. Although the variations in the system are well marked, not only between countries but also within countries; for example, there are considerable differences in laboratory services between rural and urban areas and between national and intermediate or peripheral level, it requires to define the essential obstetric care necessary at first referral level and establishment of referral system for the reduction of maternal mortality and morbidity. It is also essential to establish the clinical laboratory system as an integral part of the referral system. However, there has been a little concern and attention paid to these issues in the past.

## **Objectives**

A study is conducted to investigate the current situation and problems of clinical laboratory system for maternal health based on referral system in developing countries.

## **Methods**

1. Collect and analyze the essential information about clinical laboratory services and maternal health in developing countries based on existing documents.
2. Analyze the essential conditions and establish a model for laboratory tests which are necessary for maternal health in developing countries.
3. Interview the government officers of the health department in Thailand, Indonesia and Philippines with respect to the current situation of clinical laboratory services for maternal health.

## **Results and Discussion**

### **1. Clinical laboratory system based on referral system**

The theoretical model of clinical laboratory system based on referral system was established, which consisted of (a)national level, (b)intermediate level and (c)peripheral level. As for necessary factors such as medical facility, laboratory personnel, diagnostic tests and equipments, it was found that (a)national level is to provide the top laboratory service in the country,(b) intermediate level is to provide emergency service as a center of that district, and (c) peripheral level is to provide simple and inexpensive tests.

2. The basic model of clinical laboratory tests necessary for maternal health in the district was constructed within the framework of the above clinical laboratory system.

It consisted of (a) district level as the first referral hospital in the district, (b)health center level, and (c)community level (Table1).

3. Current situation of clinical laboratory services for maternal health in Thailand, Indonesia and Philippines. In these three countries, it was found that the clinical laboratory system for maternal health was basically structured as an integral part of the referral system under a national policy. Laboratory examinations largely performed in each stratu of the established model were found to be hematological tests, sugar and protein in urine, blood bank and syphilis. Syphilis test was performed as a routine test for pregnant women but most of serological tests were sent to the nearest referral laboratory in the regional level. It was found that necessary examinations identified in the model , urine qualitative tests except sugar and protein, blood density , erythrocyte sedimentation rate and biochemical tests were not performed at district level, though these were simple, inexpensive and useful for screening. High running cost and technique for operation were suggested as the major reasons for unperformed examinations. In order to perform these tests at district level, it must be important to consider the establishment of an appropriate tests, stock management for reagent and equipment, daily maintenance and training of laboratory personnel in quality and quantity. To establish more effective and efficient clinical laboratory system in developing countries, it is necessary to further investigate and analyze the clinical laboratory system for maternal health in rural area as well as other examinations out side of maternal health, urban area, or private sector with an extensive field research.

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# **Infant Mortality Rate and per capita Gross Domestic Product, 1960 - 1990**

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Keyword: Infant mortality, per capita GDP

## **Introduction**

Infant mortality rate(IMR) was 95.3 per 1000 live births in Africa and 62.0 in Asia in 1990. More than 85 million infants died in those areas, and nearly 93 million infants in the world in 1990<sup>7)</sup>. IMR has been considered as an appropriate index of community health, and the association between IMR and socio-economic factors such as per capita gross domestic product(GDP) or per capita income has been studied by various investigators.

## **Methods**

The data of population and IMR were cited from United Nation's Demographic Yearbook 1960 - 1992<sup>4)</sup> and UN's Global Estimates and Projections of Population by Sex and Age 1988<sup>5)</sup>, and those of GDP from UN's Statistical Yearbook 1960 - 92<sup>6)</sup>. The data sets of IMR/GDP were obtained from 66 to 178 countries according to the year. The logarithms of the world data were plotted on the figure with X-axis of GDP and Y-axis of IMR. Similarly regression analysis of the data sets from selected 14 countries for 31 years between 1960 and 1990 were done and the data from 9 out of them were plotted separately on the figures. The differences of the slopes and Y-intercepts were analysed statistically with the analysis of covariance.

## **Results and Discussion**

The association between IMR and GDP was linear in every data set of 1960, 1970, 1980 and 1990 as shown in Figure 1-a to 1-f. Many of the countries plotted on right upper side of Fig. 1-c(1980) are the oil-producing

countries in the Middle East. Those countries extended the distribution range of the plots to the right and upward after the second oil-price shock in 1979. The Y-intercept(IMR at  $X=0$ ) and slope of the regression line were not statistically different each other between 1960(Fig. 1-a) and 1970(Fig. 1-b), also between 1980(Fig. 1-c) and 1990(Fig. 1-d), but either of the Y-intercepts and slopes in 1980 and 1990 were significantly ( $p<0.05$ ) larger than those in 1960(Fig 1-a) and 1970(Fig. 1-b) with the analysis of covariance. These results seem to mean that IMR has become worse in lower GDP countries if compared at the same GDP level, and also the differential between lower and higher GDP countries has become greater in the recent two decades. However, these differences disappeared entirely when IMR data were cited from Global Estimates and Projections of Population by Sex and Age 1988 (Fig. 1-e and 1-f). No statistical difference was found in either of the Y-intercept and slope among the data sets from 1960 to 1990. This means that the groups of plots in 1960-1990 distributed along the same regression line. IMR data by the annual estimation in Demographic Yearbook seem to be underestimated in 1960 and 1970 especially in lower GDP countries, probably because the demographic data in those countries had been estimated mainly on the basis of the data in urban areas owing to incomplete administrative systems. Naturally it may be possible that the recent estimation by "Global Estimates and Projections of Population by Sex and Age 1988" overestimated IMR in 1960 and 1970. Further elucidations will be necessary for judging the validity of the estimates. Figures 1-g and 1-h show the association between GDP and IMR in 1960 and 1990 which were drawn in normal scale. An inflection point of the curve is near to GDP=\$500 and IMR=50 in 1960(Fig. 1-g), and around GDP=\$4000 and IMR=20 in 1990(Fig. 1-h). These points might be regarded as a critical point for IMR improvement or an equilibrated healthy community of the time. It is interesting that these points of GDP are near to the mean per capita GDP of the world, \$620 in 1960 and \$4426 in 1990 (Tab. 1). Preston (1985) reported that IMR decreased more in the poorer countries than in the rich countries in the period from 1965-69 to 1975-79. He compared the shift of IMR using with the difference itself in real number. However, we consider that the rate of IMR change between years has to be compared in the logarithmic scale, because IMR moves along that scale as shown in Fig. 1.

Table 1 shows the total population, total GDP, per capita GDP and mean IMR in the areas of the world. In Africa, 12% of world population had only 2% of world GDP, and in Asia nearly 60% of world population had less than a quarter of world GDP in 1990. On the contrary, less than 14% of

world population in USA, Japan and EC had 67% of world GDP in 1990. This big differentials coincide with the differentials of IMR between the areas. Figure 1 and Table 1 show that higher GDP countries have moved far more distance in logarithmic scale on the figure than lower GDP countries, though the decrease of IMR in real number was larger in lower GDP countries.

Table 2 shows the results of regression analysis in 14 countries, and Figure 2 shows the association between GDP and IMR in the selected 9 out of 14 countries. Table 2 listed 14 countries in the ascending order of Y-intercept, and the slopes of the regression lines and 95% confidence intervals of Y-intercept and slope were shown. This table shows that the larger the Y-intercept the greater the slope. It is so characteristic that there are no pair of countries having the same distribution of the plots (Fig. 2).

In Germany, five different stages of the association are distinguished, i.e. (1)1960-1967, (2)1967-1973, (3)1973-1980, (4)1980-1985 and (5)1985-1990. In the 2nd stage(1967-73), IMR was kept at an approximately same level despite of the growth of GDP. In the 4th stage(1980-85), IMR was improved despite of the recession of GDP. Thus, the association between GDP and IMR in Germany had a negative correlation on the whole, but it had not negative correlation in the 2nd and 4th stages. Similar pattern of GDP recession in 1980-85 was also seen in Austria, Belgium, France, Portugal and UK, though the levels of GDP and IMR were different each other. Netherlands and Sweden also showed the GDP recession in 1980-1985, but the range of recession was rather small. This GDP recession had been initiated by the second oil-price shock in 1979 and followed by a worldwide economic depression. However, the GDP recession was not accompanied by the increase of IMR in the countries examined. The facts that 1973 was the year of the first oil-price shock owing to the 4th Middle East War and that the floating exchange rate system was introduced in 1971 are very interesting. Another fact that the inflection points of the plots coincide with "the strong downswings of the growth rates of GNP"(Braun, 1990) in Germany is also interesting. The considerable part of these changes might due to the floating exchange rate system, though further elucidation should be necessary.

USA had the highest GDP in the world in 1960, and had no stagnation of GDP and IMR thereafter. However, GDP development and IMR improvement were rather small in USA, and consequently IMR in USA was higher than those in the other developed western countries and Japan in 1990. Japan showed an unique pattern. IMR of Japan in 1960 was higher

than those of developed western countries. However, Japan had no marked stagnation or recession in either of GDP or IMR thereafter, and Japan have had the lowest IMR in the world since after 1982. Kwait is another unique case. Kwait showed practically no GDP development or IMR improvement for 11 years between 1963 and 1973. IMR in Kwait has been improved since after 1974, while GDP had shown a slight development only in 1979 and 1980. The setting for the examination will be one of the problems. Casterline et al.(1989) suggested the difficulty in obtaining the valid income data because the people have various sources of income in Egypt. The situation will be much the same in developing countries. A small number of subjects for examination must be a cause of failure for getting significant association between income and IMR in those countries.

The authors consider that these analyses will add the new and useful analytical tools for the improvement of IMR at the world and country levels.

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Table 1. Population, Total GDP, per capita GDP and IMR in the World, 1960-1990

Area/Country	1960							1990						
	n	Population	%	GDP/T	%	GDP/C	IMR	n	Population	%	GDP/T	%	GDP/C	IMR
Africa	39	226330	7.6	29170	2.5	129	170	53	641926	12.2	452788	2.0	705	102
America N	14	257681	8.7	577815	49.9	2242	59	29	424276	8.1	6395653	27.6	15074	29
USA	1	180671	6.1	521055	45.0	2884	26	1	249975	4.8	5464795	23.6	21861	9
America S	12	146808	4.9	45087	3.9	307	109	12	297688	5.7	808715	3.5	2717	55
Asia	29	916280	30.8	138202	11.9	151	149	40	3102311	59.0	5404263	23.3	1742	69
Japan	1	94096	3.2	49824	4.3	530	31	1	123460	2.3	2932088	12.7	23749	5
Europe	19	308065	10.4	347072	29.9	1127	43	35	721812	13.7	9654101	41.7	13375	12
EC	6	172264	5.8	204221	17.6	1186	34	12	344156	6.5	7185329	31.0	20878	9
Oceania	3	13081	0.4	20333	1.8	1554	58	9	25751	0.5	359429	1.6	13958	25
Total#	116	1868245	62.8	1157678	99.9	620	129	178	5213764	99.2	23074948	99.7	4426	68
World	198	2973793	100	1158880	100			212	5255236	100	23146794	100		

Population(in thousands), GDP/T= Total GDP(million US\$), GDP/C= per capita GDP(US\$), IMR=Infant mortality rate/1000 live births.

\*: D1=GDP(1990)-GDP(1960), D2=IMR(1960)-IMR(1990)

Total#: Sum of the population and total GDP in 116/178 countries of which IMR were obtained in 1960/1990.

Table 2 Regression Analysis of the Association between GDP and IMR, 1960-1990

Country	Y-intercept	95% Range	Slope	95% Range	r
Netherland	2.146	2.063-2.230	-0.305	-0.328 - -0.282	-0.981
New Zealand	2.366	2.225-2.507	-0.332	-0.371 - -0.293	-0.956
Australia	2.518	2.387-2.648	-0.373	-0.408 - -0.338	-0.973
Sweden	2.529	2.444-2.614	-0.409	-0.431 - -0.387	-0.990
Denmark	2.539	2.399-2.678	-0.393	-0.430 - -0.356	-0.971
U.K.	2.612	2.500-2.724	-0.403	-0.433 - -0.372	-0.980
Switzerland	2.626	2.513-2.739	-0.408	-0.438 - -0.379	-0.985
Singapore	2.605	2.483-2.726	-0.429	-0.464 - -0.393	-0.981
Japan	2.705	2.599-2.811	-0.470	-0.499 - -0.441	-0.987
Ireland	2.782	2.655-2.908	-0.469	-0.506 - -0.432	-0.979
Belgium	2.855	2.698-3.012	-0.450	-0.493 - -0.408	-0.971
Austria	2.893	2.734-3.052	-0.453	-0.496 - -0.409	-0.969
France	2.997	2.852-3.142	-0.503	-0.541 - -0.464	-0.980
Spain	3.079	2.893-3.266	-0.549	-0.605 - -0.493	-0.969
Germany	3.090	2.824-3.356	-0.502	-0.573 - -0.431	-0.938
Italy	3.184	3.089-3.279	-0.536	-0.564 - -0.509	-0.992
U.S.A.	3.231	3.169-3.293	-0.523	-0.539 - -0.508	-0.997
Canada	3.434	3.326-3.542	-0.602	-0.631 - -0.574	-0.992
Portugal	3.545	3.289-3.800	-0.654	-0.738 - -0.570	-0.951

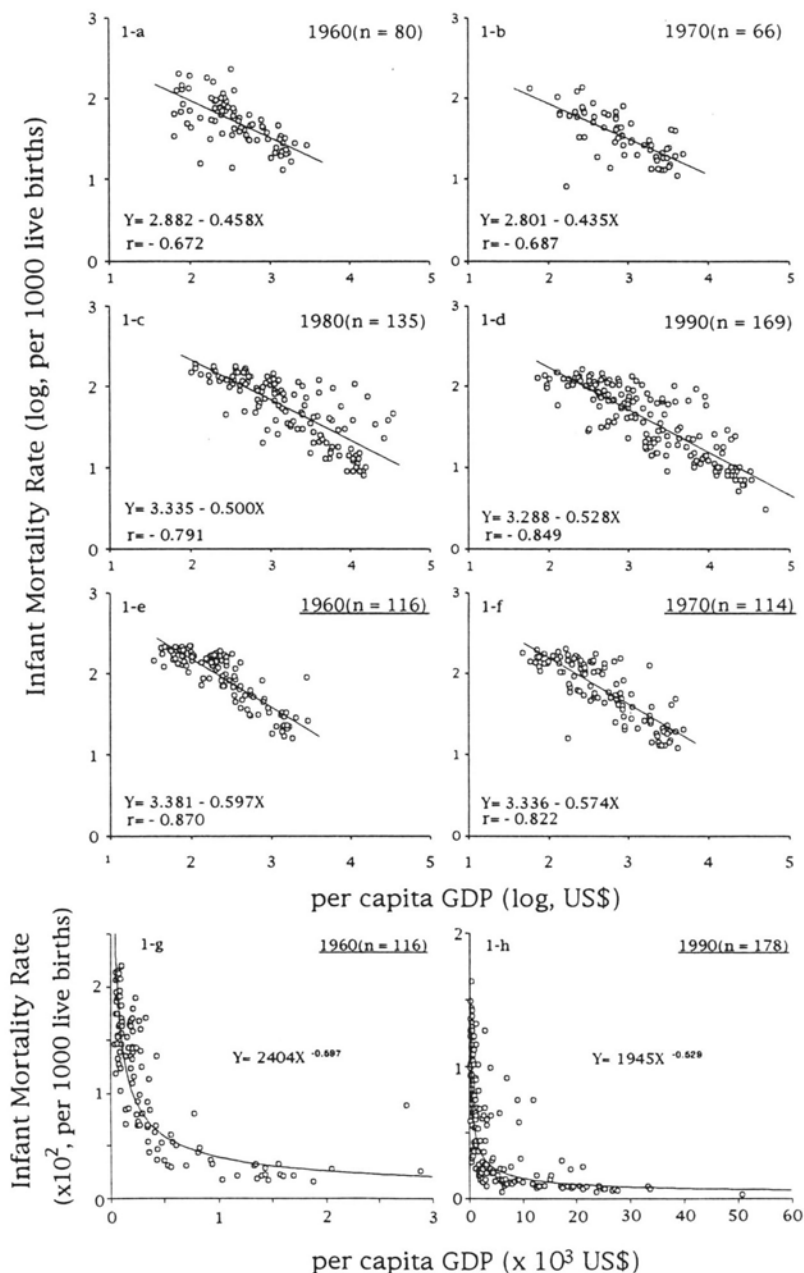


Figure 1 Per capita GDP and Infant Mortality Rate, 1960-1990.

Figure 1. The association between the logarithms of per capita GDP and infant mortality rate in the world, 1960-1990. IMR data for Fig. 1-a to 1-d were cited from UN's Demographic Yearbook and those for Fig. 1-e to 1-h from UN's Global Estimates and Projections of Population by Sex and Age, The 1988 Revision.

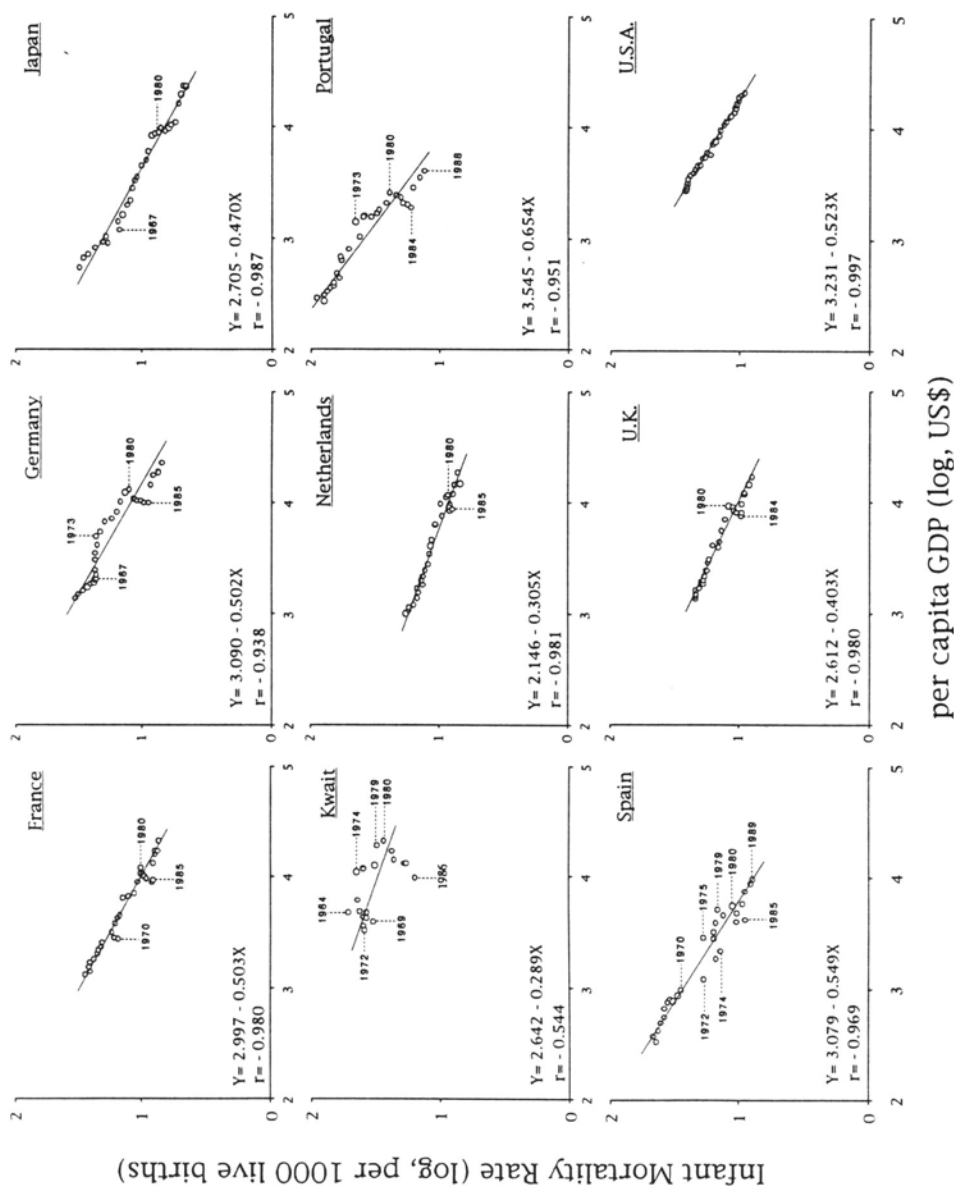


Fig 2 Per capita GDP and Infant Mortality Rate in 9 Countries, 1960 - 1990

Figure 2. The association between the logarithms of per capita GDP and infant mortality rate in 9 selected countries, 1960-1990. IMR data were cited from UN's Demographic Yearbook.

# **The Situation of Family Planning Services and Community Participation in the Rural Area of Vietnam**

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Key words: Vietnam, family planning, community participation

## **Introduction**

The population in Vietnam is increasing at a rate of 2.8 % annually (1990). The total fertility rate (TFR) at a national average is 3.1 (1993); 2.1 in urban areas and 4.1 in rural areas. Lower contraceptive prevalence rate (CPR) is being mentioned as one of the reasons for higher TFR in rural areas.

The government of Vietnam has a great concern that the high population growth is slowing down the pace of socio-economic development. The government therefore places a population and family planning (FP) program as one of the most important components in its National Health Plan and sets several targets such as increasing CPR by 2 to 2.5% every year.

Given this background, this research aimed to study: <sup>1)</sup> the situation of FP services in rural areas and <sup>2)</sup> the degree of community participation in FP activities.

## **Methods**

The survey was conducted in December 1994 and in June 1995 in 6 commune health centers (CHCs); 4 CHCs in Nam Ha Province and Ha Bac Province in the Northern Red River Delta, and 2 CHCs in Ving Long Province in the Southern Mekong Delta. Interviews were made to staffs of the CHCs and district health centers (DHCs). Other data were supplemented from personal communications made by the authors or statistical publications by the Ministry of Health (MoH) in Hanoi.

## **Results and Discussion**

In the surveyed communes, an average number of children per household is 3.5 and 4.5 in the North and in the South respectively. They are in inverse relation to CPR; that is higher (56.3%) in the North and lower (33.9%) in the South. As to contraceptive methods, Vietnamese women are exclusively dependent on IUDs (35%), followed by condoms (8%) and oral contraceptives (OCs; 5%). Availability of non-permanent methods such as

condoms or OCs is comparably low. [Fig. 1] The narrow range of contraceptive choice and inadequate provision of information are observed to be one of the major reasons for low CPR. Moreover, low CPR is assumed to be a cause for high practice rate of artificial abortions (8% of all pregnancy) and menstrual regulation (44%).

The situation regarding FP service delivery and community participation in the CHCs is as shown in a table. [Fig. 2] MCH/FP services that include pre-natal check-ups, immunization and delivery of contraceptive devices are being conducted in all the CHCs. Not all of them, however, carry on FP educational activities or mobile FP teams for remote areas. It is also found that the target of MCH/FP activities are confined to married women or couple and reproductive needs of adolescents are rather neglected.

Communities are participating in FP activities as "FP workers" in 4 CHCs. On average, there are 25 FP workers in each CHC and about 70% of them are women. They receive a training at a District MCH/FP Committee for less than a week and work on a voluntary basis with a small incentive (average: 1.4US\$ per month) from the Committee. The system of FP workers, however, is revealed to be not very organized in terms of duration of training, amount of incentive, or frequency of activities.

In order to improve these situations, the followings can be recommended:

- 1) To promote a "cafeteria" method, that is, assuring varieties of contraceptive choice instead of promoting "permanent" methods such as IUDs or steroids; as well as to promote "double protection," which is the usage of condoms and other contraceptive methods at the same time in order to prevent risks of AIDS/STDs.
- 2) To further promote mobile teams for rural areas and to strengthen educational activities; as well as to set an in-course training and a standardized guideline for more effective utilization of FP workers.
- 3) To expand the targets of all the activities mentioned above to adolescents, unmarried women and men. Some reconsideration would be necessary for program directions to get more men involved in FP activities. Male FP workers (30% of the total) could be very useful intermediaries for this purpose.

### **Acknowledgments**

The authors would like to thank Dr. Hong, Dr. Anh and Mr. Thuy of the MoH, Dr. Duy of Hanoi Medical College, and Dr. Thuy of Binh Minh Hospital for their help in conducting a survey. Grateful thanks are also due to

Dr. Thanh and Dr. Hung of the MoH, Dr. Duc of the Center for Reproductive and Family Health (RaFH), and Prof. Luan and Ms. Khanh of the Institute of Sociology for their guidance and information given to us during the course of this research.

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Fig. 1 Contraceptive Prevalence Rate and Contraceptive Methods

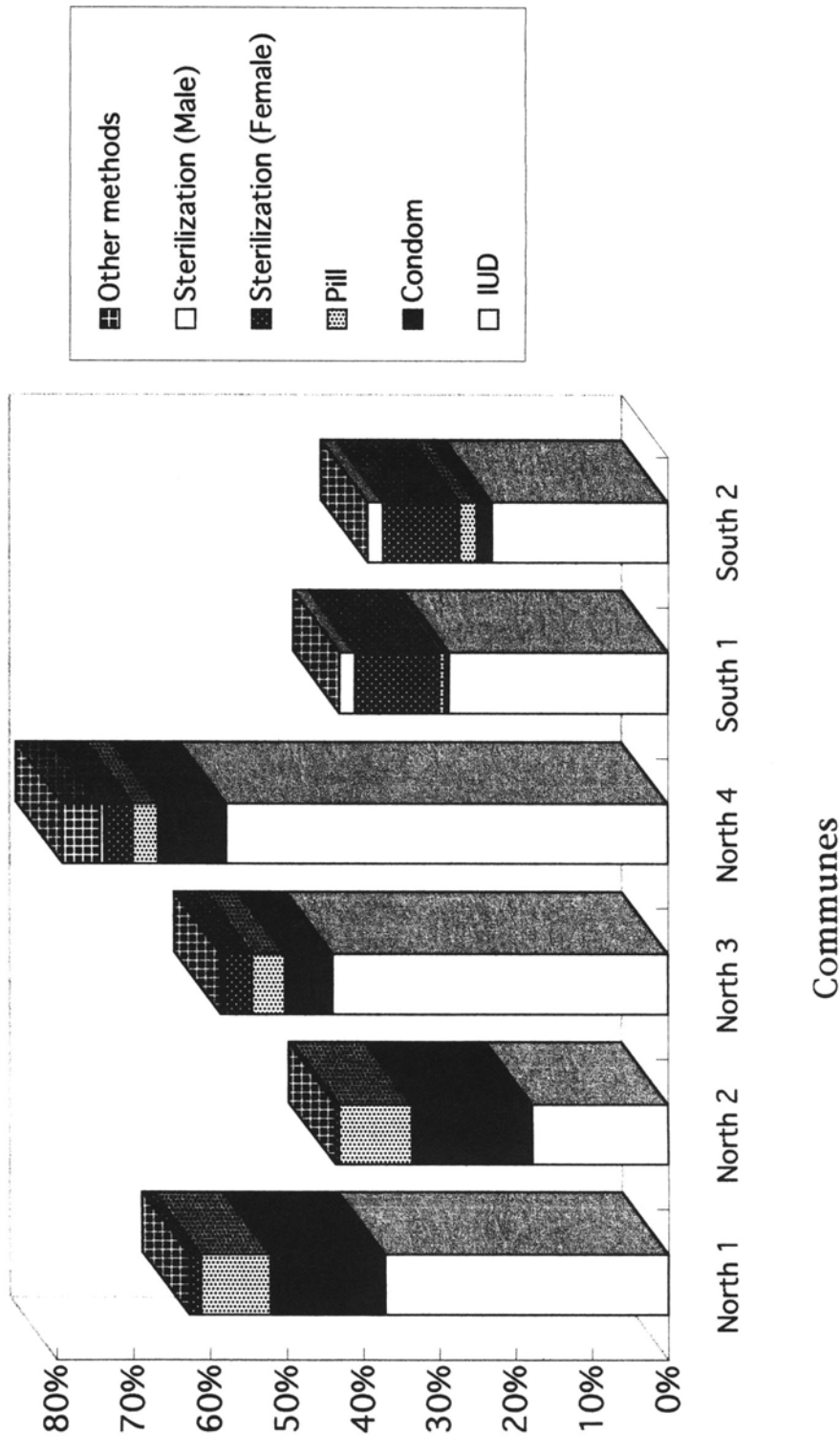


Fig. 2 FAMILY PLANNING SERVICES AND COMMUNITY PARTICIPATION  
AT COMMUNE HEALTH CENTERS (CHCs)

<b>Commune</b> (Population)	<b>FP/ MCH</b> <b>Service</b>	<b>FP</b> <b>Education</b>	<b>FP Mobile</b> <b>Team</b>	<b># CHC</b> <b>Staff</b>	<b># FP</b> <b>Workers</b>
<b>North 1</b> (8,000)	○	×	×	<b>7</b>	<b>0</b>
<b>North 2</b> (5,500)	○	×	×	<b>4</b>	<b>0</b>
<b>North 3</b> (12,500)	○	○	×	<b>8</b>	<b>23</b>
<b>North 4</b> (9,700)	○	○	○	<b>9</b>	<b>20</b>
<b>South 1</b> (17,000)	○	○	×	<b>5</b>	<b>17</b>
<b>South 2</b> (12,000)	○	○	×	<b>8</b>	<b>40</b>



# **Development of a Management System for Sustainable Community-based Family Planning Programs in the Philippines**

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Key words: Management, Family Planning, Women's participation

## **Introduction**

JOICFP is a Japanese non-governmental organization established in 1968 with the purpose of promoting activities in the areas of population, family planning and reproductive health in developing countries. Since its establishment, JOICFP has been promoting family planning projects in 25 countries in Asia, Latin America and Africa, through changing people's awareness and attitude on health and enhancing community participation in health promotion and community development activities. For the 4-year period from 1992 to 1995, JOICFP has been implementing the United Nations Population Fund (UNFPA)-supported project, "Sustainable Community-based Family Planning/Maternal Child Health (FP/MCH) Project with Special Focus on Women" in four countries of Asia, i.e. Bangladesh, Laos, Nepal and the Philippines.

The objective of this current study is therefore to examine the effectiveness of a management system for family planning program using the project in the Philippines as a model case. Particularly in the Philippines, under the Local Government Code, which was enacted in 1991 and fully implemented in January 1993, government administrations including the Department of Health were devolved to Local Government Units (LGUs). Under devolution, therefore, there is now an urgent need to strengthen the capacity of the LGUs and develop an effective management system in their increased roles and responsibilities for health programs including family planning.

## **Methods**

The Project has been implemented from November 1993 to 1995 with the preparatory phase from 1992 to 1993. The implementing agencies are the Department of Health, Provincial Government of Batangas and two municipalities (Balayan: population 60,000; and Malvar: population 30,000). In the planning and implementation of the project, the following three-level management system has been established.

1) National Steering Committee (NSC): NSC, composed of representatives from the Department of Health, UNFPA, the research institute, NGO and women's organization, is tasked to formulate policies and guidelines on the implementation of the project. In organizing this NSC, an expert from the research institute and the representatives from NGO/women's organization were invited to reflect their views and opinions in the project implementation and to promote the Government-NGO collaboration.

2) Local Implementation Committee (LIC) at the provincial level: Its members include the Governor (Honorary Chairperson), the representatives of Provincial Health Office and other concerned government offices and women's organization. Its function is to monitor the implementation of the project activities in the two municipalities and provide the necessary technical assistance such as sending resource persons to training activities at the municipality level.

3) Interagency Community Organizing Committee (ICOC) at the municipality level: The ICOC was organized as a core implementation committee and its members include Municipal Mayor as Honorary Chairperson, and wide-range of representatives from various concerned government agencies (e.g. Municipal Health Officer and health personnel, population office, education department) and from the local NGOs, women and youth organizations. This committee is not only directly responsible for planning, implementing and monitoring the project activities. But it is also aimed to mobilize the community and ensure the institutionalization of the project after its completion.

## **Results and Discussion**

Through the implementation of the project, the following achievements were made.

1) At all the 63 Barangays (villages) of the two municipalities, a Barangay Task Force and a women's group have been formed to promote the project

activities. So far a total of 66 mothers' classes were conducted on MCH, FP and nutrition education with a total of 1,634 trained mothers.

2) With the support of the Barangay Task Force and volunteers (Community Volunteer Health Workers: CVHWs), the community survey on the situation of health, family planning and sanitation was conducted and the Community-Based Monitoring Board was installed in each Barangay in March 1995. After providing training to CVHWs, under the guidance of health staff each CVHW takes responsibility of covering 25 to 30 households in their cluster and visits each household every four months to collect data. The data collected by the CVHWs are compiled by each Barangay, and put it on the Board and presented to the community. This Community-Based Monitoring Board is aimed at creating awareness on the health situation among the community people and identifying the needs and issues in the community so as to take necessary community actions.

3) A marked increase was noted in the number of FP acceptors. Based upon the estimate by the community surveys in 1994 and 1995, the contraceptive prevalence rate increased from 15% to 42% in Malvar and 23% to 45% in Balayan. It could be said that this is due to a combination of all the factors including the improved management system, training for health staff and volunteers, intensive education activities through mothers' classes, and the improvement of health facilities.

Based upon the above achievements made in the project, the following can be derived.

1) The participation of women's groups at all the levels of project management has facilitated the effective implementation of project activities. With the support of women's groups and their leadership, the women volunteers were well motivated and mobilized in FP/MCH activities.

2) In this project, the mayors of two municipalities became to realize the importance of health programs and have shown strong commitment and support to the project. This committed leadership strengthened the management system and facilitated the programs. This suggests that in the management of family planning program the understanding and commitment of local chief executives is indispensable.

The future task will be to ensure the sustainability of the current management system and the project. Other areas of future challenge will

include the constraction of the system for a good communication among health staff, volunteers and the community, the development of strategies for male participation in reproductive health/FP. Some women's groups have started income generation activities to create funds and contribute to project sustainability. Recently, at one Barangay, a male club has been formed voluntarily. These can be seen as new steps for future development.

### **Acknowledgments**

The authors acknowledge the support and collaboration provided from all the persons concerned with the implementation of the project in the Philippines.

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## ***PRIMARY HEALTH CARE***





# **Change of Nursing along with the Development of PHC and Cooperation Human Resource Development in Indonesia.**

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The health policy has been carried out based on PHC in many developing countries since the Alma Ata in 1978. Along with the development of PHC, we have seen changes in nursing with increasing demand and expectation toward nurses. Possibilities and challenges in international cooperation of nursing are reported through the changing situation in nursing along with the development of PHC and an experience of technical collaboration in a transitional period as a professional of the JICA nursing education project and further movement in Indonesia.

1. Expectation toward nurses and change in nursing along with the development of PHC in Indonesia

The infant mortality rate was 60 (per 1,000 live births) in 1992 and the maternal mortality rate was 425 (per 100,000 live births) in Indonesia. It was the worst health standard in the ASEAN countries. The health policy was implemented based on the 5th five-year development plan and nurses were trained to meet the needs of the times.

In 1975 the educational system was reconstructed by changing from the conventional program emphasized on the hospital based nurse to the health nurse in community activities.

PKMD (community health development program), the Indonesian PHC policy, was given since the 3rd five-year development plan in 1979 and emphasizing prevention resulted in an increase of health nurses (Perawatan Kesehatan). The community people's participation was focused in the 4th five-year development plan, and education for health volunteer and volunteer-based integrated mother-child services (POSYANDU) were promoted. The effective utilization of the limited resources was focused in the 5th five-year development plan, and the improvement and reinforcement of budget, facility and manpower emphasizing on health care services in rural areas are planned to eliminate imbalance among communities. A new training program has started for community midwives in villages without health care facilities since 1989. A

total of 54,000 midwives will be trained by 1996.

2. Experience of the technical collaboration in the JICA Indonesia Nursing Project in a transitional period

The Indonesian Nursing Project was carried out as collaboration for nursing education mainly training for health nurse teachers in a period of 7 years from November 1978 when it was the rapid increase of health nurses in the 3rd five-year development plan.

The author stayed in nursing teachers school in Ujungpandang for one and a half years. Under the strong wave of the conventional nursing aspect based on hospital and treatment, the community-based education was tried in principle of PHC with local teachers. The experience and collaboration method and its effective way through the experience are reported.

3. New movement of community midwife training and current problems

Now it is the rapid increase of community midwives and can be called as a new transitional period in Indonesia. The reason why the community midwives were introduced in the process of the PHC development was that people's activities mainly by health volunteers were limited as it was seen in Thailand and Philippines, and professional PHC workers specialized in mother-child health care were expected in villages. As the results of the survey in South Sulawesi, however, a half of the community midwives wanted to quit their job after the termination of their contract. The problems they faced and the causes were examined with experience in public health nursing in Japan to take their roots in the village and continue their activities which meet the community needs.

4. Learning from the experience in Indonesia and challenges in international nursing cooperation

It is necessary to collaborate with the nursing transition in developing countries with understanding a social movement behind the scene and the local health care policy. The nursing transition is often implemented by the national policy and quantitative achievement is important for a while rather than qualitative improvement. It is possible to share our perspective with international movements and our experience in the developed country and the expected roles for nurses

with local counterpart and try to improve its quality. The basic international principle of health care service, PHC theory, and postwar development of public health and nurses' role in Japan will be one of the guidelines.

As our challenges, the long term evaluation is needed for personnel training and we have to have the followup for development of evaluation indicators and evaluation. Personnel training will be important to implement further international cooperation in nursing fields in developing countries.

# **Health and Medical Needs After PHC in Middle Income Countries.**

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Key words: health transition, middle income countries, primary health care

## **Introduction**

The so-called "developing countries" include diverse range of countries with various economic, social, religious and developmental condition. The variety is seen in the health and medical care status, too. The health problems in the developing countries have been intensively studied and the "Primary Health Care (PHC)" concept was established in 1978 as the strategy for health care development in those countries. Many examples proved that PHC is an effective approach to raise the bottom line of health care in developing countries. Unfortunately, many countries still can't implement PHC effectively. On the other hand, some middle income countries have successfully carried out PHC, remarkably improved the quality of their health care and consequently experience the "health transition". A single procedure can no longer fit all the countries with different stages. Now that the PHC is getting satisfied in such countries, it's time to consider the next step. Here we analyse the situation in Malaysia as an example and discuss the health and medical care after PHC.

## **Methods**

Data on health and medical service in Malaysia were collected either from personal communications or from publications. Such opportunity was obtained through the activity in the "A&E care service project in Sarawak, Malaysia". This is a project under Japan International Cooperation Agency (JICA). Other data were collected from publications and used for discussion.

## **Results and discussion**

Economic and health indexes in Malaysia are shown in Table 1. These figures demonstrate that Malaysia is one of the middle income countries and PHC has been essentially satisfied. Even the remotest villages in Sarawak are regularly visited by village health teams so that minimal health care and

environmental sanitation could be given. Table 2 shows the leading causes of death in Malaysia in comparison with the typical patterns in developed and developing countries. It seems that Malaysia is now in the middle of the "health transition". Infectious diseases are less important than before and cardiovascular diseases and malignant neoplasms emerge as the leading causes of death. Health problems and needs have also changed and conventional procedure does not fit the new situation.

In the PHC concept, emphasis is given to the "preventive medicine" rather than "curative medicine", because that is less costly, easier to implement without medical professionals, but quite effective to a certain extent (Table 3). However, with success of PHC, the importance of health care shifts from preventable to unpreventable diseases, which is beyond the ability of PHC. Once a person has got seriously ill or injured, little could be done under PHC. It is the dilemma those middle income countries are facing after PHC.

In Sarawak, a new concept called "Rural Curative Service" has been discussed as a new health care strategy after PHC. Curative medical aspect is more stressed in RCS than in PHC. Rural health centers are upgraded and empowered so that it can provide more advanced treatment. Through our experience in the project, we discovered that such approach is practical and useful because it utilises the already existing facility and staff under PHC. The points are education and training of the paramedical staff and additional provision of necessary equipment to the rural health centers. Another thing is that most patients appearing to the clinics are acutely ill or injured, who require immediate treatment or relief of their symptoms. Therefore in our project, we tried to utilize the emergency medicine as an entry point for the rural curative service. We suggest that emergency medicine can be one of the most necessary component in the medical system after PHC.

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Table 1: Health indexes is Malaysia

Economic growth rate	12.2 %
GNP per capita	US\$ 3,400
Infant mortality rate	13 /1,000
Under 5 mortality rate	17 /1,000
Pregnancy related death	59 /100,000
Safe water supply	80 %
Complete EPI coverage	90 %

Table 2: Leading causes of death

Typical developing countries	Typical developed countries	Malaysia
Diarrhea, enteritis	Malignant neoplasm	Cardiovascular disease
Respiratory disease(incl.Tbc)	Cardiac disease	Malignant neoplasm
Birth related death	Cerebrovascular disease	Accident, poisoning
Febrile disease	Pneumonia	Birth related death
Accident	Senility	Septicemia

Table 3: Comparison between PHC and Rural Curative Service

PHC	RCS
Preventive medicine Community based by the people less costly	Curative medicine Facility based by properly trained staff more costly (less expensive than hospital)

# Study on Masticatory Function of the Elderly in Korea

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Key words: masticatory function, gerodontology, Korea

## Introduction

Recently, the need for oral health promotion in the elderly has become greater due to an increase in the elderly population (Kalk et al, 1992; Miura et al, 1996). However, the development of oral health promotion for the elderly is not sufficient in most of East-Asian countries though the degree of aging will be advanced. In particular, in Republic of Korea, the elderly population will be increased rapidly. Thus, it is very important to develop oral health promotion for the elderly. However, few studies on oral health in the Korean elderly have been reported. The purpose of the present study was to investigate masticatory functions in the Korean elderly.

## Subjects and methods

Subjects were 70 healthy, elderly individuals (37 males, 33 females) over 65 years of age who were given first dental treatment. All subjects were living in Pusan city and its environs.

The number of missing teeth and prosthetic condition were examined according to the criteria established by WHO. Subject with posterior occlusal support were clinically assessed as normal. All other subjects were clinically assessed as deficient. Maximum biting force (N) was evaluated using the Prescale system (Fuji film Co. Ltd), in which a pressure-sensitive foil shows color variation depending



on the force (Watanabe et al, 1995). Food intake was assessed according to the method described by Hirai et al (1994). Based on a questionnaire, a mastication score was determined in order to evaluate chewing ability. In addition, the subjects reported if they were "satisfied" or "dissatisfied" with own masticatory ability.

## **Results**

Table 1 compares occlusal and masticatory function with respect to the following variables: the number of missing teeth, maximum biting force, and mastication score determined by food intake. The number of missing teeth was significantly higher in subjects clinically diagnosed with deficient function ( $p<0.05$ ), whereas maximum biting force and mastication score were significantly lower ( $p<0.01$ ) in males and females.

Table 2 compares self-assessment and clinical diagnosis of masticatory function. The KAPPA value between these evaluations was 0.24 (95% confidence interval=0.00-0.54) in males, and it was 0.31 (95% confidence interval=0.05-0.57) in females. Almost half of the subjects who reported that they were satisfied with their masticatory function were clinically diagnosed with deficient chewing ability.

## **Discussion**

Self-assessment has frequently been used for evaluating masticatory function in epidemiological study. However, in the present study, poor agreement was observed between self-assessment and clinical diagnosis. Self-assessment is insufficient and inaccurate to evaluate chewing ability in the elderly. Furthermore, there are many deficient subjects with chewing ability in the Korean elderly. Chewing ability is known to decrease with advancing age. Accurate identification of subjects with deficient chewing ability would be beneficial for the promotion of oral health of the elderly. As dental health is a vital element of total health management, the role of dental health will increase for the future of geriatric health in Korea.

## **Acknowledgement**

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Table 1 Comparison of masticatory and occlusal function between deficient and normal subjects according to clinical diagnosis

(a) males					
Factor	Deficient		Normal		p-value
	Median	QD	Median	QD	
Number of missing teeth	9.5	5.0	4.0	5.0	<0.05
Maximum biting force (N, log)	266.5	99.3	768.0	333.9	<0.01
Mastication score	65.3	4.7	92.0	11.1	<0.01
(b) females					
Factor	Deficient		Normal		p-value
	Median	QD	Median	QD	
Number of missing teeth	19.0	9.0	2.0	3.4	<0.05
Maximum biting force (N, log)	123.0	100.4	577.0	127.1	<0.01
Mastication score	52.7	12.9	99.0	4.0	<0.01

Table 2 Relationship between self-assessed and clinically diagnosed chewing ability

(a) males

(a) males	Clinical diagnosis		Total (persons)
	Deficient	Normal	
<u>Self-assessment</u>			
Dissatisfaction	4	3	7
Satisfaction	8	22	30
Total (persons)	12	25	37

(b) females

		Clinical diagnosis		Total
		Deficient	Normal	(persons)
<u>Self-assessment</u>				
Dissatisfaction	12	2	14	
Satisfaction	10	9	19	
Total (persons)	22	11	33	

# ***PROJECT MANAGEMENT***



# **The Project Management viewed by Team Leader**

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**Key words:** team leader, project management, medical education project

## **Introduction**

Initiating a Medical Education Project at Tribhuvan University in Nepal and its operation under competent team leader are very important. The successful management depends on effective leadership. The point is on the premise that we should be familiar with its national condition, culture, custom and health care problem, etc. but nothing more important than a good team work in the project.

## **Methods**

It is 15 years since accept the trainee on thoracic surgery from Nepal and 10 years since the investigation was made for opening Thoracic Surgery Department in 1986, when I myself involved in it. During this time, the evaluations were made twice in phase I and Phase II, team leader for one year and half, the other for a month, making frequent visit to observe the project on assisting each country. Consequently, several trainees have been accepted annually into Hyogo College of Medicine. Accordingly, I made the analysis based on my own observation.

## **Results and discussion**

The results are itemized in several parts with the discussion.

### **1. Counterpart**

The selection of counterpart is not always easy as those candidates are made preferentially among those who have studied abroad. The selection itself is being made by Nepal side and the preference is based on seniority and the same ethnic group without regard to the ability. A speciality is non-existent in the country. Besides there is a tendency to preserve the acquired, learned technology, using it for one's own general practice instead of teaching others.

### **2. Team Leader**

The most important duty for team leader is to keep in touch constantly with

JICA office in Nepal and the HeadQuater in Japan, Embassy in Nepal and National Domestic Committee and to make long-term plan, estimate budget, secure experts for a long and a short term and to make a fair distribution of equipment materials from allocated annual budget to each department concerned and to check a smooth operation of maintenance, which were easy to say but difficult to accomplish. For achieving a good team work, open-door system is necessary so as to see a good communication in all, especially to women experts and the family members. If the number of staff is excessive, a faction may be created. A periodical meeting with counterpart, a positive contact with International Organization, Relief Organization to Foreign Country, and a considerable weight of health counselling for Japanese in Nepal are essential.

### 3. The evaluation made by counterpart trainee

It is usually made from Japan side. However, based on my previous knowledge of them. The attempt to obtain the evaluation was made from the point of view of counterpart.

#### i) Training in Japan

Generally satisfactory. The content of training was not fully put in practice due to lack of required equipments in Nepal, such as electron microscope, CT(computed tomography)scan, etc. The period was shortened to less than a year which was no value for obtaining required qualifications.

#### ii) Expert Stay

The dispatched expert with less than a month is too short for learning. The acquired technology used with equipments brought by the expert could not be continued to use since they had used up all without replacement.

### 4. Logistic Support by Domestic Committee in Japan

The problems are: lack of communication, inappropriate of the committee member, committee meeting being held once a year just for a short period, etc. So under the current state, it is doubtful whether there is any existing value, and the logistic support can not be depended on. The personnel transfer in JICA is so frequent that taking over the business is not being carried out efficiently and a continuity of the project seems not to be consistent.

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# **Impact of the Improvement of Water Supply on Reduction of Diarrheal Incidence and Increase of Household Income in a Squatter Area of Metro-Manila**

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**Keywords :** water supply, squatter/slum, diarrheal incidence and household income

## **INTRODUCTION**

In the cities of many developing countries, rapid urbanization has led to the expansion of squatter areas. Metro-Manila, Republic of the Philippines, has one of the largest squatter populations in Southeast Asia. The population in the squatter areas of Metro-Manila has been growing rapidly since 1960s and its estimated figure in 1990 was 2.4 million accounting for 30.5% of the total population of the whole Metro-Manila. Lack of basic services such as safe water supply and sanitation in the squatter areas affects both social and health status of the population in the areas. Although the Philippine Government attempted to solve the/se problems by the eviction or resettlement programs, the approaches had not been necessarily successful. Under these circumstances, in 1985, the Government introduced the Zonal Improvement Program (ZIP), aiming to legalize the squatters without relocating them to another area under the financial support of the World Bank. The main features of the ZIP area as follows:

- a) The Government purchases the land occupied by the squatters from the legal landowner(s);
- b) Paved roadways and rearrangement of the housing units area introduced in the area;
- c) Basic infrastructures such as safe water supply, electricity, and sanitation facilities are introduced in every housing unit; and
- d) The residents (former squatters) are required to pay for the above land and infrastructures within 25 years in monthly installment basis.

The evaluation of the ZIP made by the World Bank in 1993 does not cover the analysis in terms of socioeconomic and health status at household level. This study, therefore, was undertaken with the objectives of analyzing the impacts of improvement of water supply in relation to household economy and diarrheal incidence among under-5 children.

## METHODS

This study was conducted by comparing between a ZIP area (study group) and a non-ZIP area (control group). Leveriza (LE), one of the average ZIP sites, was selected as a ZIP area. Maestranza (MA), a squatter area, was selected as a non-ZIP area because the socioeconomic status and the level of water supply in MA was similar to those of LEO\*<sup>1</sup> (Table 1).

\*1 LEO: Leveriza ( LE ) prior to the implementation of the ZIP as of 1985

In order to collect data concerning water use, diarrheal incidence, and socioeconomic status, household interviews in Tagalog\*<sup>2</sup> were conducted at 201 households selected by systematic sampling for each area on 21 August - 18 August 1993. To examine diarrheal incidence, the WHO's definition of diarrhea was adopted. And the researchers assumed the followings as major variables associated with diarrheal incidence:

\*2 Tagalog: official language in the Philippines

- x1: water quality;
- x2: water quantity;
- x3: type of sanitation facilities; and
- x4: hygienic behavior.

The Coliforms tests were conducted as for three water supplies randomly sampled in LE and as for all three public water supplies in MA. To obtain qualitative data on socioeconomic activities of each community, Focus Group Discussions (FGDs) were held among community organizations and housewives in each area.

## RESULTS and DISCUSSION

*Impact of improvement of water supply on diarrheal incidence*

Significantly lower incidence of 2-week diarrhea\*<sup>3</sup> ( $p < 0.001$ ) was observed in LE (27 cases out of 183) than in MA (97 cases out of 189). Of the aforementioned four variables associated with diarrheal incidence, x2 (water consumption per capita per day) and x3 (use of own private toilet) in LE were significantly higher ( $p < 0.001$ ) in those in MA. In other words, higher water consumption and more frequent use of own private toilet in the household contributed to less 2-week diarrheal incidence in LE.

\*3 2-week diarrhea: a diarrhea case occurring during last 2 weeks (recall time: 2 weeks)

Water consumption per capita per day in LE is widely distributed as shown in Figure 1. At all the households visited in LE and MA, laundry machines, bathtubs, toilets with flush which are accompanied by consumption of large volume of water were available. It was also observed that the residents in LE consumed, in practice, much water for bathing and washing hands. The significant difference in water consumption between LE and MA, therefore, implies that more volume of water was consumed for hygienic purposes such as washing hands, bathing, cleaning dishes, and washing clothes in LE. This may be also imply that more volume of water was used for the above hygienic purposes at a time. As shown in the above part of Figure 1, 46.0% of under-5 children from the households whose water consumption was less than 60 (liter/person/day) had 2-week diarrhea. Its significant difference was recognized ( $p < 0.001$ ). This is also supportive indication for reduction of diarrheal incidence in accordance with increase of water consumption.

### *Impact of improvement of water supply on household income*

An increase of monthly income of the household in LE was confirmed after the implementation of the ZIP (Figure 2). The residents in LE spent less charge on water although they consumed more water than those in MA. This implies possible reduction of household expenditure on water through the ZIP. These seem to have enabled the participating households to successfully perform amortization for the program (22.9%: fully paid, 66.8%: active account, 10.3%: inactive account).

The increase of household income in LE may be attributed to the transfer of time allocation from water acquisition to income generating

activities. Performance of the time reallocation in LE was confirmed also through FGDs and could also be justified by estimating the status of water supply in LE0 by the followings:

- a) Waiting and collection time for water acquisition in MA was long enough to constrain their income generating activities (Figure 3);
- b) Population per water faucet in LE0 (550.3) was the same level as that of MA (458.0); and
- c) Waiting and collection time for water acquisition in LE0 is expected to have constrained their income generating activities at the same level as that MA as of 1985.

### **CONCLUSION**

- a) The ZIP can be a possible approach to solve socioeconomic and health problems of squatter areas.
- b) Direct distribution of piped water connection to each housing unit may play two positive roles. One is to ensure less diarrheal cases. The other is to serve as potential to encourage income generating activities in certain economic circumstances.

**Table 1: Socioeconomic status of Leveriza (LE) and Maestranza (MA)**

	LE: Leveriza		MA: Maestranza	
	prior to ZIP 1985 (n = 221)	after ZIP 1993 (n = 201)	non-ZIP 1993 (n = 201)	
Estimated population	3,859	6,752	1,374	
Existing water supplies	7 public faucets	2.1 private faucets in every housing unit	3 public faucets	
Population per water faucet	(person/faucet)	551.3	3.23	458
Number of household members	(person/household)	6.2	6.5	5.2
Number of under-five year old children per household	(n.a.)	(n.a.)	0.91	0.94
Number of persons per room	(person/room)	(n.a.)	3.88	4.52
Household income		4,496 *	8,032	4,530
		3,241 *	6,000	3,000

n: number of households investigated

\* converted into purchasing power as of August 1993.

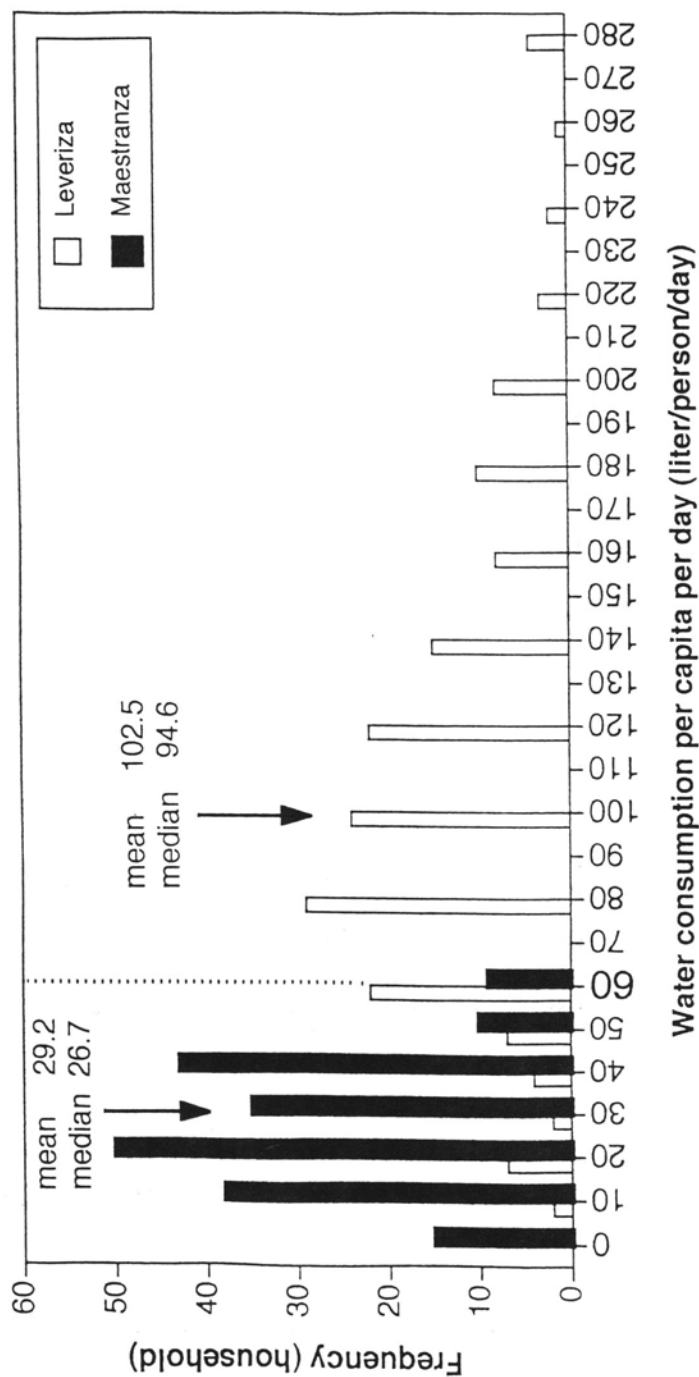
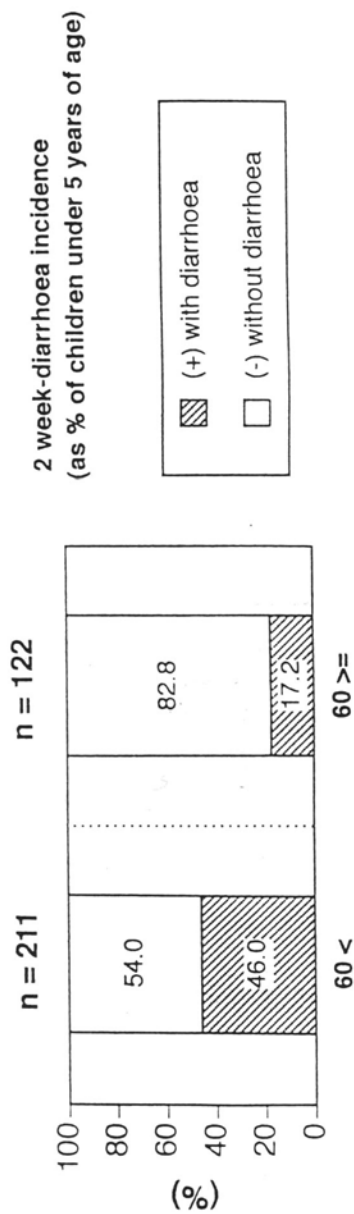
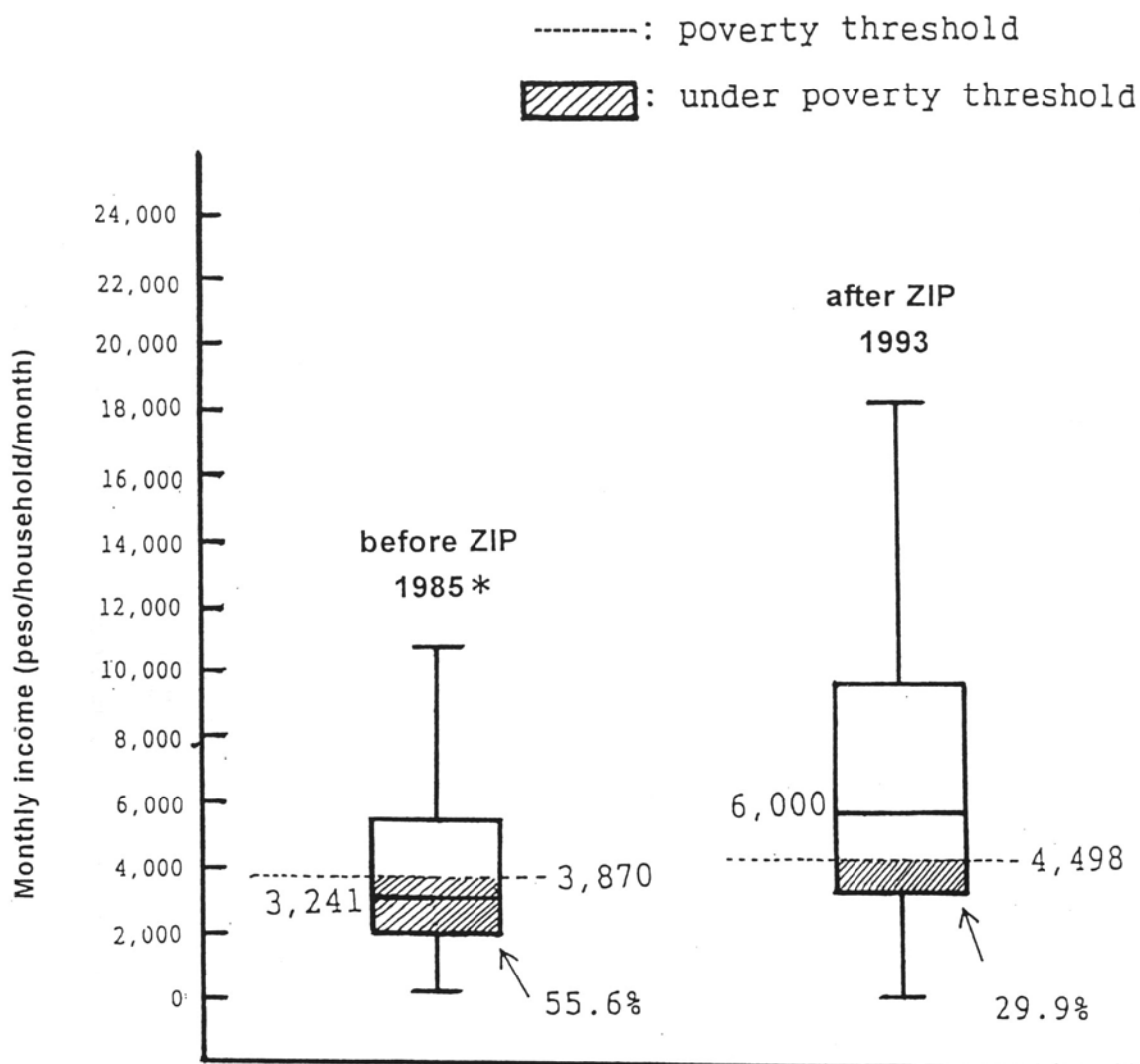


Figure 1: Water consumption per capita per day in Leveriza and Maestranza  
( Aug.-Sep. 1993 )



\* Income and threshold in 1985 were converted into present (1993) purchasing power.

Figure 2 : Monthly income in Leveriza ( ZIP area )



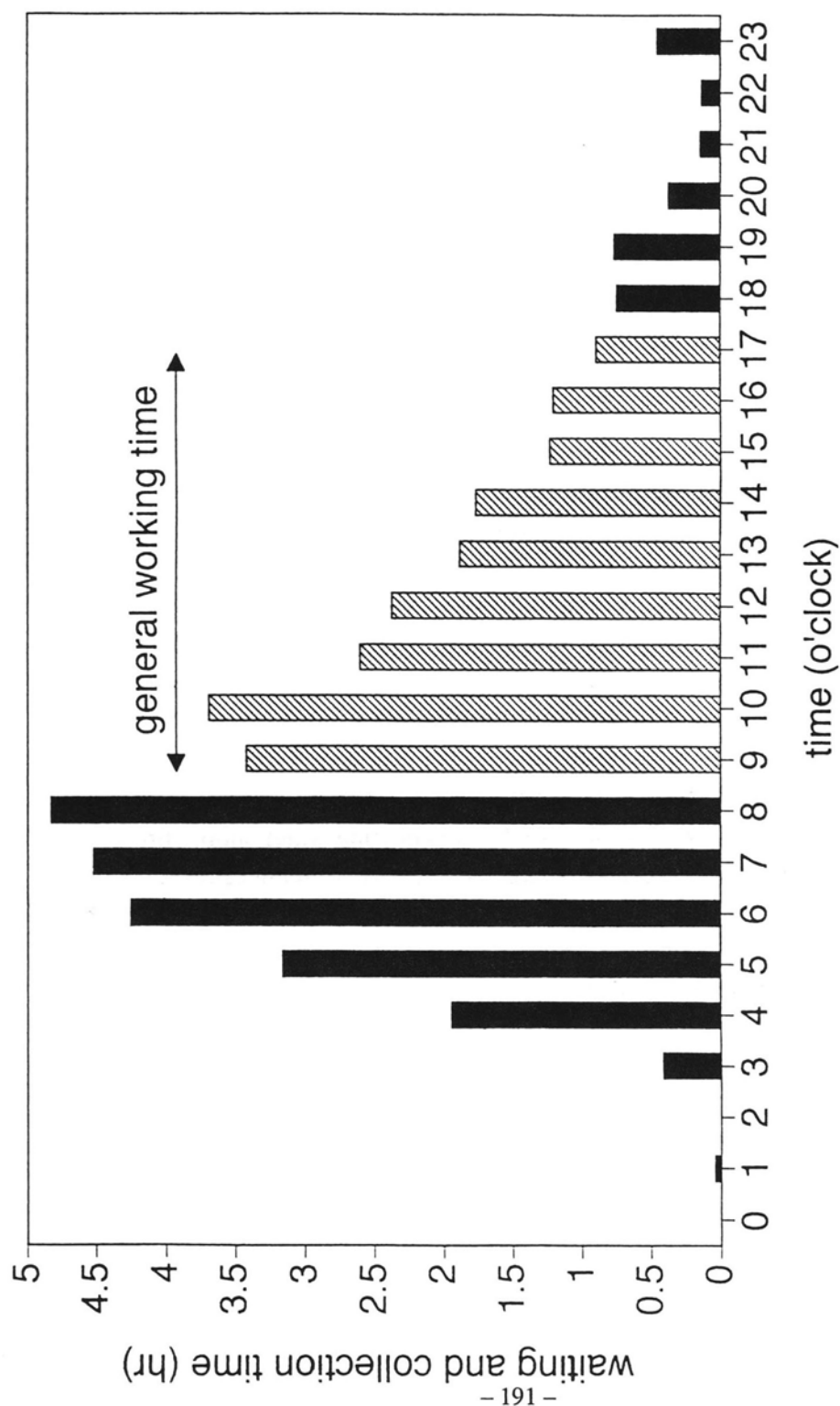


Figure 3 : Average waiting and collection time at water supplies in Maestranza

# **Formulation of Appropriate Water Supply Project in Low-Income Developing Countries**

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## **Introduction**

As a part of development assistance water supply projects targetting to supply safe drinking water and to replete the Basic Human Needs (BHN) and environment of health and sanitation of residents which are essential for life have been implemented and achieved certain results in the developing countries including low-income countries through encouragement by WHO's "Water Decade" (1981-1990) .

At present this trend has been succeeded in "Water for All" (1991-2000) since water supply is regarded as one of important sectors which contribute directly for health and security of life of residents, and these projects have been implemented under the Japanese Official Development Assistance as well as other bilateral and multi-lateral cooperations.

## **Present Conditions and Subjects**

- 1) Our office as a consulting firm has been managing water supply projects which aimed at realization of health and security of living of residents in low-income developing countries in Africa and Middle-East.  
Consideration on operation and maintenance of water supply systems after completion and delivery of the facilities has become a more important subject.
- 2) In case of water supply project for rural communities where management of water supply system based on collection of water fee was not applicable, upto 1980's the responsibility of operation and maintenance after completion and delivery of the facilities used to be belonging to the government of recipient country and/or rural municipality. However, since later half of 80's new targets such as (a) operation and maintenance by autonomous body formed by benefitting residents, (b) active participation

- of women to "Water Committee", (c) financially self-contained status of water supply service, (d) cost recovery for preparation of fund for procurement of spare parts, have also been encouraged in the projects.
- 3) For sustainable operation of water supply system it is important to get understanding of residents on necessity of their responsibility to pay the cost of water supply. And therefore, the activities of sensitization and health education collaborating with not only implementing agency of water supply project, but also other organizations such as governmental agencies in charge of health and medical services, rural clinic, NGO's became a necessary component throughout the project implementation period.
- 4) In the activities of sensitization and health education, the residents are requested to recognize and understand the facts; (a) How maintaining safe drinking water is essential for health and security of living of residents, (b) When the risk of water-borne diseases and the medical expenditures are considered in linkage with water supply, how the residents' burden of cost for securing safe drinking water is important.

### **Suggestion**

Safe drinking water supply combined with activities of sensitization and health education contributes to prevention and decrease of water-borne diseases. Also in the area of health and medical services compared with implementation of a single health and medical project, combination of a health and medical project with a water supply project may bring considerably significant effects. Therefore, for more appropriate formulation of water supply projects, coordination with health and medical projects concerning a component of improvement of water related environment during their formulation stage is strongly recommended.

# **The organization and Management of Human Services in Japan**

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## **1)The management of human services**

The relationship between the individuals and their lives in the modern society are mediated by human service organizations like hospitals and welfare facilities. Those organizations register and respond to individuals' needs in the everyday life. Recently in Japan, the strength of human service needs has increased and the importance of such a organization has improved dramatically with it.

Especially in the aged society, we need to establish the mechanism for supply of human services to ensure that individuals obtain them fairly and equitably if they need.

However, the complexity of human needs in modernized society like Japan and the ever-increasing needs of the service to meet them exceed the capacity of traditional social units and individuals to respond to them. In such a situation, human service organizations have to accomplish both new aims, new formal rules and procedures, and new systems of accountability. These are supposed to ensure that universalistic criteria are applied to verify individuals' needs for benefits, and the provision of these benefits is not prejudicial.

In present, the state has sought to establish new forms of social control when the household ceased to serve as a place of work and thus could no longer fully control the behavior of its members. Human service organizations have come to assume this control function in a variety of ways.

## **2)The position and role of the public sector**

For the individuals, the development of the welfare state has resulted in the transformation of private welfare into public welfare. That is, concerns about their well and personal welfare, which in the past were handled within the family and the community, have now become a public responsibility to be dealt with through public human service organizations.

When a person is admitted to a hospital, his or her illness is no longer

a private affair, but become a public concern duly recorded in an official department. In the hospital, the individual is changed to the client, and he or she has acquired the formal status of patient.

Such a transformation have profound consequences for individuals. Making their needs and problems public enables them to gain access to human services that are essential to the improvement, maintenance, and restoration of their well-being and personal welfare.

The individual can get a public status in the organization on the basis of official interpretations of his or her personal situation and need. After that, his or her public status influences the social position in the everyday life. Individual ' transformations with human service organizations profoundly affect his or her social status.

Human service organizations are organized to meet individuals' welfare needs, which make individuals increase their dependence on them, and the organizations acquire considerable power to shape their lives. On the one hand, service workers in the organization can control the resources they need. On the other hand, the individual has little influence over the organization's policies.

In human service organizations, the individual's loss of power is a fundamental characteristic. The individual is coerced or has no choice but to deal with the organizations. He or she feels alienated and helpless. For instance, the mentally ill may be committed involuntarily to the mental hospital, and the poor have no choice but to apply to the welfare department.

### **3)The characteristics of human service organization**

In many respects human service organizations share the characteristics of other organizations. They are contrived, goal-directed, social units that import resources from their environment to produce a specified sets of products and maintain themselves. As goal-directed social units, they are founded to produce products needed by other social units who, in turn, will provide these organizations with future resources.

However, human service organizations can be clearly distinguished from other types of organizations by their primary focus on relations with clients. A client is the recipient and consumer of the organization's services, and is vested with social values that the organization must consider in its processing and change efforts. In addition, a client must cooperate and

comply with organizational policies to some degree and conform to certain prescribed behavior and performances.

The relations between clients and service workers in organizations can be conceived as a process of transaction by which resources and services are exchanged. clients tent to interact with an organization, voluntarily and involuntarily, to obtain its resources and services in a manner that optimizes perceived rewards and minimize perceived costs. Service workers interacts with clients, by chide or by command, to obtain the resources they can control, in a manner that optimizes the rewards and minimizes the costs of services.

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# **Management of Japanese Voluntary Organizations**

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**Key Word :** voluntary organizations, strategy, structure

This paper deals with the circumstances of management(strategy and characteristics of organizations) of Japanese voluntary organizations in special reference to the relationship between management and environmental factors ,which have received very little attention in the field of organizational analysis in Japan .In this study,voluntary organization is defined as one that engages in activities independently of government with the support from public funds which benefit persons beyond their own membership.

The survey was carried out in 1992 toward 141 voluntary organizations to obtain the data by means of questionnaires and interviews with the director or a senior manager in each organization. The data were converted to numerical values,using a five-point bipolar scale and were analyzed by discriminant and regression analyses.

The results revealed three points as follows.(1) Japanese voluntary organizations pursue not only cooperative strategies but also competitive strategies such as innovative and efficient strategies.(2) Innovative strategies are pursued by those organizations which are domain prospectors and are more complex in their task environment,less dependent on resources from public organizations and bigger in their organizational size. On the other hand,cooperative strategies are pursued by those organizations which largely react to their domain and are more dependent on resources from public organization,more overlapping between their givers of money and receivers of services,in more competitive market and more complex in their task environment.(3) Each organization has organizational characteristics that are accordance with its environmental factors and its strategy.

There are observed some characteristics in the management of Japanese voluntary organizations which are different from ones of commercial organizations,although they share some characteristics in

common. First, commercial organizations pursue competitive strategies in competitive market, while voluntary organizations pursue cooperative strategies even under highly competitive conditions. Second, commercial organizations show complex organizational behavior under their complex task environment, while voluntary organizations show simple organizational behavior even under more complex task environment. These differences in the management between voluntary organizations and commercial organizations can ascribe to differences in goal of the two organizations.

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# **Improving Safety and Health at Work in Rural Sugar Cane Factories in the Mekong Delta Area in Vietnam**

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## **Introduction**

A large variety of new manufacturing technologies have been rapidly transferred to the local workplaces in Vietnam like other Asian countries, emerging various work-related health and safety risks. A growing number of workers are engaged in manufacturing sectors with drastically increasing exposure opportunities to such work-related health risks.

It is encouraging to see an increasing number of success stories in improving safety and health in various workplaces in Asia in their local conditions (Kogi et al 1988, Tandhanskul et al 1995, Kawakami et al 1995). In view of the world-wide trends of the participatory approaches aimed at immediate and sustainable improvements, roles of practical researches in the field conditions are expanding. Commonly, these approaches keep a close look at multiple aspects of work-related health risks to meet local workplace requirements because their risks are inter-related and joint intervention is possible (Kogi 1985). Since traditional expert-centred factor-by-factor approaches are facing some important constraints in terms of mobilizing owners and workers to take immediate improvement action, this new approach encouraging self-help actions under local initiative has been developing with a clear focus on voluntary action and participation. In order to develop a practical support mechanism for improving safety and health at work, two rural sugar cane factories in Can Tho province, the capital of the Mekong Delta area, were studied.

## **Methods**

Two sugar cane factories employing 12 workers and 14 workers in Vi Thanh district in Can Tho province were selected for the research. The research methods were selected in terms of wide applicability and practicability to create recommendations for the feasible improvements in the local conditions

(Kawakami et al 1993). Walk-through survey methods with an action-oriented checklist application developed by the International Labour Office (Thurman et al 1988) were first conducted to identify their multiple work-related health risks. Time study methods recording every 30 seconds their actual job contents, work postures and exposure to risks were applied to 8 workers (4 extracting workers and another 4 boiling workers) during the whole shifts. A Vietnamese version of the 30-item fatigue questionnaire developed by the Japan Association of Industrial Health were applied to 10 workers every three hours during the whole shifts. To further back support these field research methods, continuous heart rate monitoring using a Holter type electrocardiogram and heat environment measurements were also applied.

### **Results and discussion**

The checklist application and the time study methods identified multiple aspects of work-related health risks in the sugar cane factories. Handling and carrying the heavy sugar cane leading to increased heart rate over 150 beats/min was identified as an essential workload. This risk was associated with muddy and slippery floors in the studied factories. Their 24-hour long shift system markedly increased fatigue symptoms. After the end of the 24-hour shift, fatigue complaint rates were 73.1 % in the "Drowsiness and dullness" category, 12.2 % in the "Difficulty in concentration" category and 47.5 % in the "Projection of physical disorders" category. Several work environment and welfare factors such as insufficient lighting especially at night, lack of machine safety guards, muddy and slippery work floors or poor resting facilities were also identified as increasing their work-related health risks. While implementing the field research, questions and opinions about the work processes and job-related risks and ideas for improvements were informally and frequently exchanged between the workplace people and the researchers. This style of field communication produced an amicable atmosphere among the owners, workers and researchers and functioned as seeds for subsequent improvement actions. Based on the study results and the ideas exchanged, the factory could implement a series of improvements including installation of artificial lights for night working, machine guards, increased ventilation, improved work floors, and resting spaces with appropriate seating arrangements.

In conclusion, our experiences in small-scale sugar cane factories in Vietnam demonstrated that widely-applicable field research approaches were useful in identifying multiple work-related health risks in local workplaces and producing practical recommendation for improving working conditions. Given practical advice and sufficient discussion in the local context, the local sugar cane factories in Vietnam could implement substantial improvement actions under their own initiative.

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# **Study on International Training Programs on the Structure at Planning, Management and Evaluation**

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Key words : planning, management, evaluation

## **Introduction**

From a view point of international cooperation, training programs aiming at Human Resources training is an important function as well as a provision of equipments and also a dispatch of experts. At present, there are three different types of training programs conducted by GOs and NGOs in Japan. Those are: ①technical training program, ②policy-making program and ③mixture of ①&②. Basic resources for this study were collected by sending out questionnaire to several organizations which have more or less been carried out any kind of training program/s. Their systems and measures in planning, administration and evaluation, etc. have been analyzed thoroughly for the purpose of getting a concept of how those training programs should take part in the field of international cooperation.

## **Methods**

Totally seventeen (17) different organizations were selected at random. Those were six (6) GOs except Japanese International Corporation Agency (JICA) and Japanese International Corporation Welfare Services (JICWELS), which have entrusted their training programs to other organizations, plus eleven (11) NGOs. Each one set of questionnaire was sent directly to those organizations and was collected. Research was made on actual conditions and problems in planning, administration and evaluation of training program/s they have.

## **Results**

1) collection of answers: The answers were sent back from four (4) GOs (66.7%) for eight (8) courses and from eight (8) NGOs (72.7%) for twenty

(20) courses. Among all training programs which came into the answers, a course for Japanese who have been going to be dispatched abroad and the course held in the third nation were excepted and totally twenty-six (26) courses were selected for analyses.

2) objectives and starting year: An improvement of medical skills/techniques was an objective for as much as 80% of twenty-six (26) courses. Others were for leadership training and education concerned or for administration / evaluation on policy-making. A starting year of each course was in the 1980s for ten (10) (38.6%), in the 1990s for eight (8) (31.0%) and in the 1960s for one (1). Most of the courses have been started during the 1980s.

3) duration: There were nine (9) courses which duration were within one (1) month (34.6%) and were seventeen (17) courses over one (1) month. The minimum was fourteen (14) days and the maximum was one (1) year. Most of technical training programs took longer duration than that of policy-making programs.

4) applicant qualifications: There were nineteen (19) courses for medical doctors (73.0%). Among them twelve (12) courses were especially for clinicians. Other seven (7) courses were for nurses and others. A requested number of participants was that: eighteen (18) courses were for within ten (10) people (69.2%) and eight (8) courses were for eleven (11) and over. The minimum number is two (2) and the maximum twenty-one (21). Almost every course has set an age limit or has requested certain years of experience. The upper limit of age was fifty-five (55) years old in one (1) course. There were five (5) courses mostly by NGOs', which upper limit was fifty (50). In case of GOs, many of them set up forty-five (45) as the highest age limit and those were mainly for around thirties. A requested years of experience was 3-5 years and over.

5) planning & course leader: Totally in nine (9) courses, programs have been planned by staff themselves (34.6%). There were only six (6) courses which a steering committee or executive committee has taken a leading part in a program (23.1%). And there were nineteen (19) courses which have stationed a medical doctor or a director of an institute as a course leader.

6) daily programs: Such as lectures, discussions, practical study, observation tour, field trip were included into the programs. The maximum and the minimum rate of them were 61%/10% for lectures, 75%/0% for discussions, 70%/0% for practical study and 47%/7% for observation tour, etc. Policy-

making training courses have put their weight on lectures and discussions and technical training courses on practical study.

7) finances: Number of joint study programs with JICA is seventeen (17) (65.8%) and it comes to the top. Next to it is independent training program for four (4) (15.4%), which are sponsored by two (2) different NGOs for themselves. And JICWELS' three (3) programs have come to the next (11.5%).

8) staff: Among twelve (12) GOs and NGOs, five (5) organizations have full-time staff and other five (5) have part-time staff or concurrent staff who have also worked for another section. Except one (1), all five (5) of the former belong to NGO.

9) accommodation & facility for lecture/discussion: There were only two (2) NGOs which have their own accommodation. Other organizations have utilized JICA's facility or hotel. Totally six (6) organizations have any facility for lecture / discussion.

10) certificate: Only one (1) course for medical doctors working at government level has presented a diploma. This was one-hundred and twenty-six (126) days' course by the Research Institute of Tuberculosis.

11) follow-up course: There are 6 courses in three (3) different NGOs which have a follow-up course. However only four (4) NGOs have their Newsletter issued.

12) evaluation: Most courses have an overall evaluation meeting with participants presenting questionnaire or final report as references. In many cases of joint programs with JICA, they have the meeting with an attendance of JICA, sponsor-side. Some of the technical training programs have the evaluation on the result of experiments or they have conducted tests at the beginning, at the midst and at the end of each course. There were seven (7) courses which have taken that style.

13) problems: Shortage of staff or leaders, language barrier, insufficient facilities, shortage of finances, unbalance of participants, etc. were mentioned as problems at present, which have been appointed long since.

### **Conclusion**

①On the stage of making a working plan of training programs, there were more numbers in staff-centered style than in committee-centered style. It may be possible that a course leader will be a plan-maker and also one of

management staff as well if he/she could make quantity and quality of work well-balanced.

②For smooth management, it is necessary to have own lecture room/s and accommodation facility. From a basic research conducted this time, it was cleared that there were quite a number of organizations which have to rent those facilities outside. This will be more burden on them financially and also on themselves, the volume of works. A presentation of diploma has been done only in one (1) course by one (1) organization. An established examination or a diagnosis skill should be qualified and authorized by certain committee or so.

③Measures for evaluation have a deep concern with a balance of participants. Compared to the plan-making training course, the technical training course will be facilitated to standardize its overall evaluation.

# **Community Based Rehabilitation (CBR) initiator's workshop in Solo city, Indonesia**

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Key words: community based rehabilitation (CBR), initiator's workshop,  
Indonesia

## **Introduction**

In developing countries, concept of rehabilitation of the people with disability is yet to be well understood and popularized. However, in view of the rapid increase of the people with disabilities, the implementation of effective rehabilitation services in these countries is of utmost importance and the community based rehabilitation is considered most realistic and practical solution for these problems in the third world. With the intention of educating and training the initiators of CBR activities, since 1991 Japanese Society for Rehabilitation of the Disabled Persons (JSRD) has been cooperating and sponsoring the CBR initiators' workshop held at Prof. Soeharso Memorial CBR Center (PPRBM) in Solo city, Indonesia. Indonesian government and International Center for the Advancement of Community Based Rehabilitation (ICACBR) of Canada are helping the workshop as well.

## **Methods**

In the above center having accommodation facilities, approximately 40 participants from various developing countries such as India, Bangladesh, Nepal, Afghan, China, Philippines, Malaysia, Thailand, Indonesia, Kenya, Tanzania and South American countries assemble and spend ten to two weeks for the course which runs every day from 9 AM to 9 PM and consists of lecture, small group discussions, Q and A sessions, audiovisual sessions, exchange of the individual experiences, visiting round of the Indonesian villages to pick up actual problems and teaching materials, know-hows of the mobile rehabilitation unit and so on. Teachings staffs are from Canada, USA, UK, Germany, Holland and Japan but mutual education or enlightenment is



also very useful and effective.

### **Results and Discussion**

JSRD is intending to continue this cooperation as far as they could afford, because this kind of workshop seems to be very fruitful and instructing and suggesting realistic implementation of the rehabilitation services in these developing countries. Language barrier and financial resources may be presenting some difficulties from the point of view of JAPAN.

# **One of the Countermeasures against Counterfeit/Substandard Drugs in Developing Countries**

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Key words: counterfeit drugs, substandard drugs, rapid examination methods

## **Introduction**

In many developing countries, which still lack an adequate pharmaceutical regulatory system and facilities for the testing of drugs, significant health care problems are caused by the proliferation of fake (spurious) drugs, especially where those mimicking are consumed in large quantities.

The Japan International Corporation of Welfare Services (JICWELS) initiated a project in 1993 which aimed at the development of rapid examination methods to detect such fake drugs by test facilities at local areas.

## **Methods**

Investigation teams were sent in 1993 and 1994 to several Southeast Asian countries to study situations on fake drugs and possible countermeasures against them. Based on the findings of the teams, rapid examination methods were developed. The Society of Japan Pharmacopoeia collaborated in preparation of the methods which were further validated in laboratories of more than 30 leading Japanese drug manufacturers.

## **Results**

1. Two type of organoleptic tests were developed. These methods intend to identify likely fake drugs by examining packaging appearance and/or contents of drug products. If products under examination using these methods are suspected to be fake drugs, further test should be carried out.

2. As a further method for detecting fake drugs, thin-layer chromatography(TLC) methods were developed. The methods include general method for TLC and specific methods for selected drug items(see attached table.). The selected 29 drugs are consisted of 5 groups; analgesics group, water-soluble vitamin group and three different types of antibiotic groups, namely, penicillin beta lactams, aminoglycosides and miscellaneous.

## **Results and Discussion**

Twenty-nine drugs were selected in relation to the association with counterfeiting, also based on whether they are included in the Essential Drug List of WHO and based on availability of ASEAN standards. As TLC methods could be used as semi-quantitative analysis, this methods are applied to the detection of sub-standard drugs. In 1995, another study team was sent to some Southeast Asian countries to discuss usefulness of the rapid examination methods and found out that they could be beneficial to local drug analysis laboratories as originally planned. People met also pointed out that support of some resources for equipment and reagent and training of operators would be necessary.

## Developing Solvents and Detection Methods for First Choice

Pharmaceuticals	Developing solvents	Detections
amoxicillin ampicillin benzylpenicillin cloxacillin phenoxymethyl penicillin	acetone, glacial acetic acid (95:5)	UV at 254 nm or iodine
amikacin gentamicin kanamycin tobramycin streptomycin(SM)	25% ammonia water, 99% ethanol, butanol and chloroform (8:5:4:2)  0.5M phosphate buffer (pH 9.0) for SM	iodine or ninhydrin
chloramphenicol chloramphenicol sodium succinate erythromycin erythromycin ethylsuccinate griseofulvin rifampicin tetracycline	water, butanol and glacial acetic acid (5:4:1) (upper layer)	UV at 254 nm or iodine
acetaminophen aspirin allopurinol ibuprofen indomethacin sulpyrin (SP)  colchicin (CH)	ethyl acetate, 99% ethanol and glacial acetic acid (50:5:1)  toluene, methanol, acetone and glacial acetic acid (11:7:1:1) for SP  ethyl acetate, 99% ethanol and 25% ammonia water (50:5:1) for CH	UV at 254 nm or iodine
ascorbic acid nicotinic acid pyridoxin riboflavin thiamine	toluene, methanol, acetone and glacial acetic acid (11:7:1:1)	UV at 254 nm or iodine

# **Corporate Health Care Provision and Perspectives on International Medical Treatment**

Isamu Yoshida

## **I. The Problem**

For the internationalization of the Japanese economy, the maturation of the borderless concept and the globalization of operations are inevitable, as more and more companies become involved in overseas activities. The problems of providing health care for the rapidly increasing numbers of employees posted overseas will continue to multiply and will need consideration.

As of December 1995, some 13,000 companies have operations in 124 countries worldwide, and the number of Japanese employees overseas has reached 470,000. In addition, future problems to be resolved include the implementation of health care for overseas nationals, and collaboration with local societies over medical treatment.

## **II. Key Phrases**

- a. International health care management for Japanese nationals and company employees overseas.
- b. The era of horizontal division of labor for international company operations.
- c. Cooperation with WHO for international healthcare management.

## **III. Background**

- a. With the entry into an age in which economic resources are procured internationally, a horizontal division of labor internationally has become the norm. In the locations of overseas operations, cooperation in transferring leading-edge technology is being forcefully requested, and responding to this is an urgent task.
- b. Japan is under severe economic pressure consequent on the collapse of the bubble economy and the high yen; this has accelerated the restructuring of company operations and the shifting of production overseas, resulting in turn in a hollowing-out of domestic production and much unemployment. There is a serious effect on the employment environment, and changes in the labor welfare situation are also beginning to appear.
- c. On the other hand, in this era of international operations, the lag in medical and health care systems in the developing countries is a problem.

#### IV. Current State of Health Care Provision for Japanese Overseas (principally from Japanese government agencies)

##### 1. International medical cooperation carried out by the Ministry of Foreign Affairs (Executive organization: Japan International Medical Association)

Starting in 1972, medical teams have been dispatched overseas. In 1994, there were 14 tours of duty to 79 cities in 54 countries (3012 patients seen in 1991, 3108 in 1992, and 3312 in 1993).

(1) The 14 teams in 1994 were sent to the South Pacific, Middle East, South America, and elsewhere.

(2) As a rule, teams consisted of three doctors: a general practitioner, a pediatrician and a gynecologist.

(3) The Ministry of Foreign Affairs, though working in cooperation with the Ministry of Education, the Ministry of International Trade and Industry, and the Ministry of Labor in many of these matters, occupies the position of principal authority.

##### 2. Ministry of Labor (Executive agency: Labor Welfare Commission=JHAC)

(1) The Overseas Workers Health Care Center was established in 1992. In cooperation with 39 hospitals nationwide, they carry out pre- and post-service medical exams for overseas workers, as well as medical consultations by facsimile.

(2) In 1995, 14 teams of doctors made overseas tours during three periods.

(3) Eleven hospitals in 6 countries ( Malaysia, Sri Lanka, Pakistan, Egypt, Turkey and Kenya) have been designated as Overseas Workers Friendship Cooperation Hospitals. The designated hospitals provide training for doctors and staff, conduct mutual exchanges, and serve as a base for medical teams visiting from Japan.

(4) They have begun to pay unpaid medical costs of foreign workers in Japan.

##### 3. Ministry of International Trade and Industry (Executive agencies: Japan International Cooperation Agency (JICA), Office of International Medical Cooperation)

(1) Established in 1974 with the promulgation of the Japan International Cooperation Agency Law, ODA (Official Development Assistance) operations began in 1978, and emergency relief work was added in 1987.

(2) A program of exchange training for human development cooperation started; trainees accepted; technicians and specialists sent abroad; Japan Overseas Cooperation (youth) Volunteers teams sent abroad; and possibly other matters. This has already involved 350,000 people.

(3) Health care is required for personnel and employees sent abroad. An

important issue is assistance to regions with inferior medical facilities (and solving the problem of economic independence), together with the transfer of health care management ideas and medical technology.

a. Transfer of medical technology to overseas areas (fostering local medical technicians and carrying out education for training projects)

b. Cooperation over the education of staff for promoting medical care policies (proposals for population policies, and cultivating training staff for family planning)

c. Cooperation with WHO health care management plans (UN health care problems include assistance to upwards of five million starving and sick children every year. Reducing births, the permeation of family planning, hygiene concepts and the provision of medical facilities will produce benefits. The education of personnel for these tasks continues.)

4. Ministry of Education (Executive Agency: Japan Overseas Education Promotion Organization)

The Japanese who have emigrated under emigration programs (Overseas Japanese Association) number five million. There are 91 associations of Japanese and Japanese schools around the world. Teachers are sent by the Ministry of Education for a period of three years. In principle, their medical care is provided locally. However, because of differences in medical service in different areas, upon request, the Education Promotion Organization and JSS provide follow-up service.

#### V. Health Care Management and International Medical Problems for Private Companies

The overseas operations of companies are many and various. Some provide 100% of the capital themselves, others are joint ventures, yet others are collaborations or contracts: health care provision to the expatriate employees is being organized accordingly.

a. In the actual practice of health care provision, for short-term postings of not more than three months the head office manages health care; for long-term postings there are health checks before and after the posting, the possibility of obtaining local health insurance during the posting, and so forth; as a rule the medical facilities are arranged beforehand, and a health care management scheme involving the provision of a company's own hospital or clinic is adopted. In small-scale cases, diagnosis is obtained from a doctor dispatched to the overseas location. Medical insurance and treatment expenses incurred locally are reimbursed.

b. In the industrial sector, it is common to use peripatetic medical staff;

Ajinomoto has independently built a hospital at an overseas location. Long-range fishing companies often exchange crews on a six-monthly rotation basis. Since the international mutual recognition of medical qualifications is still not properly implemented, there are often problems occurring in countries which do not sanction medical treatment. International problems remain in deciding whether to open Japanese-run medical facilities to local residents, or whether to form joint arrangements with local medical organizations with the participation of Japanese doctors.

## VI. Conclusions and Proposals for Resolution of the Problems

- (1) Unification of medical teams for posting overseas: Currently a total of 35 medical teams are sent on tours of duty abroad by four government agencies, and reflecting the vertical division of government there is no coordination. It is vitally necessary to plan the locations and timing of these tours. This is essential for the good of the patients, for diagnostic efficiency, and for cost efficiency.
- (2) Assistance to accepting organizations, and rationalization of the administration in the overseas location associated with the implementation of peripatetic medical treatment is required.
- (3) Mutual recognition of medical qualifications and other problems involving jurisdiction are important problems to be resolved by diplomatic efforts between countries. The humanitarian problems of mutual dependency with respect to health care management, and the activities of ODA funding for the provision of hospitals and medical training cooperation must be given priority as issues of economic cooperation. With the prospect of long-term assistance in view, it is necessary to construct policies for cooperation over medical treatment facilities.
- (4) The time has come for consideration of formal recognition by government agencies of organizations such as the Japan Association of Companies Overseas.
- (5) Continuing expansion of training cooperation for the transfer of leading-edge medical technology and the activities of AOTS (Japan Association for Overseas Technical Scholarship) are required.



## ***HEALTH SYSTEM / ECONOMICS***



# **Vietnam Health Insurance Scheme: Case Study in Two Provinces**

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**Key words:** Vietnam, Health Insurance, Compulsory, Voluntary

## **Introduction**

Before 1986, the State Government totally subsidized the health delivery system and used to receive the financial support of the ex-Soviet Union. Between 1986 and 1992, the assistance of the Soviet Union declined and inflation, combined with an extreme rise in health costs, lead the public health sector to tremendous shortages which could be seen in a decrease of financing resources, as well as in qualitative and quantitative health services. In 1992, the Government of Vietnam adopted a decree to carry out the Health Insurance Scheme. The Scheme entered into effects in 1993.

Although a decree has been adopted, the Health Insurance Scheme is now fragmented, for some provinces strictly follow the guidance of the Central Government, whereas others have adopted their own specific regulations to implement the Scheme. This case study aims at discussing those different features according to two provinces: Ha Bac and Hai Phong Provinces.

## **Methods**

The data collection was carried out between September 18 and October 4, 1995, in both Ha Bac and Hai Phong Provinces. I used an open questionnaire addressed to local Health Authorities at provincial and district levels. Other data were collected through personal contacts and statistical publications at the Ministry of Health, Hanoi, and at the Vietnam Health Insurance Agency, Hanoi.

## **Results and Discussion**

The Health Insurance Scheme represents an alternative source of funds aiming at alleviating the financial burden placed on the State Government by

mobilizing resources through people's participation.

For the time being, the Health Insurance Scheme is strictly evolving within the public health sector. The existence of private health insurance companies, private hospitals and clinics is not yet allowed in Vietnam. However, the private health sector is dangerously growing regarding the distribution and availability of drugs throughout Vietnam. This plays a considerable role on people's health seeking behaviors, particularly referring to the purchase of voluntary health insurance cards.

It is difficult to assess the role of the Health Insurance Scheme in the reduction of the Government health expenditures. For example, between 1990 and 1993, health expenditures rose from 4.6% to 5%. However, taking into account the erosion in the value of the Vietnamese Dong, the value of the increase in the health budget has been significantly reduced in real terms. Health expenditures are now placed at the charge of provincial Governments. The Health Insurance Scheme includes a compulsory and a voluntary health insurance. The compulsory cards apply to Government workers (including retired workers) and workers in large enterprises (State-owned and private ones). Voluntary cards apply to all other people, mainly to agriculture people. In Ha Bac Province, compulsory cards enrollements are out pacing voluntary ones (4.2% against 0.5%, respectively). In opposition, in Hai Phong Province, voluntary cards enrollments are out pacing compulsory ones (18.1% against 9.8%, respectively).

As far as the operational structure is concerned, Hai Phong Province has developed its own system. The Hai Phong Health Insurance Company monitors the insurance development with its Management Committee. Links with the Central Government exist as we refer to the payment of the compulsory health insurance (2% at the charge of the Province, 1% at the charge of the Central Government). Horizontal links with the neighboring Thai Binh Province have been developed. In Ha Bac Province, the operational structure is vertically organized since this province follows the guidance of the Central level. Horizontal links with any other provinces do not exist. With the Provincial Health Bureau and the Administrative Committee, the Provincial Health Insurance Agency monitors the fund allocated by the Central Ministry of Finance. This is performed through the Vietnam Health Insurance Agency located in Hanoi.

The calculation of risks and the pricing of premiums also differ from one

province to the other. In Hai Phong Province, the Hai Phong Management Committee is in charge of calculating risks. A “ceiling” applies as it refers to the coverage of health care services. In Ha Bac Province, the Provincial Health Insurance Agency calculates risks. There is no “ceiling” and so, there are no limitations in the quantity of care and drugs that people receive when insured. It has to be noted that in both provinces, social and chronic diseases are not covered by the respective Health Insurances Schemes.

In Hai Phong Province, the collection of premiums and payments to hospitals and health facilities are made upon monthly advances and reimbursements of health expenditures. In Ha Bac Province, the Provincial Health Insurance advances funds, quarterly.

The use and allocation of the Health Insurance fund is standardized throughout the country: 90% is spent on medical services; 8% on administrative tasks, operation costs and staffs’ salaries; and 2% returns to the Central Government. Savings depend on each province’s expenditures.

The Vietnamese Health Insurance Scheme encompasses several constraints. Among other and first, the system is fragmented and no unified Health Insurance Scheme really exists. This implies that decentralization is not always adequate. To give only one example here, it would be better to place health insurance exemption cards at the charge of the Central Government instead of leaving them under the provinces’ responsibility. This would promote more equity in the health insurance coverage. Second and in both provinces, the poor are not taken into consideration due to the financing limitations in granting free health insurance cards. People’s Committees are identifying the poor on a vague and uncontrolled basis which leads to wrong allowances of exemption cards: those who could pay receive exemption. Finally, the health insurance availability and mechanisms have to be promoted at district and commune levels in both provinces. In addition, we can notice huge disparities of health insurance coverage between urban and rural areas. Information mechanisms are still very poor in rural areas.

### **Conclusion**

Since 1986, the health economy of Vietnam has shifted from a collectivist approach (emphasizing on equity) to a libertarian approach (emphasizing on efficiency). As a result, the health insurance system has developed within a

fragmented health environment. For the Health Insurance Scheme to fully fulfill its goal, that is to reach the optimal population size to maximize the spread of risks and spooling of resources, the Government has to elaborate standards. Those would avoid the fragmentation currently occurring within the Health Insurance Scheme. Finally, the Health Insurance Scheme has to evolve in close relationships with other existing financing schemes to rationalize health costs and expenditures.

### **Aknowledgments**

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# **Marketing of Health Care Business**

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Key words: health care, marketing, service,

## **Introduction**

AMA changed marketing definition in 1985. The new definition covers marketing of non-profit and public sectors. And AMA started publishing of "Journal of Health Care Marketing", which has introduced new concept and positive theory of health care business. Meaning of introducing marketing concept into health care business was to establish competitive theory in this field. Transaction is important concept of this theory. Referrals of patients between physicians, for example, is the important theme. And product management is, also, very significant. Today, service quality and consumer satisfaction is more deeply studied as well as traditional marketing concept of business firms.

Original service quality standard was shown in 1985. This theory has been adopted in quality management of health care business. Based on the SQRVQUAL concept, Haywood et al researched consumer satisfaction of service problems in patient and physician. They found that key service is very important in professional service of medical doctors and reliance is most valuable in service quality. After the study of Haywood et al, Brown and Swartz researched deeper study of gap between patients and physicians and they showed that understanding of patients and communication between them is most important factor of service quality. In the U.S there are many trial of evaluation system of service of health care business as HMO. However, there is not enough approach for service quality about non-profit and public sectors in Japan. Moreover, we should establish demarketing as key concept of health care business.

## **Method**

Approach on literature.

## **Result and discussion**

The non-profit and global aspect of health care business was discussed. In some person's opinion marketing approach is not useful in health care from the point of its contribution to human. However, we, also discussed



following point; the efficient marketing system contributes consumer satisfaction and reasonable management system of health care business provides good system for patients and physicians.

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# **Financial Aspects of Japanese Medical Care System: Trends, Forecast and Optimality**

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## **ABSTRACT**

This study provides a diagnostic examination of the national medical care expenditure (NMCE) in Japan. Various models are used to analyze NMCE trends, determinants and forecasts. The network flow optimization model (NFOM) is applied to arrive at an optimal financial burden-sharing among the players of the medical financing network (MFN). Findings of the study reveal that the NMCE has followed a consistently upward trend throughout the 35-year study period. Structural breaks are identified corresponding to historical milestones in the development of health insurance system over this period, suggesting a strong influence of health financing policy reforms on the magnitude and direction of the increase in real medical care expenditure. Regression analysis shows that the growing number of population aged 65 years and over exhibited the greatest explanatory power in determining annual variation in NMCE. The aged population elasticity of NMCE is 0.8%. Forecast results show that medical expenditure by the year 2000 will reach 14.3 trillion yen more than the actual 1989 NMCE and will continue to rise at an average of 1.3 trillion yen per year. A reduced form of MFN demonstrates policy options to improve the equitable and efficient burden sharing of NMCE. Analysis of the complete form is recommended for future research to determine more refined numerical results of optimal sharing of NMCE. Finally, this paper proposes areas for policy consideration to improve the existing health care financing system in Japan.

# FINANCIAL ASPECTS OF JAPANESE MEDICAL CARE SYSTEM - TRENDS, FORECAST AND OPTIMALITY

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TATSUO OYAMA, PhD  
IWA0 FUJIMASA, MD, PhD

## I. INTRODUCTION

This study was undertaken with the end in view of identifying the challenges in the Japanese medical care system. Towards this direction, the study sought to answer five research questions as follows:

1. What is the historical trend in the National Medical Care Expenditure (NMCE) and its fund sources ?
2. What are the variables that can best explain the changes in the trends in NMCE ?
3. What will the NMCE be by the year 2000?
4. In 1989, what could have been the optimal share of NMCE among its fund sources ?
5. What agenda for policy consideration can be made based on the research findings ?

## II. TRENDS IN MEDICAL EXPENDITURE AND FUND SOURCES

Logistic model and piecewise linear regression model were applied to analyze trends in NMCE. Results showed an 18-fold jump from 1955 to 1989 with the highest annual increase recorded in 1977 at 1.09 trillion yen. However, the upward trend in NMCE has not been uniform. By visual inspection, and confirmed by highest  $R^2$  after application of ordinary least squares technique, three turning points were identified: 1961, 1971 and 1981. These points define four periods of distinct levels of annual increases (Fig. 1). Of these, period III showed the highest annual increase of 724 billion yen. During the succeeding period, the annual increase was 2.8% lower. Interestingly, the three turning points correspond to historical milestones in the development of medical care insurance in Japan. In 1961, the National Health Insurance Law was introduced to provide financial coverage to all the Japanese. In 1971, all the elderly were granted 100% free medical care benefit coverage. However, in 1981, the government instituted cost-containment measures such as requiring co-payments from elderly.

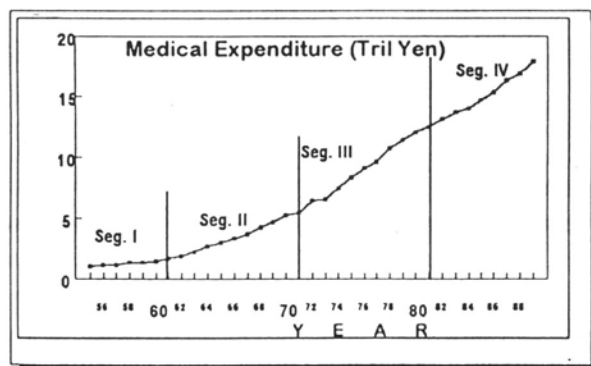


Fig. 1 Trends in Real NMCE (1955-1989)

The shares among fund sources for NMCE have not been constant. Major shifts were observed in the '60s and '70s when health care reforms were introduced. In the '60s, the introduction of national health insurance program virtually increased the share of consumers' premium and national government subsidy by 7.16% and 10.30%, respectively (Fig. 2). Nonetheless, it reduced the share of other sources, essentially out-of-pocket contribution, by 18.04%. Because monthly premiums are essentially forced saving (due to the compulsory nature of the universal insurance), the shifts in the '60s contributed to a more efficient medical care financing. More importantly, though not apparent in the analysis, is the fact that it made health care financially accessible to all Japanese. The observed shift in the shares of financial burden in the '70s occurred with the absorption of the shares of other sources by the national

government (18%) and local governments (5%). The '80s saw the emergence of a growing local government share from 5.06% of the total NMCE in 1980 to 6.8% in 1989 in medical care financing responsibility in contrast with the declining expenditure share of the national government from 30.39% in 1980 to 24.1% in 1989.

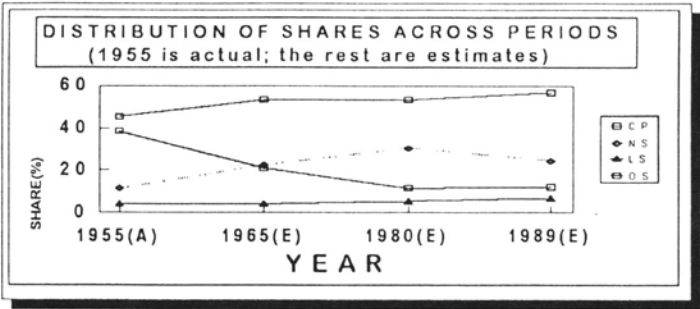


Fig. 2 Burden-Sharing Among Fund Sources

### III. DETERMINANTS OF MEDICAL EXPENDITURE

Multiple regression model was used to determine the variable that can explain the most variation in NMCE. Independent variables analyzed were based on the Ministry of Health and Welfare paradigm of medical expenditure as shown in Fig. 3.

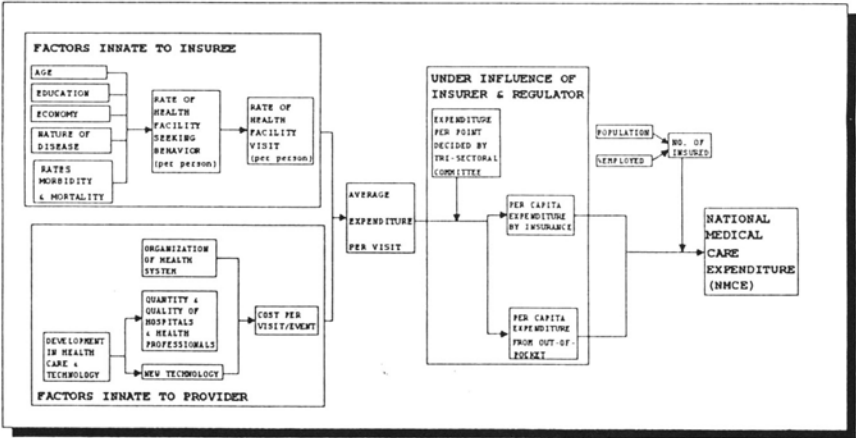


Figure 3 Determinants of National Medical Care Expenditure

From the variables tested, the number of population aged 65 and over explained the most variation in NMCE. The best fit model in logarithmic form (Equation 1) showed the elasticity of NMCE with respect to the elderly population at 0.8%. This strengthens the statement of the Ministry of Health and Welfare that one of the well-known causes of the increase in NMCE can be attributed to the increase in the aged population. The increasing number of aged seems inevitable and can hardly be controlled. Their needs are for real and should be addressed. Efforts of the government to rationalize service provision by equipping existing facilities and building new ones with capacities to attend to the needs of the aged are fitting steps along this direction.

$$LDNMCE = 3.7416 + 0.8016LAPOP65 \qquad \qquad \qquad \text{Equation 1}$$

$$\begin{matrix} (0.49) & (1.79) \\ R^2 = 0.9984 & ( \quad ) = t\text{-stat} \\ \text{Durbin-Watson} = 1.64 & F\text{-stat} = 8523 \end{matrix}$$

IV. FORECASTING MEDICAL EXPENDITURE

To answer the third question of what will be the NMCE by the end of the century, four models were evaluated as to their accuracy in forecasting. The models are naive forecasts (NF1), logistic model (LM), piecewise linear regression (PLRM), and univariate regression model (RM). Statistical tests (Table 2) on the models revealed that the RM showed the best performance. As such, it was used to make ex-ante forecast for the year 2000. The annual increase in NMCE in the '90s is forecasted to average at 1.3 trillion yen. By the year 2000, the NMCE will be 14.3 trillion yen more than the actual 1989 figure. This forecast will be about 6% of Japan's gross domestic product projected for that year by the industrial council of Ministry of Trade and Industry.

Statistic	NF1	LM	PLRM*	RM
In-sample Forecast:				
MPE (%)	7.81	-2.12	0	-2.11
MAPE(%)	8	7.13	0.2	5.05
Theil's U		0.95	0.05	0.51
Ex-Post Forecast:				
MPE(%)	0.48	0.31	0.46	0.68
MAPE(%)	0.48	0.31	0.46	0.69
Theil's U	0.79	0.54	0.36	0.27

\* Segment IV only

Table 2 Mean Percentage Error (MPE), Mean Absolute Percentage Error (MAPE) and Theil's U-statistic

V. THE STRUCTURE OF THE MEDICAL FINANCING NETWORK

Medical care in Japan is financed through a compulsory and universal insurance system. Such a system involves a network of multiple players (Fig. 3): the providers (M) and insurers (L) demanding for money while the consumers-employers (I), national and local governments (J), some insurers, and other sources supplying money (K).

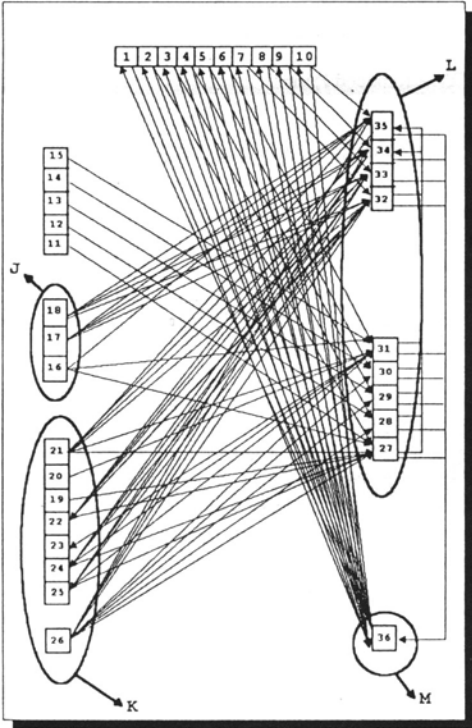


Fig. 4 Players in the Medical Financing Network Flow Optimization Model (MFNFOM)



	ACTUAL	CRITERION: EFFICIENCY			CRITERION: EQUITY		
		Option 1	Option 2	Option 3	Option 1	Option 2	Option 3
VOF*	4,117,724.0	6,824,617.4	4,793,419.1	6,824,617.4	8,803,864.6	10,835,062.9	8,803,864.6
x14	3,700,742.0	3,231,835.0	4,799,106.4	3,268,324.1	3,231,835.7	4,799,106.4	3,268,324.1
x33	3,548,034.0	2,912,614.0	3,376,542.5	2,876,126.5	2,912,614.9	3,376,542.5	2,876,126.5
x52	2,389,006.0	586,438.0	586,438.0	586,438.0	586,438.0	586,438.0	586,438.0
y11	973,369.6	925,081.0	973,369.6	925,081.0	925,081.0	973,369.6	925,081.0
y21	243,387.7	397,245.0	243,387.7	267,531.8	397,245.0	243,387.7	267,531.8
y31	243,387.7	397,245.0	243,387.7	267,531.8	397,245.0	243,387.7	267,531.8
y12	2,255,355.0	3,386,505.7	2,255,355.0	3,535,293.0	3,386,505.7	2,255,355.0	3,535,293.0
y22	40,324.3	0	40,324.3	0	0	40,324.3	0
y32	251,378.9	231,491.8	251,378.9	231,491.8	231,491.8	251,378.9	231,491.8
y13	4,311.6	468,239.2	4,311.6	578,878.3	468,239.2	4,311.6	578,878.3
y14	688,178.5	925,081.0	688,178.5	925,081.0	925,081.0	688,178.5	925,081.0
u21	1,459,222.0	1,299,057.0	1,558,482.9	1,459,222.0	1,299,057.0	1,558,482.9	1,459,222.0
u31	798,231.9	729,185.8	729,185.8	798,231.9	729,185.8	798,231.9	798,231.9
u41	856,052.6	825,837.3	825,837.3	856,052.6	825,837.3	825,837.3	856,052.6
u32	210,743.7	205,639.1	205,639.1	210,743.7	205,639.1	205,639.1	210,743.7
u42	194,697.5	188,424.4	1,518,792.6	194,697.5	188,424.4	1,518,792.6	194,697.5
VOF	VALUE OF	OBJECTIVE		FUNCTION			

Table 3 1989 Values of Premiums (x), Government Subsidy (y) and Cross-subsidy (u): Actual and Optimal

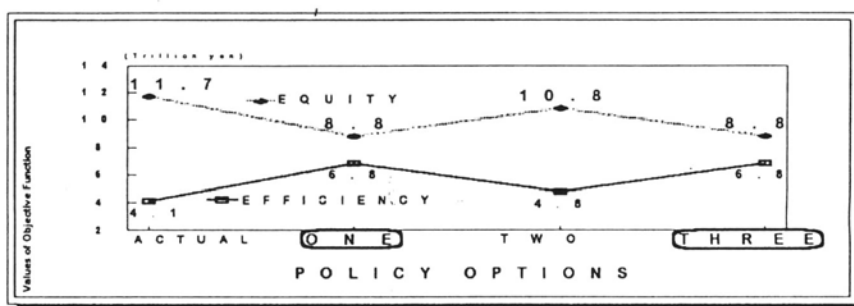


Fig. 5 1989 Values of Objective Functions: Actual and Optimal

## VII. AGENDA FOR POLICY CONSIDERATION

Considering the above findings, a three-point agenda is submitted for policy consideration:

1. Rationalization of health care system for the aged;
2. Management of financial aspects of health system; and
3. Formulation and implementation of research agenda on health care financing.

The first agendum stems from the finding that the increasing NMCE can be best explained by the growing number of population aged 60 years or more. It involves the twin aims of meeting the present and anticipated needs while containing costs; the twin services of providing medical and non-medical care; the twin approaches of expanding the scope of existing services and facilities and the establishment of specialty centers; and, lastly, the twin challenges of sustaining this system and making innovations for improved service delivery.

Managing the financial aspect of health system may take the form of either structural or non-structural reforms (Fig. 6). Structural reforms refer to various reforms that can be introduced to better the existing structure of the health system. One reform under this category to which this study focused on is the determination of an optimal moneyflow from among the different players of the medical financing network. Undertaking reforms in this respect necessitates an appreciation and understanding that these moneyflows exhibit a wide spectrum of sensitivity to public policies. As shown in Fig. 7, the policy-sensitivity spectrum is a continuum of moneyflows arranged according to the degree of their sensitivity to being influenced by public policies as well as the nature of policy instrument to be used to alter them. As applied in this study, the right end of the spectrum are variables which are resistant (i.e.

other expenditure) or have low sensitivity (i.e. other sources of income particularly loans of GMHI from public institutions) and therefore need no policy intervention or are better left on their own. On the other hand, some variables are highly sensitive to policy intervention. Included in this type are premiums, co-payment, and some forms of government subsidy. Although they are sensitive, these moneyflows are considered rigid because their levels are mandated by specific laws which can be changed only through the complex and lengthy process of amending laws. Policy analysts can use this spectrum as an adjunct in deriving policy options and recommending health policy reform packages.

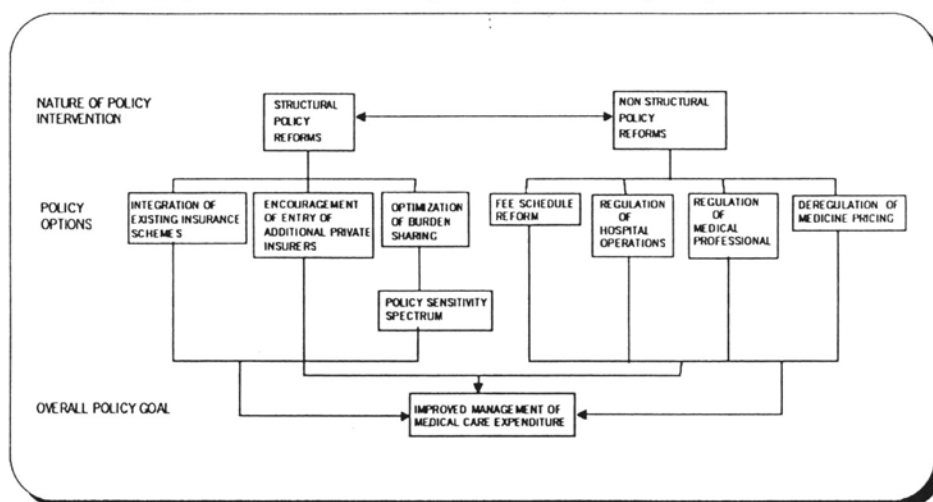


Fig. 6 Framework for Managing Financial Aspect of Health Delivery System: Options For Policy Intervention

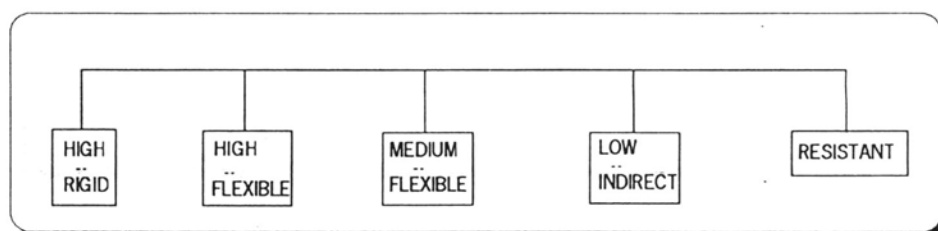


Fig. 7 Policy-Sensitivity Spectrum for Optimizing Money Flows in the Medical Financing Network

The overriding objective of this study is to provide a diagnostic examination of financial aspects of the health care system in Japan. Future research undertakings may be directed towards an evaluation of various policy options derived from the optimization approach utilizing the complete medical financing network model in lieu of the reduced form as used in this study. Moreover, a multi-period analysis is also recommended to be undertaken. Other applications may be conducted such as, for instance, identifying the financial requirements or impact on each moneyflow of integrating the existing insurance schemes.

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# **Health Problem and Illness Behavior of Ethnic Groups, and Misunderstanding between Medical Facilities and Gaikokujin Visitors of Medical Facilities in Iwate Prefecture**

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Key words: ethnic-groups, cultural- comparison, communication-barriers

## **Introduction**

Since late 1980's, non-Japanese residents are sharply increasing in Japanese society accompanied with economical development. That caused various confusion in local communities, sometimes it expands serious problem. Many organizations act to improve them, but most of the activities are limited in metropolitan area. In countryside, we can get limited information and suspicions about the present situation of the new-comer from abroad.

In Iwate Prefecture, the typical countryside prefecture of Japan, the number of foreigners' registration has been conspicuously increasing since 1990. Total 2690 foreigners living in Iwate in 1992, (0.2% of overall population in Iwate); 1.5 times of that population in 1985.<sup>1)</sup> The foreigners are living in all municipalities, foreigner residents in towns and villages (it means rural or remote area) are gradually increasing. Among the foreigners, especially Asians and North Americans are increasing, but Latinos still remains very small population group.

**\*Gaikokujin.** It is hard to explain our cognition of the newcomer whom we will discuss about. They are not equal to the word "foreigner". Thus, we use the Japanese word "Gaikokujin" in this article. "Gaikokujin" means the people who were born in abroad, and come to Japan after their adolescent age with all nationality (or no nationality) including Japan. The people who were born in Japan and living in Japan throughout their life are excluded even they have non-Japanese nationalities or they are ethnically Japanese.

## **Methods**

This study was designed as cross-sectional observational study, performed in Iwate prefecture. Primary data collection consisted of indirect interview using self-mentioned questionnaire. We created these questionnaires in

Japanese which are referred to descriptions of previously publishing materials. In this study , we prepared the translated questionnaire of 4 languages; English, Korean, Chinese, and Philippino(Tagalog). We chose these language considering linguistic population by census data.(1)

The participants were Gaikokujin residents. We sent questionnaire of appropriate language both direct and indirect way. Total distributed questionnaire was around 320.

## **Results**

Total 179 response returned, suspected responding rate was 56%. Sixty-five percent of responder selected English, 22% Japanese, 9% Chinese, 3% Tagalog. Korean answer was only 1%. Calculated responding rate per overall population of foreigners' registration was 11%, westerners' (people from Europe, North America, and Oceania) responding rate was 33%. However, Asians' responding rate was conspicuously low(6 %).We excluded all Koreans because most of them are considered in excluding criteria. Latinos and Africans were excluded from the comparison because the sample was limited. Their purpose of staying was clearly different between Asian and westerner. Asians were staying mainly for study and permanent residence,but among the westerners,business was the most dominant reason for staying.

Table 1 shows the comparison of health problem between Asians and westerners. Overall 77% of responders experienced health problem during their stay in Iwate. The dominant problems were not different between Asians and Westerners, diseases of respiratory tract was the most frequent , dental diseases were the second in both groups. But, the third most frequent health problem was gynecological diseases in Asians, injury in westerners.

Table 2 presents illness behavior of both groups. Asians visited medical facility directly in place of consultation to their friends or families. But, westerners chose consultation first, medication was the nsecond dominant choice. Both of groups were tend to choose medicine bringing from their countries.

Table 3 shows concerns of health care providers and Gaikokujin responders. Gaikokujin responders' concern seemed to be more serious than medical facilities<sup>2)</sup>. The most dominant problem was communication barrier in both medical facility and Gaikokujin, but Gaikokujin complained furthermore concerns than medical facilities.Kind treatment was the most dominant good impression in both groups. Gaikokujin had various opinions about present medical system provision in Japan. Westerners were tend to

complain more frequently than Asians. The most dominant opinion was lack of explanation. However, both of them were pleased with kind treatment.

The responders highly requested information relating health service provision. The most dominant recommendation was the information provision about health care system of Japan. They also requested the information about linguistic ability of each medical facility, signs of non-Japanese language in medical facility, and health check-up. Among the responders who requested at least one option, one-third of them required all informations that we provided in the questionnaire.

### **Discussion**

As we have mentioned in this proceeding, to access Gaikokujin residents of Asian origin were more difficult than to access westerner. We suspect that Asian would be enclosed in their families, or have less acceptability to supporting network. It is also suspected this related to their purpose of staying and the availability of Japanese people. The responders highly experienced health problems during their stay in Iwate, the details were slightly different. It is mostly relate to their purpose of staying, and may be related to their lifestyle.

Illness behavior was also different between two groups. We thought it reflects the difference of cultural background of Asians and westerners, and westerners could get supporting person easier than Asians. Through overall options of illness behavior, Asians tend to visit medical facility, but, westerners choose self-care more dominantly when they faced health problems. Westerners complained more frequently than Asians, that is related the level of present medical service provision in their home countries.

Gaikokujin required information service of health care provision. It should be provide as soon as possible to improve understanding between health care providers and Gaikokujin residents.

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Table 1. Gaikokujins' Health Problems(%)

	Asians	westerners
Respiratory tract diseases	62	86
Dental diseases	54	25
Injuries	14	24
Diseases of abdomen	12	12
Homesick	14	12
Health problems of women's reproductive system	18	7
(Delivery	16	2)
Diseases of skin	6	10
Others	38	20

Each responder chose all suitable options.

Table 2. Gaikokujins' Illness Behavior (%)

	Asians	westerners
Visit medical facility	88	74
Consult to others	50	86
(To Japanese friends	18	52)
(To Japanese family	16	13)
(To friend of non-Japanese	12	15)
(To family of native country	4	6)
Intake medicine	46	83
(Medicine bought at pharmacy	22	35)
(Medicine brought with	24	48)
Rested	24	61

Each responder chose all suitable options.

Table 3. Gaikokujins' Impression for Received Medical Care

	Asians	westerners
Unkind treatment	2	4
Over waiting	0	3
Lack of explanation	2	8
Over medication	0	3
Lack of privacy	0	3
Unclean equipments	0	5
Prohibitive cost	4	1
Kind treatment	5	5
Sufficient system	4	2
Equipments clean	1	0

Each responder chose all suitable options.

## ***NON-GOVERNMENTAL ORGANIZATION***



# **Appeals from NGO to Pharmaceutical Companies, Their Countermeasures, and NGO's Non-Profit Oriented Policies in the Face of the Hanshin Great Earthquake**

**Naohiro Higuchi**

Presentative of HOPE FOUNDATION "*KIBOU*". Manager and Head of Osaka Office of APEC-NGO Liaison Party.

Through non-profit oriented administrative policies of a company doing business in public health and my activities in the same field as an employee of the company and NGO's representative. I would like to show a guideline for activities to be done by NGO and companies.

## **(1) Policies of activities and actual activities in the health field by HOPE FOUNDATION "*KIBOU*"**

One of the main objects of HOPE FOUNDATION "*KIBOU*" is to eradicate poverty from Thailand and other Asian countries for the benefit of children. In addition, we consider "HEALTH" is an important theme to be taken up. and. therefore. are carrying out such activities as working voluntarily in WHO's tropical disease. domestic campaign for enlightenment (for exam]e. requesting NHK and another broadcasting corporations to produce TV programs free of charge). providing support in cooperation with pharmaceutical firms to develop and produce renew medicines. Making research on public health and medical system in Thailand is a]so within the range of our activities.

## **(2) The activities of "KIBOU" in the aftermath of the Hanshin great earthquake**

### **[ On the day of earthquake attack]**

Activities as local residents including fide fighting under the devastating damage an transportation and communication system.

### **[ On and after the second day]**

Activities in cooperation with volunteer coalition (Group "O"); Appeals to the financial circles; Setting up a persona] computer's network Ca net) which covers a wide range of area, announcing the object of setting up and

particulars; Requesting the financial circles for their cooperation; Providing advice and cooperation to another Several volunteer groups.

**(3) Countermeasures to HANSHIN GREAT EARTHQUAKE by the companies**

Setting up a headhunter to cope with the great damage; Confirming safety of their employee; Obtaining temporary residences to accommodate those who lost their houses; Early recovery of production line; Attendance to those who were obliged to suspend business.

**(4) Approaches from NGO to the companies and none refit oriented responses by the companies**

Activities as volunteers on the day of the quake and as an NGO and philanthropic company; Pushing the higher ranking company

**[On and after the next day of the quake]**

Philanthropic activities by NGO and the company ; pushing the higher ranking company officials into gathering information from another areas. and suggesting them the concrete measures.

**[Publicity activities and influence after putting the initial policies into practice]**

Arising request for doing business from the companies in other field of business; publicizing the company's activities such as grasping the move of newspaper publishing companies and NGO. establishing volunteers system to deliver medical products, etc. ; appeals to the financial circles in Kansai area; publicizing its activities on organs; working on holding lecture classes for volunteers .

**[Reviewing the unfinished quake network system]**

- Approach to companies and financial circles
- Grasping the situation of NGO and NOP in their actual activities .
- Difference of feelings between Tokyo and Kansai areas

**(5) The non-profit oriented activities which have been carried out by the company**

Providing the market with Orphan Drugs; inviting Asian students in medical or pharmaceutical courses to seminary held in Japan; providing the largest



facility for keeping and controlling the germs; preserving the materials and documents in medical field; rendering local services.

**(6) Measures suggested by NGO and adopted by the company**

- Contribution of a large amount of money immediately after the quake (January 20. 1995), exerting an influence as a leading company to the companies in another business field as well as in medical field.
- Setting up a paid holiday system for those who applied for voluntary activities.
- Gathering information regarding to cut off the distribution routes of medical products, making research on the places where aid goods were collected.
- Rendering voluntary services to deliver medical products in cooperation with wholesalers.
- Recognizing the importance of network to introduce an electronic mail system.
- Opening the company's facilities and bath rooms to the public.

Each of the items as mentioned above were suggested to the chairman of the board of directors, most of which were actually carried out.,

**(7) NGO's prospective approach to the company, and the meaning of existence of NGO itself.**

In place of administrative organizations, the private companies seem to be playing an important role in general social lives. However, the main object of the companies is to achieve a high and continuous development of themselves. In this connection, administrative system such as various regulations or taxation is the only inhibitive factor to prevent such companies from rushing at their goals.

On the other hand, from the NC's viewpoints, continuous development in economic cannot be achieved without realization of the policies aiming at social development. For example, in our opinion, economic development should not give birth to poverty, invasion of human rights, nor should it leave any credit of environmental cost to the future generation. Furthermore, some of the NGO members even state decisively what is needed most is the social development, not the economic development. For those who belong both to the NGO and to the company, however, the company is an important partner to put the NGO's ideal into

practice. Specifically, I believe that the NGO members. who are expected to carry out such activities as to achieve a high level of social development, should take the initiative in leading the company and NGO to reach their goals respectively.

# What are Medical NGOs in Japan Confronting?

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Key words: NGO, healthcare, development

## Introduction

Non-governmental organizations (NGOs) stand for justice, equity, peace and compassion. What then are medical NGOs in Japan confronting? To answer this question, the author analyzed the underlying issues that they are facing with through his four-year experiences in management of JOCS or the Japan Overseas Christian Medical Cooperative Service. Two main aims of JOCS are 1) to send medical personnel for serving to the most needy and underprivileged, mainly in Southeast Asian countries to improve their health conditions in cooperating with people and partner organizations in such countries and 2) to invite those who are involved in healthcare projects in such countries to either to Japan and/or other countries, where appropriate training programs are available for further study.

## Methods

Two aspects of medical NGOs were analyzed; 1) management of the organization and 2) how to tackle global issues such as WHO's goal "Health for all by the year 2000" and development strategies being undertaken by the World Bank.

## Results

### *1. Managerial aspects of medical NGOs in Japan*

NGOs must have a clear mission statement of the organization with their objectives, priority settings and strategies for achieving the goals of the programs. Among the organizational management, human resource and financial management are the two key elements of the organization. It seems likely that resource allocations in the headquarters and the fields are the

primary concerns. In medical NGOs, most of the staff of the headquarters are non-medical while those in the fields are mostly medical. The main weakness of JOCS is that the medical workers who have long term experiences, 3 to 20 years in the fields in Asian countries have had no chance to work in the headquarters hitherto. The other issue that should be tackled is how to reduce the administrative and overhead costs without reducing the activities at home. Giving the information to the public and the supporting members alike regarding the situations in the fields abroad in particular is one of the mandates that NGOs should be involved with.

*2. How to tackle global issues such as WHO's goal " Health for all by the year 2000" and development strategies being undertaken by the World Bank.*

Four questions have to be answered.

1. Is the healthcare project a tool for economic growth or development?<sup>3)</sup>
2. Is PHC strategy declared in Alma Ata to be an integrated approach with western medicine and local traditional culture-bound medicine?<sup>3)</sup>
3. Are market-oriented development strategies implemented by World Bank really working for improving health status in "developing" but 'developed' countries as well?<sup>4,5)</sup>
4. Who invented SAPs? : They are developed and imposed in an undemocratic manner by unelected elites from the North and South.<sup>1,2)</sup>

### **Discussion**

NGOs can not and must not work alone. Although "cooperation" with other NGOs, governmental organizations (GOs), international institutions such as WHO, UNDP, UNICEF and World Bank, research institutes, consultant companies and workers' union is needed, we have to know the mission and the strategies of each organization before starting such cooperative endeavors. NGOs working in "developing" countries should stress local initiatives, mutuality, people's participation and solidarity in cultural diversity. For we are in this thing together.

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## **Problems and Future Prospects for Japanese NGOs - In the Case of SHARE -**

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### **Introduction**

SHARE (Services for the Health in Asian & African Regions ) is a small NGO established in 1983. Aside from the headquarters in Tokyo, it has two local offices in Phnom Penh, Cambodia and in Ubon, Thailand, to where 8 Japanese staffs are assigned including a medical doctor, nurses and coordinators. SHARE started as an organization primarily interested in emergency medical operations. But over the past several years we have gradually shifted our main concern toward community-based PHC (Primary Health Care) activities. One of the most compelling reasons for this change was without doubt the budgetary constraint. However, in a more analytical light, we have to recognize the fact that the lessons learnt in Ethiopia made us realize the crucial importance of PHC approach.

Ethiopia was severely affected by a drought in 1984-85 and a lot of people died of starvation. SHARE ran, jointly with JVC (Japan International Volunteer Center), a make-shift hospital in Ajibar, Wollo Province, during the whole year of 1985. Not only did we treat patients with acute infections but also provided food and supplementary feeding to starved people and malnourished children. As far as the number of deaths is concerned, the situation had dramatically improved in the course of initial 3 months of our intervention.

However, what was shocking and ironical for us was that due to our medical assistance and massive food distribution by 'World Vision' (American-based NGO), more and more people were attracted and mobilized to Ajibar area abandoning their community life precariously sustained up to that time. We had to learn a hard lesson that a large-scale assistance from outside could end up creating a structure of dependency and passivity on the part of the population we intended to help and could worsen,

instead of solving, the root cause of the problem. Emergency assistance per se is a kind of "symptomatic treatment" and more attention should be paid to the development process which is conducive to stronger and disaster-immune community. We shared this opinion advocated by JVC and have gradually shifted our emphasis from emergency to PHC in recent years.

### **Discussion on Our Problems**

Now we would like to present the problems we are facing at this moment. Although our main thrust is in the PHC sector, as a medical/health NGO it is sometimes difficult to totally give up the role of emergency assistance provider. In fact, though in a small scale, we took part in emergency operations in Pinatubo, Rwanda and Kobe in the past few years. All these operations would have been impossible had we tried to act alone. Getting a good NGO partner in Japan and/or abroad has proved indispensable for a small NGO Like SHARE to be a successful player in any meaningful emergency assistance. On the other hand, as an NGO devoted to community health development, we are burdened with a host of other problems .

First, personnel problem. The type of expatriate staff we need in a development-oriented program is rather a hard species to obtain. Someone who comes from outside and works with a community should restrict her-/himself/himself to a facilitator role rather than behaving as a therapist or care provider. This role perception may have something in common with that of nurse, especially public health nurse, who is basically expected to interact with the community. But for doctors, this facilitator or catalyst role has proved to be extremely difficult to assimilate and identify with. Recruiting a doctor with full of community-oriented mind and communication skills is like finding a diamond in the beach.

As for securing the fund necessary for development cooperation, we are chronically in a tight shape. Compared with emergency activity which often draws extensive media coverage and social support, PHC-type activity tends to remain "invisible" and low profile.

There is another "bottle neck" which is no less critical than others, i.e. Lack of networking to gather necessary information on a particular country/area of interest to launch a development program. Development-oriented activity requires more than emergency assistance the base-line information on the community's characteristics and health resources. In that

respect we are far lagging behind international NGOs and UN bodies as to the means of collecting information.

The last but not least important aspect of development cooperation is the establishment of methodology of program evaluation. Development-oriented activities are hard to measure in quantitative terms at least in a short run. However, appropriate methods of evaluation should be found out so that the quality of program be improved and NGOs' social accountability be achieved.

Based on the above discussion, we would like to propose the following points.

### **Proposals**

- 1) Inter-NGOs' Networking and Cooperation
- 2) Strengthening Partnership with Grass-roots Organizations in the Developing World
- 3) Seeking Advocacy Role and Development Education in Japan
- 4) Coordination with Community Health/Medicine in Japan
- 5) Establishing System of Quality Management of Programs Including Evaluation Methods
- 6) Cooperation and Division of Work with Governmental Sectors



# **Coordination among NGOs in Rwandan Refugee Camp of Goma in Zaire and Code of Conduct for IFRC and NGOs in Disaster Relief**

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**Key words:** disaster relief, Code of Conduct, NGO

## **Introduction**

Every NGO has its own ideal and character, therefore it should be difficult to cooperate each other even in disaster relief. The major catastrophe that initiated a world-wide response has led to a mosaic of NGOs operating within the field. In the chaos of relief actions, it should be requested that every NGO co-works based on some standard.

## **Methods and Results**

From September to October 1994, I worked as a surgeon of a field hospital and an assistant of medical coordinator of IFRC in Rwandan refugee camp in Goma, Zaire. I would try to investigate how NGOs had been cooperating with each other and introduce the Code of Conduct for IFRC and NGOs in Disaster Relief.

The flight of 500,000-800,000 Rwandan refugees into the North Kivu region of Zaire Between 14-17 July 1994 overwhelmed the world's response capacity. During the first month after the influx, almost 50,000 refugees died, equivalent to an average crude mortality rate between 20 and 35 per 10,000 per day<sup>1)</sup>. The scale and complexities of the Goma situation specially relating to WATSAN(water and sanitation) services has meant that NGOs have strong representation in this area such as OXFAM, MSF, THW and GTZ and others including CARE, CONCERN and IRC have secured the short to mid-term commitments.

But nobody looked much further than the end of the year. With the withdrawal of the Israeli Army Hospital at Kibumba and with the withdrawal of the French Army Hospital at Goma in Mid September 94, the Rwandan

refugees had very little possibility of hospital treatment and no possibility of surgery. Accordingly IFRC set up a general hospital at Kibumba to provide a basic service for medical, surgical, pediatric and obstetric emergencies.

And with the withdrawal of MSF, IFRC took over the role.

IFRC made the Code of Conduct to maintain the high standards of independence, effectiveness and impact of relief action in disaster<sup>2)</sup>. It is a voluntary code, enforced by the will of organizations accepting it to maintain the standards laid down in the code. The code consisted with ten principles as follows.

1: The humanitarian imperative comes first

The right to receive humanitarian assistance, and to offer it, is a fundamental humanitarian principle which should be enjoyed by all countries.

2: Aid is given regardless of the race, creed or nationality of the recipients and without adverse distinction of any kind. Aid priorities are calculated on the basis of need alone

Wherever possible, we will base the provision of relief aid upon a thorough assessment of the needs of disaster victims and the local capacities already in place to meet those needs.

3: Aid will not be used to further a particular political or religious standpoint  
Humanitarian aid will be given according to the need of individuals, families and communities. Notwithstanding the right of NGOs to espouse particular political or religious opinions, we affirm that assistance will not be dependent on the adherence of the recipients to those opinions.

4: We shall endeavor not to act as instruments of government foreign policy  
NGOs are agencies which act independently from governments. We therefore formulate our own policies and implementation strategies and do not seek to implement the policy of any government, except in so far as it coincides with our own independent policy. In order to protect our independence we will seek to avoid dependence upon a single funding source.

5: We shall respect culture and custom

We will endeavor to respect the culture, structures and customs of the communities and countries we are working on.

6: We shall attempt to build disaster response on local capacities

All people and communities- even in disaster- possess capacities as well as vulnerabilities. Where possible, we will strengthen these capacities by employing local staff, purchasing local materials and trading with local companies. Wherever possible, we will work through local NGOs as partners in planning and implementation, and cooperate with local government structures where appropriate.

7: Ways shall be found to involve program beneficiaries in the management of relief aid

Disaster response assistance should never be imposed upon the beneficiaries. Effective relief and lasting rehabilitation can best be achieved where the intended beneficiaries are involved in the design, management and implementation of the assistance program. We will strive to achieve full community participation in our relief and rehabilitation program.

8: Relief aid must strive to reduce future vulnerabilities to disaster as well as meeting basic needs

All relief actions affect the prospects for long-term development, either in a positive or a negative fashion. Recognizing this, we will strive to implement relief programs which actively reduce the beneficiaries' vulnerability to future disasters and help create sustainable lifestyles. We will pay particular attention to environmental concerns in the design and management of relief programs. We also endeavor to minimize the negative impact of humanitarian assistance, seeking to avoid long-term beneficiary dependence upon external aid.

9: We hold ourselves accountable to both those we seek to assist and those from whom we accept resources

All our dealings with donors and beneficiaries shall reflect an attitude of openness and transparency. We recognize the need to report on our activities, from both a financial perspective and the perspective of effectiveness. We recognize the obligation to ensure appropriate monitoring

of aid distributions and to carry out regular assessments of the impact of disaster assistance.

10: In our information, publicity and advertising activities, we shall recognize disaster victims as dignified human beings, not objects of pity. Respect for the disaster victim as an equal partner in action should never be lost. In our public information we shall portray an objective image of the disaster situation where the capacities and aspiration of disaster victims are highlighted, and not just their vulnerabilities and fears. While we will coordinate with the media in order to enhance public response, we will not allow external or internal demands for publicity to take precedence over the principle of maximizing relief assistance.

### **Discussion**

In kibumba camp, many NGOs were cooperated with others in their relief actions. But as the number of refugees are so big and there was some problems of security, to keep the good cooperation with other NGOs was difficult. IFRC made the Code of Conduct for IFRC and NGOs in Disaster Relief which is effective to accomplish high level of cooperation between NGOs. Any NGO which would like to support for this Code and to incorporate its principles into their work can make registration.

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- 2) Disaster Policy Department, International Federation of Red Cross and Red Crescent Societies, PO Box 372, 1211 Geneva 19, Switzerland: Code of Conduct for IFRC and NGOs in Disaster Relief

# **Health Related Problems of the Foreign Residents in Japan**

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**Key Words:** foreign resident, medical consultation

## **Introduction**

The number of the foreign residents in Japan is increasing recently. The more foreigners come, the more problems with regard to their health related matter are reported. For instance, the language gap with doctors, insolvency of consultation fees, and so on. Under these circumstances, parish-based, self-help organization of Filipino residents in Japan, the Philippine Desk, organizes free medical consultations for foreign residents in several Catholic churches in Kanagawa prefecture, under the cooperation of SHARE (Services for the Health in Asian and African Regions), and MF-MASH (Minatomachi-Foreign Migrant Workers' Mutual Aid Scheme for Health). The purpose of the free medical consultations is to provide counseling regarding health problems of the foreign residents, and introduce appropriate doctors where necessary.

The free medical consultations are carefully planned and organized by foreign volunteer members of the Philippine Desk. On request of the Philippine Desk, SHARE and MF-MASH send to each church doctors and staff who can speak English, Tagalog and some other languages.

In addition to the medical consultations, a survey was done in order to obtain basic data on the health related problems of these foreign residents in Japan.

## **Methods**

One-page-long English questionnaires were delivered to four different

churches in Kanagawa prefecture. Respondents were asked to fill the questionnaires, and submit them after the free medical consultations. The questionnaire included the following items; sex, age, nationality, availability for any health insurance, length of stay in Japan, information source for the free medical consultation, health related problems for the next consultation, and open comments.

## Results

A total of 174 questionnaire were delivered to four churches. Of these, 156 foreign residents answered the questionnaire (Valid response rate :90.2%). Of these 144 (92.3%) were Filipinos, 1(0.6%) Naturalized Japanese, 1(0.6%) American, 1(0.6%) Brazilian, 1(0.6%) Ghanaian and 8(5.1%) unknown. 95(60.9%) were male, and 61(39.1%) were female. The average age was 36.64 years old, and the average length of stay in Japan was 3.8 years. Regarding the availability of health insurance, 116(74.4%) respondents answered that they do not have any health insurance.

Regarding the information source, 129(82.7%) respondents answered that they were informed about medical mission by the community members of their church. "Community member" in this context, stands for the Basic Christian Community, which consisted of religious mass attendants. (Figure 1)

Regarding their health related problems, 68(43.6%) answered "I cannot communicate well with my doctor." 39(25.0%) answered "I cannot find any information regarding health care systems for foreigners in Japan." 38(24.4%) answered " I cannot afford to pay the consultation fees." 33(21.2%) answered "I cannot find the medicine which I used to take in my home country." 26(16.7%) answered "I don't know how to find the doctor's office." 21(13.4%) answered "I cannot find any information about how much I should pay for the consultation fee." 9(5.7%) answered "I was afraid that immigration would be informed if I visited the doctor's office." 4(2.6%) indicated other problems e.g. "I have no time to go to the doctor." (Figure 2)

Regarding the requests concerning the medical mission, 59(37.6%) answered "I want more available free medicine samples.", 47(29.9%) "I want more information about the health care system in Japan." 35(22.3%) answered "I want more specialists." 32(20.4%) "I want more information

about this medical mission.” 30(19.1%) answered “I want more doctors / staff who can speak my native language.” 29(18.5%) answered “I want more information about health promotion / disease prevention.” 5(3.2%) made other requests, e.g., “Please do blood chemistry tests.” (Figure 3)

No significance was found between the respondents with health insurance and those without, except for the distinction between sex and the length of stay.

The following clinical data was derived by doctors through the medical consultations. (Table 1)

### **Discussion**

This study indicates the following points:

- 1) The community members consider being informed regarding the free medical consultations important.
- 2) “Communication problems with doctors”, “Lack of information regarding the health care and medical system in Japan.” and “Insolvency in paying consultation fees.” were indicated as major problems for foreign residents in Japan. It should be noted that 9(5.7%) respondents, of all who did not have health insurance, answered that they are afraid of been reported to the immigration office.
- 3) Therefore, besides offering medical consultation, providing accurate information including health care and medical system in Japan is needed through community members: especially to those who are undocumented workers.
- 4) In this study, no significance was found between respondents with health insurance and those without, regarding the health related problems in Japan. It is assumed that this is because the survey was conducted in Kanagawa prefecture, where many clinics actively accept foreign patients.

# **Obstetric and Gynecological Problems of the Foreigners in Japan**

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**Key words:** Obstetric and gynecology, medical problems of foreigners, AMDA

## **Introduction**

AMDA International Medical Information Center Kansai is a volunteer organization providing telephone counseling in eight languages to foreigners who need information about medical services <sup>2)</sup>. In the course of this work, we recognized the great need for information about Ob/Gyn problems, and thus analyzed needs, problems and possible solutions.

## **Methods**

We analyzed the content of Ob/Gyn-related telephone calls to the center from December 1993 to September 1995.

## **Results and Discussion**

The total number of calls was 1,604. Ob/Gyn problems constituted the largest percentage (22.6%) followed by internal medicine (20.7%) and surgery (11.7%).

Calls were made by Latin Americans most frequently, followed by Asians, but the rate of OB/Gyn problems in calls did not significantly differ depending on the area of origin (Table, top 3 lines).

Information frequently sought concerned hospitals to go to, childbirth, abortion, problems in pregnancy, pregnancy tests, and contraception.



Gynecological problems including STDs constituted 23% (Table). Latin American rates were higher in categories such as contraception, abortion, sterility and pregnancy.

We summarized major problems and possible solutions in four areas: communication, medical costs, culture, and legal aspects.

#### [Communication]

Problems: language barrier, lack of information, different expectations about the doctor-patient relationship. ---- Solutions: cooperation of doctors with foreign language skills, interpretation service, use of translated materials, signs in hospitals in English, provision of public information ( such as on health check-ups, educational classes, welfare services, insurance etc.) in English, Boshitecho in different languages, more explanation by the doctor, informed consent.

#### [Medical Costs]

Problems: No health insurance for foreigners of short stay, overstay, or by choice. No coverage of normal pregnancy, childbirth and abortion in health insurance. No reimbursement of childbirth costs for mothers without health insurance. No or limited coverage of childbirth in private insurance. ---- Solutions: recommendation of enrollment in health insurance if available. Use of welfare system such as Nyuin Josan. Finding hospitals with reasonable rates. Use of loans. Use of private insurance for available cases.

#### [Culture]

Problems: lack of information about unfamiliar methods of childbirth, abortion and treatments in Japan such as morning-after pills, abortion by injected drugs and analgesic delivery. Need for doctors with the same cultural background or familiar with the culture. ---- Solutions: respect for patients' choices, flexible attitudes of doctors and patients, finding alternative methods, informed consent.

#### [Legal aspects]

Problems: possible malpractice cases, problems related to legal status of foreigners such as health insurance, nationality of newborns, and delay of treatment due to the unstable status. ---- Solutions: informed consent. Better communication between doctor and patient. Networking with NGOs specializing in legal issues or life support for foreigners. Advocacy vis-a-vis the government.

### **Conclusions**

- 1) Foreign residents in Japan frequently face Ob/Gyn problems. As foreigners settle in Japan, these problems will grow.
- 2) These issues, already pointed out in various places [1,2,4] by others are still not resolved or significantly improved.
- 3) Preventive measures should be more developed with respect to contraception, STD transmission, and maternal and child health. Local health centers can play more important roles in this area.

Acknowledgement: We thank the volunteers of the center and the physicians who support the center's activity.

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TABLE CALLS ON OB-GYN PROBLEMS IN THE CENTER KANSAI (Dec.'93 - Sep.'95)

	Total	Latin America	Asia	North America	Europe	Oceania	Others
Total calls (A)	1604	685	310	309	115	81	104
Calls on Ob-Gyn problems (B)	332	149	59	50	28	22	24
Rate of Ob-Gyn problems (B/A)(%)	20.7	21.8	19.0	16.2	24.3	27.2	23.1
Information about hospitals	60	16	5	19	6	5	9
C Pregnancy test	23	13	2	2	3	3	
O Childbirth	57	25	23	4	3	2	
N Problems in pregnancy	28	18	2		3	3	2
T Abortion	34	18	2	4	2	3	5
E Abnormal prengnancy	5	1	4				
N Abnormal delivery	9	1	8				
T Contraception	22	11	1	1	4	3	2
S Sterility	6	6					
Gyn. problems (incl. STDs)	75	34	10	18	6	3	4
Others	13	6	2	2	1		2



# ***DISASTER MEDICINE***



## **Reconsideration of our attitude for getting volunteer's help at the Hanshin Earthquake Disaster**

**Osamu Kitaoka**

Director, Hyogo Prefectural Nishinomiya Public Health Center

1.First, we regret that we have been possessed with an idea that any gigantic earthquake would never happen in Kobe.

Frankly speaking, we did not think of asking others' help this time, perhaps because we were used to deal for ourselves with the past disaster such as typhoon.

Of course, we are thankful for the kind help of volunteers who rushed to run to us.

But we were astonished by the numerous sudden rush of volunteers, and we went to the wrong door to accept them.

We regret we could not offer the proper place to every volunteer to take an active part in helping sufferers.

2.In my poor conception, man has such inconsistent feeling as "Take care of me" and at the same time, "Leave me alone". Volunteers are all kind-hearted and straightly run to the sufferers. But at the beginning, I often cried "Wait for a while". They might have an insufficient and unpleasant feeling to me. This was also my regret.

Finally, I think that if we were having studied more even at peace time the realmeaning of volunteer's activity, we could accept their help more effectively..

# **Relief Operations of Yodogawa Christian Hospital and the Kansai NGO**

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**Key words:** Hanshin-Awaji earthquake, relief operation, crisis management

On the morning of Jan. 17, 1995, a catastrophic earthquake hit the Hanshin-Awaji area. The Yodogawa Christian Hospital(YCH) is located 28 km east of Kobe and damage to its buildings and facilities was minimal. However, many staff living in the devastated area were unable to come to the hospital because of damage to their homes and, or major disruption in traffic. Thus on the day of the earthquake YCH staff were extremely occupied with basic problems involved in the operation of the hospital, and it was two days later that we were able to begin taking part in the following medical relief activities.

## **Medical Relief**

### *Postmortem examinations*

YCH asked the Japan Overseas Christian Medical Cooperative Service (JOCS) Kansai-Office to investigate and determine where we were needed. The YMCA informed YCH that the Nishinomiya Police Station had requested doctors who could assist with postmortem examinations. From Jan. 19 doctors were sent to Nishinomiya for a period of 4 days to fulfill this request.

### *Kansai NGO Medical Volunteer Team (called "KNN")*

JOCS and JCMA (Japan Christian Medical Association) appointed a few doctors to assist with medical relief, and they also shared with us the responsibility for the postmortem examinations in Nishinomiya on Jan. 19. The next day they opened a first-aid station at the shelter for refugees in the Nishinomiya City Central Gymnasium. Branch stations were soon opened for refugees in the nearby Hiraki Junior High and Hiraki Senior High



Schools.

Volunteers were recruited through TV, and this group was called the "Kansai NGO Medical Volunteer Team". A large number of people volunteered their services. On Jan. 21 in Kobe new first-aid stations were opened by this team at the Nada, Rokko and Maya Primary Schools in Nada-ku, and also at the Suminoe Public Hall in Higashinada-ku and at Nishi-Kobe YMCA .

Eventually the following groups worked together to provide medical service in those first-aid stations; Aichi International Hospital(AIH), Asian Health Institute(AHI), Fukushima Prefectural Medical School, Aizu Central Hospital and their three affiliated Hospitals, Hyogo College of Medicine, Hyogo Nursing Association, Hyogo Pharmaceutical Association, Kurashiki City Kojima Hospital, JCMA, JOCS, Japan Pharmaceutical Association, Okayama Hakuai Hospital, St. Luke's College of Nursing, St.Luke's International Hospital, SHARE, Shinsei Hospital(SH), Toshiba Hospital, Toshiba Rinkan Hospital, Tochinoki Hospital(TH), Yamaguchi Showa Hospital, and Yodogawa Christian Hospital.

About 600 other volunteers also applied to "KNN".

JOCS, JCMA, AIH, AHI, SH, TH and YCH acted as coordinators, working and sleeping on the benches of the Nishinomiya Gymnasium. This service lasted until Feb. 28, and was continued later in the Nada Primary School until March 14. The responsibilities of the coordinators were as follows. 1) Recruiting other volunteers, requesting drugs and medical supplies and responding to the needs of each first-aid station with supplies. 2) Negotiating and mediating between city officials and the refugees to improve the living environment within shelters having no system of self-government. 3) Communicating and cooperating with other volunteer teams. 4) Consulting later with authorities of the city, health centers, medical societies, Red Cross, and others to prepare for successful closing of the first-aid stations in the shelters.

"KNN" was a rare but an unusually successful example of a team from many independent volunteer groups in which individuals were able to work together for the same goal with a spirit of unity.

Clinical Rounds in Kobe

Besides joining this "KNN" network, YCH sent doctors and nurses to Chuo-ku, Kobe to provide a clinic that made rounds among the refugees

in the Kasugano, Yamanote, and Wakana Primary Schools. This activity came about in response to a request from the Health Center. Some of the in-patients from a severely damaged hospital in Kobe were transferred to YCH for care, and when our staff went to that area to help with the transfer, the Health Center requested YCH to send staff also to make clinical rounds in those 3 schools.

### **Crisis Management**

YCH has formulated a set of "Crisis Management Regulations" as a result of our experience with the Hanshin-Awaji Earthquake. The regulations are to provide guidelines in the event of the following catastrophic situations: 1) in case of direct damage to the hospital from a disaster, 2) in case YCH is called upon to receive a large number of injured patients in a time of disaster, and 3) in cases where YCH is called upon to send staff personnel to a disaster area.

It is mandatory that all staff study these guidelines periodically and understand them thoroughly enough to be able to respond effectively in the event of an unexpected disaster.

### **Conclusion**

Relief operations provided by YCH shortly after the Hanshin-Awaji Earthquake were described. YCH's crisis management guidelines were outlined for certain types of catastrophic situations.

Postmortem examinations met a crucial need and proved to be a significant service. The network and coordination of volunteers (from multiple groups as well as individuals) also provided a source of unified assistance that was extremely valuable during the critical stage in the aftermath of the Great Hanshin-Awaji Earthquake..

# **An Analysis of Visiting Patients to the Medical Relief Station Run by the Japanese Red Cross Society at the Hanshin-Awaji Large Quake ——Focusing on the Effect of Psychological Stress**

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Key words; disaster-relief, disaster stress disorder,

We are going to present the result of disaster relief action of the Japanese Red Cross Society at the Hanshin-Awaji large quake and also discuss our challenge to prepare for next disasters.

Our society entered into the disaster area from the first and started in-cite medical relief stations, and then opened permanent stations at 12 of shelters in the disaster area. The number of the patients we managed by the end of March when we evacuated our mission, was 38,000.

We studied the statistical characteristics of the visiting patients and also, surveyed how far psychological stress affected them from the examination records at one of these medical relief stations.

As for psychological disorders seen after large disasters, post traumatic stress disorder (PTSD) is well known. However, the criteria of PTSD demands certain conditions in terms of its manifestation and duration<sup>1)</sup>. We did not want tuff discussion about which cases were in PTSD, and others were not. Therefore we used the word 'disaster stress disorder (DSD)' when we tried to find out and describe the patients who were suffering from psychological stress following the disaster.

The criteria from the record to determine one is in DSD, is that; he or she has long-standing physical complaints which he did not have before the quake, and also has one or other psychological symptoms. There are the ones who have a number of physical symptoms which cannot be understood to come from a somatic disease, but they are not recorded to have any psychological symptoms except insomnia. We take them as suspected-DSD.

The shelter we chose was settled in a high school and admitted about 330 refugees (their gender ratio is almost 50%). The area around the school was damaged by large fire after the quake and many of the victims lost their residences.

## **Results**

The total number of the visiting patients during the opening of the station from 1/19 to 3/15 was 440 (male;205, female;235,,avarage age was 47).

The total number of the examination which the patients took was 1286. (male;478,

female; 790). When we calculated the mean visiting number in each patient, male;  $2.3 \pm 2.6$  Vs female;  $3.5 \pm 4.1$ , ( $p < 0.001$ ).

The disease statistics of the visiting patients are shown in table-1. 60% of them had respiratory diseases, 10% had gastro-intestinal diseases. 20% visited because of musculo-skeletal disorders like lumbago, muscle pain or minor injuries on extremities. Most of them were in primary care categories, and few cases were emergently treated or transferred.

Among them, the number of DSD or suspected-DSD was 15 (3.4% of the total visiting patients). Their gender consisted of male; 4 and female; 11. Their average age was 58.1, significantly higher than that of total patients (47,  $p < 0.001$ ). We did not find any case that fell into the disorder as severe as PTSD so far.

### discussion

We elucidated the characteristics of the patients suffering from the quake and the life in a shelter from the examination records that were taken at one medical relief station run by us in a shelter. Most of the patients could be treated on primary care basis. Common cold and other respiratory diseases were fluent, because it was cold winter and bad conditions of the shelter made a lot of refugees catch cold. There were also a lot of those who had musculo-skeletal disorders as the result of the quake and the life totally unfamiliar with them.

In managing them, we should care about the effect of psychological stress on them. According to our result, the patients with DSD were only 3.4% of the visiting patients. This figure was lower than the results of previous studies after disasters<sup>2)</sup>. However we would not jump into the notion that Japanese are not susceptible to the psychological stresses. We conducted a piece of questionnaire to the refugees at the same time and found that many of them had psychological distress (unpublished datum).

Our results showed that female were more prone to the stress than male, and the same for elderly than young. Many of the former studies reported the same results<sup>3)4)5)</sup>.

Disaster medicine is different from acute critical medicine. We, medical relief personnel need more sense of primary care medicine. Besides, we should pay attention to the effects of psychological stress. In this sense, female, elder person and also children are at high risk. As for medicines, we should equip more primary care medicines as well as minor tranquilizers and major psychomimetic drugs like anti-depressants.

The quality of a doctor to engage in disaster medicine:

1. primary care physician and he has a sense to care for psychological problems.
2. public health sense and coordination sense
3. capability to commit not short time but long term intervention

We should intend to educate and make medical personnel qualified for disaster

medicine.

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Table 1: Disease Statistics of visiting patients to a medical relief station  
opened in a shelter

	male	female	total
respiratory disease	122	143	265 (60%)
gastro-intestinal disease	19	26	45 (10%)
musculo-skeletal disease	45	43	88 (20%)
cardiovascular disease	11	26	37
skin disease	7	3	10
ophthalmological disease	3	4	7
disaster stress disorder	4	11	15 (3.4%)
others	10	16	26
total	221	272	493/in 440Pts

# **Changes in Medical/Health Needs and the Role of Medical Relief Teams in the Disaster Area of the Hanshin-Awaji Earthquake**

**Takashi Sawada, Haruhiro Nishina, Touru Honda**

Services for the Health in Asian & African Regions

## **Introduction**

The Hanshin-Awaji earthquake has proven to be the worst natural disaster in years that has hit the country's metropolitan area, which was equipped with modern medical facilities. It exacted extensive medical relief activities which were different from previous relief activities both in Japan and in the developing countries. It is very important to discuss the relief efforts of all medical teams in order to prepare for the similar disasters in future and to conduct the most effective relief activities even when resources are limited.

## **Objective and Method**

Services for the Health in Asian and African Regions (SHARE) joined Kansai NGOs Medical Volunteers (the consortium of medical NGOs and individual volunteers which was founded to conduct relief activities for the area of Hanshin-Awaji earthquake), and was involved in relief activities from January 20, 1995 through March 17, 1995. SHARE carried out relief projects in 8 evacuation sites in Nishinomiya City and Nada-ku, Kobe city. SHARE provided medical treatment and consultation to more than 3,000 people. Even after closing the projects, we continue to work closely with other volunteer groups and support the programs of a public health center. Based on our experiences, we would like to discuss the changes of medical and health needs over the course of time in the Hanshin-Awaji earthquake area.

## **Result**

We divided required relief work into 4 different phases.

*Super Acute Phase* (first 72 hours after the disaster)

Urgent treatment was needed for heavy injuries that resulted from direct shocks. Launching a prompt relief and triage activities is of extreme

importance.

*Subacute Phase* (from the 4th day to 3 weeks after the disaster)

As the number of injury cases gradually decreased, secondary health problems became more apparent in the evacuation sites. The majority of cases were influenza victims, and inappropriate living conditions made this virus spread. It was not very rare to see elderly and handicapped people die from the infection. Actually their health could rapidly deteriorate. In particular, when the elderly were struck with pneumonia, they often succumbed if the disease was not detected early enough.

In addition to urgent medical treatment, preventive medical activities, such as early detection of diseases, improvement of living environments, and temporary transfer of sick and weak elderly people to welfare/medical facilities were required. It was very effective that health centers and other medical teams started coordination meetings and exchanged views and shared medical resources.

*Transitional Phase* (from the 4th week to 2 months after the disaster)

The number of serious cases who required hospitalization decreased. Medical facilities in the community started to be restored. During this period, medical teams from outside of the disaster areas should start to transfer their role to the local medical agencies, and gradually shift their activities from the direct medical treatment and consultation to social work, counseling and health guidance. Our team provided information about resources available to the people in certain areas. The activities of other volunteer groups, which helped the improvement of living and nutritional conditions, also shifted to activities which focused on self- and mutual-support.

*Chronic Phase* (after the Transitional Period to the present date)

While young and middle aged people regained the capability to support themselves and left the evacuation sites, many elderly and physically disabled people remained in the evacuation sites and temporary houses, and therefore became isolated. Supporting those isolated people became the most prominent issue. They needed social welfare assistance. We should help to develop community network in temporary houses.



### **Conclusion**

For a large-scale natural disaster in a highly developed country whose infrastructure is well established, it is absolutely necessary to have well-organized medical relief policies and have a plan to conduct effective relief activities and utilize the limited medical resources at the time of the disaster. Medical agencies need to evaluate the actual needs of the community in a timely manner and cooperate well with medical resources available in the area. Also, they need to gradually shift the emergency medical/health system to a more sustainable system in the community. We learned a lot about the way to establish the basic relief/assistance strategy based on the idea of Primary Health Care(PHC).

We, SHARE, would like to use this opportunity to express our gratitude for the kind assistance from JOCS, AHI, JCMA, and many other NGOs and individuals who put forth a great amount of effort for harmonious relief operation.

# **Role of Rapid Assessment of Health Consequences in Disasters**

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Key words : rapid assessment, health needs, disasters

## **Introduction**

The increase in the number of both natural and man-made disasters and their impact on population is of growing concern to countries at risk. Despite substantial efforts on emergency response, the approaches remain largely amateurish, resulting generally in inappropriate or delayed action as was seen in Kobe.

Compared with classic epidemiological methodologies to crisis situations spending long time and high cost but not enough applicable information for urgent use, rapid assessment has been highlighted to assess present needs and priorities in a quick and inexpensive way for better allocation of limited resources in an emergency, a transitional and a rehabilitation stage (Figure1).

## **Methods**

1. **Key steps:** Cautious preparation and planning of rapid assessment is critical prior to the visit to the field. Analysis, interpretation and reporting of the result are essential.
2. **Key performers:** The assessment is performed by the central/local government affected/refugees/displaced population representatives, NGOs, UN agencies and other specialists. To obtain various information at a time and conduct comprehensive analysis on the assessment, the team should be interdisciplinary with physicians, epidemiologists, nutritionists, sociologists, etc.

**3. Major methods:** Rapid assessment should be composed of various information collecting methods, such as simple observation, record reviews, key informant interviews, limited convenience samples, focus group/in-depth interviews.

#### **4. Essential information**

**(1) Demographic/geographic data**

Total population size, <5 years, the elderly, the handicapped, gender, a map with population/shelter distribution, average household/family size are needed to collect through sample survey, registration or aerial/satellite photos.

**(2) Mortality**

Common causes of death and their mortality rates are assessed through clinics/hospitals, camp administrators, graveyards, burial contractors, priests, burial shroud distribution, community informants. Crude mortality rates (deaths/10,000/day) is useful indicator to determine relief programs.

Treatment/provision programs could gradually be shifted into prevention/self-sustaining when the indicator comes down to 1.0 death/10,000/day.

**(3) Morbidity**

Diseases of public health importance or epidemic potential are assessed through clinics/hospitals or health care workers. It is important to make simple and clear disease classification and calculate proportional morbidity (% of total visits).

**(4) Nutrition assessment**

Food quantity/quality/distribution and prevalence of malnutrition/micronutrient deficiencies are assessed by mid upper arm circumference(MUAC) or anthropometry for children 6-59 months.

**(5) Critical sectors**

Public health programs, health infrastructure, water/sanitation, environment, shelter, logistics/security are all critical information to implement relief work.

#### **Constraints and prospects**

**(1) Reliability:** It may be an inevitable trade-off between reliability and rapidity of the survey. To develop techniques for improving rapidity and reliability, it is very crucial to review different types of past disasters and analyze priorities of information and appropriateness of survey methods.

**(2) Standardization:** It is recommended that agencies conducting rapid assessment as well as population studies in emergency situations use standard sampling and data collection methods, and ensure precise written documentation of study methods and results.

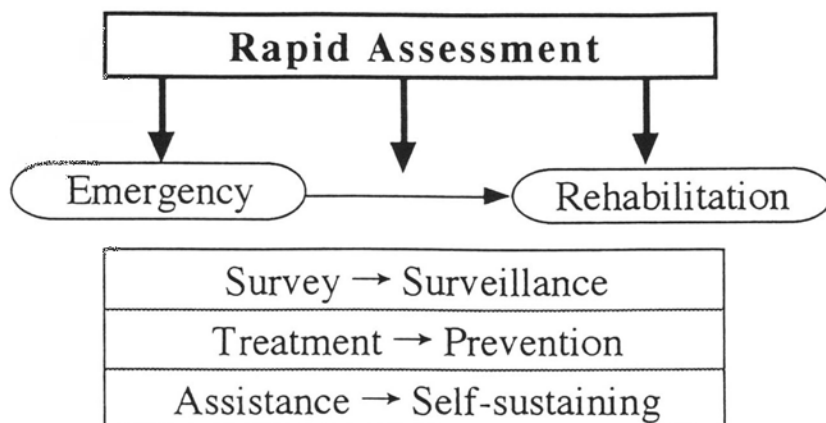
(3) **Logistics and security:** Rapid assessment can be conducted successfully when there is well-prepared logistic support and crisis management in austere environments.

(4) **Research and Training:** In Japan, there are few experts of disaster epidemiology. Research and training of disaster epidemiology including rapid assessment is needed

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Figure 1. Rapid assessment and time course of a disaster



# **An Outbreak of Measles Epidemic in the Mt. Pinatubo Evacuation Camps in the Philippines, 1991**

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**Key words:** measles, Mt. Pinatubo, evacuation camps, Aetas, vaccine coverage, vaccine efficacy.

A great many refugees have been made by civil wars which recently broke about in Asia, Africa, and East Europe. There occur also many evacuees by natural disasters such as the Hanshin-Awaji great earthquake. People suffer from various diseases and may die if circumstances are not good enough. Pneumonia, diarrhea, measles, and malnutrition have been regarded as four major killers in refugee camps<sup>1)</sup>.

Measles is an acute, highly infectious disease, and has been rampant in refugee camps in various countries, such as Bangladesh<sup>2)</sup>, Somalia<sup>3)</sup>, Sudan<sup>4)</sup>, and Malawi<sup>5)</sup>. However, as measles has effective preventive measures of immunization, its outbreak is nowadays said to represent a failure in the health care system in the camp<sup>6)</sup>.

A measles outbreak, however, occurred in the evacuation camps in the Philippines after the eruption of Mt. Pinatubo. We joined the medical relief team, and offered medical consultation in the camps. After returning to Japan, we wanted to investigate the reasons why the outbreak of measles epidemic happened in this technologically-advanced times. We analyzed the causes of death and found that their villages of origin were unevenly distributed. Then we conducted a survey and revealed that measles vaccine coverage rates were remarkably lower than those written in the official report and that vaccine efficacy was also low in some villages. These two factors might be the causes of the measles outbreak. This report reviews the disease surveillance in the camps, discusses the reasons for the outbreak of measles, and reveals the problems included in an on-going measles vaccination program.

## BACKGROUND

Mt. Pinatubo erupted in April and June of 1991 and approximately 200,000 people who had resided in the province of Zambales, Tarlac, and Pampanga had to flee. Indigenous people who lived in the slopes of the mountain - Aeta had suffered mostly in all the evacuees. As of August 26, there were five evacuation camps in the province of Zambales and 21,583 evacuees stayed there: the number of Aetas was 9,379 (43%). Male and female ratio was 1.2, and population of children less than 5-year-old was 3491(16%). The Bulawen camp in the municipality of Palauig was largest, populated 16,605 and Aeta was 6,539 ( 39%)<sup>7).</sup>

Provincial Health Office (PHO) of Zambales established a disease surveillance system in April. Mass immunization against measles started on August 1 for children aged from six months to five years old, later the upper limit of age was prolonged to 12 years old; but the index case had already been found on July 26.

The target area of this study was limited to evacuation camps in the province of Zambales. The most data on mortality were collected from the Bulawen camp.

## METHODS

This study has two stages. First of all, we analyzed the lists of deaths made by PHO and other NGOs. The results revealed that most measles deaths came from three barangays nearest to the summit of Mt. Pinatubo. Secondly, we conducted a study of measles vaccine coverage and vaccine efficacy in three barangays.

### *Disease Surveillance*

In the camps midwives visited each house in the morning and evening and reported any death to health personnel dispatched by PHO. A standardized report form was completed and following information was collected: date of death, name, age, sex, cause of death, ethnicity, and camp. A case of measles was defined as a generalized rash and fever, and any one of the followings: cough, running nose, or red eyes. Other NGOs ( 24 hours TV charity committee, Philippine, Inc., PRRM, and LAKAS) made the same kind of report about deaths in the camps.

### *Measles Vaccine Coverage*

We studied vaccine coverage in two villages( Dangla and Yamot) in the above

three barangays, using a questionnaire whether they got measles vaccination before the eruption, targeting all children who were between nine months and 35 months old when staying in camps in August of 1991.

#### *The Association between Unvaccination and Measles Death*

We put a hypothesis that people of three barangays died of measles because they had not got measles vaccination, then investigated the association between unvaccination and measles death, using the method of a case-control study. The source population was Aeta people who were staying in the camps during the period between July and December of 1991. The cases were 64 measles deaths, and the controls were those who survived in the camps during the period.

#### *Measles Vaccine Efficacy*

Vaccine Efficacy was estimated for all children in four villages, who were between nine months and 35 months of age when staying in the camps in August of 1991. We asked the barangay health workers to visit all the houses in four villages and to get two pieces of information (if they got measles immunization before the eruption and if they suffered from measles in the camps.) Vaccine efficacy was measured using the following formula.  $VE (\%) = (ARU - ARV) / ARU \times 100$ . VE is vaccine efficacy. ARU is an acronym of "attack rate in the unvaccinated population." ARV is an acronym of "attack rate in the vaccinated population."

## **RESULTS**

#### *Disease Surveillance*

Overall mortality From July to December, a total of 209 deaths were reported. A sex ratio was 1.2. A mean age of death was 11.3 ( $\pm 19.0$ ) years old. an overall mortality rate (deaths per 10,000 a day) was 0.65: Aetas was 1.35 and Lowlanders was 0.09. The epidemic (crude mortality rate  $> 1.0$ ) lasted 6 weeks from mid August. The 1-4 years age group showed the highest CMR (crude mortality rate) of 2.45 and that of Aetas was 4.42.

Measles epidemic The leading cause of death was measles 103 ( 49% ), then followed pneumonia 45 ( 22%), diarrhea/dehydration 20 (10%), malnutrition 9 (4%), and others. The weekly mortality rate of measles showed its peak (1.40) in the 11th week after the eruption, then followed pneumonia (0.50) in the 13th week, diarrhea (0.27) in the 15th week, and malnutrition (0.27) in the 16th week. The measles epidemic lasted from August to December. Out of 103 people died



of measles 90 were Aetas: their mortality rate was 0.65. The 1-4 years age group of Aetas showed the highest mortality rate of 2.34 and showed its peak of 9.70 in the 11th week after the eruption. The barangays where the measles deaths came from were unevenly distributed to three villages nearest to the Mt. Pinatubo: Belbel, Moraza, and Villar. The total number of deaths of three barangays made up 62% (64/103) of all measles deaths. In Belbel, the most nearest village to the summit, seven percent of villagers (39/534) died, and twenty four people died of measles.

#### *Measles Vaccine Coverage*

Vaccine coverage for children aged nine months to 35 months was 15% (4/27) in Dangla, and 26% (21/81) in Yamot.

#### *The Association between Unvaccination and Measles Death*

We got responses of 64 cases (measles deaths) and 259 controls, then calculated Odds ratio matching by ethnicity, sex, age, barangay, camp, and hospitalization. Odds ratio was 26 (95% confidence interval was 3.6-190) in the association between unvaccination and measles death in three barangays.

#### *Measles Vaccine Efficacy*

Vaccine efficacy for children aged nine months to 35 months was 100% in Dangla, and 69% in Yamot.

## **DISCUSSION**

Although this study was limited to one province, not three affected provinces by the eruption, it revealed that measles formed 49% of all deaths and was the main cause of death in the evacuation camps. The study revealed, moreover, that measles might be the single most important cause of death because most of the other deaths due to pneumonia, diarrhea, and malnutrition were probably triggered by suffering from measles. That means it is very important to control measles in evacuation camps.

Why did measles epidemic outbreak in the camps, particularly among Aeta people? We would like to discuss from the viewpoint of immunization: mass immunization and routine immunization. Speaking of mass immunization in the Bulawen camp, it started too late. When it started on August 1, the index case had already been found. It should have been implemented as least three weeks earlier.

People who died of measles were unevenly distributed: Most came from three barangays closest to the summit of Mt. Pinatubo. The villages were the pocket of unimmunized against measles virus and invited the epidemic of measles. The study revealed that the measles vaccine coverage was lower in the three barangays and that vaccine efficacy was low in one village. These two factors might be the causes of measles epidemic. If the measles vaccination rates of the three villages were the same as the others, the number of measles deaths would have been fifty, a half of the actual number of death. If the number of Aetas who suffered from measles had been fewer, the number of death of the other causes would have been fewer as well.

The reasons vaccine coverage rates were low in three barangays were twofold: geographical remoteness and Aetas' rejection of immunization. These two reasons related to each other. In three barangays farthest from the town, there lived Aeta people who were not familiar with modern medicine. Some Aeta people hated immunization shot. Some Aeta people who was found sick in the camp and transferred to the hospital absconded from the hospital and died in the camp.

The study suggests the importance of routine immunization against measles, particularly toward the minorities who are apt to be the pocket of unimmunized and the hotbed of epidemic. As the high mortality is partly due to the thought of Aetas about health, such as hatred of immunization shot, it is not enough to expand the on-going vaccination program; rather a new program that pays attention to Aetas' ideas of health should be made.

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## ***NETWORK / COMMUNICATION***



# **A Tropical Medicine Database On The Internet**

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Key words; tropical medicine, database, internet.

## **Introduction**

Although number of Japanese medical professionals who work in the tropics is remarkably increasing, there is not any practical textbooks of tropical medicine in Japanese. Because of rapid cost-down and power-up of computer hardware and world-wide development of the internet, database services on the internet become more needed recently.

AMDA-Japan developed a tropical medicine database in Japanese in the AMDA Internet Station (<http://www.amda.or.jp>), and is providing information services since July 1995. This is the first and biggest Japanese database on tropical medicine for medical professionals, who treat, prevent and control tropical diseases in Japan or abroad\*.

## **Methods**

To develop this database, special attention was paid to following 3 points.

1) As ordinary Japanese medical professionals do not have enough basic knowledge on symptoms, epidemiological distributions and transmission patterns of tropical diseases, an original index was invented in order to lead users to relevant pages quickly (Table.1).

2) Some Japanese medical books, which cover tropical diseases, are inclined to mention details of morphology of pathogens and diagnosis methods using high technology, whereas, symptomatology and treatment was insufficient. Considering users' positions (i.e. medical officer in the tropical countries, or physicians working in Japan), clinical and public health information was

more emphasized. Contents were categorized by diseases with infections (parasite, fungus, bacteria, virus, insect), toxications (chemicals and poisonous animals), malnutrition and deficiency, and hereditary diseases, which were often seen in the tropics.

3) To reflect economical and social problems of medicine in developing countries, priority was put on practical technology, such as simple and accurate diagnosis methods, cheap and internationally-approved treatment, and community-participating preventions.

### **Results**

Since start of the services, more than 10,000 internet users accessed this database. According to a questionnaire, which is attached to the AMDA home page, some Japanese users complained that 1) the index did not properly lead them to relevant pages; 2) clinical-pathological case presentations was more useful than this index; 3) more images and even sounds should be added; 4) hyperlinks, not only in the database, but with some other home pages should be set on. Many foreign users were disappointed that there was not English version. The webmaster received English questions by e-mails, and AMDA experts replied them respectively. On the other hand, there were many appreciations from medical professionals, including the editorial staff of the Japanese Society of Parasitology, medical attaches of the Ministry of Foreign Affairs of Japan. This database has been presented in several symposia and fora.

### **Discussion**

The internet is surely the most progressively developing media, and this will be used more as new communication methods by international health workers near future. As Table.2 shows, Japanese database on the internet has some pros and cons. Big manpower and cost are required to overcome the cons. International agreement or law is needed to regulate copy right and responsibility for contents, in addition, technical progress is expected to reduce security risks. On the other hand, thanks to free browser softwares, such as Mosaic and Netscape, and current cheap OSs, which contain a communication programme like Windows'95, ordinary medical professionals who are not yet hooked on the internet will have more opportunity to access the database through commercial providers' line. In the tropics, where



infrastructure is rudimentary, satellite communications should be emphasized\* Actually AMDA successfully developed a terminal on the health net, which was organized by Satelife, American NGO.

Enormous time, finance and computer skill are required to develop and maintain a database on the internet, and AMDA-Japan got financial supports from local Lions Club and telecommunication companies for this database project. There are some private foundations, which subsidize research and development of databases, however, maintenance cost is not covered. It should be considered to open internet servers of universities to those who want provide database information.

### **Acknowledgements**

AMDA-Japan appreciates special support of The Koraku Lions Club, NEC Co.Ltd., and KDD.Co.Ltd. for developing and running our database services.

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Table.1 AMDA Tropical Medicine Database Index

- \*The Early Trias and Geographical Distributions
- \*Suspected Diseases by Signs and Symptoms
- \*Classification of Diseases by Incubation Term
- \*Relative Risk of Travelers in Endemic Areas

Table.2 Pros & Cons Of Japanese Database On The Internet

Pros; \*accessible 24hr. from anywhere

- \*provide mass information rapidly
- \*provide information in Japanese
- \*save and utilize information in various ways
- \*"net surfing" by the hyperreference function
- \*alternatively dual communication by e-mail
- \*relatively small cost for users
- \*add and update information easily for server

Cons; \*internet is not yet popular, esp. in the tropics

- \*Japanese software is necessary
- \*inconvenience for foreign users
- \*high cost to develop and maintain database
- \*security problems (powercut, thunder, hacker)
- \*unclear responsibility for contents
- \*effectivity and reliability to functions

# **Activities of Tokyo International Society for Child Health (TISCH)**

Hata et al. (1995)

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**Key Words:** NGO(Non-Governmental Organization), university, Internet

## **Introduction**

TISCH is a NGO which has been established in the Department of Pediatrics, University of Tokyo in February 1993. The members of TISCH exceeded over two hundred, who consisted of not only medical professionals but non-medical workers and students. The purpose of this study is to show the activities of TISCH and the profiles of members.

## **Method**

The profiling was performed by sending questionnaires by mail to all of the members.

## **Results and Discussion**

Two hundred forty three questionnaires were sent and 73 were collected (30%).

Thirties and twenties were main members, and female were dominant in the ratio of six to four (Table 1). More than one third were young female. This seems to show social advancement by women. Although medical professionals were forty two and fairly dominant, non-medical workers and students were nearly half (Table 2). Non-medical members consisted of teachers, press reporters, book editors and others. Ten students have belonged to faculty of medicine and some were graduate school students, who had careers of international cooperation in developing countries. Sixty seven out of 73 members had foreign travel experiences including work and/or sightseeing (Table 3). The main work as their experiences were programs of Japan International Cooperation Agency (JICA) and the other

NGO programs. Conversation ability by foreign language was shown as Table 4. Most of the members have been able to communicate by some kinds of foreign language. Other languages in Table 4 included French, Indonesian, Thai, Malay, Vietnamese, Sinhalese, Swahiri, etc.

Table 5 to 8 showed future plans of TISCH members to attend the international cooperation programs in developing countries. Fifty nine members have plans to go abroad, who hope to stay for short or long term (Table 5). Anywhere to go was 21 and Asia was favorable area (Table 6). However, Africa and Latin America were unpopular among members. It seemed to be especially that there were several people who answered it could stay for more than three years at anytime (Table 7 and 8).

Next two tables showed user status of computer communication and/or Internet. Only seventeen (23%) members answered "Yes" but 54 had not used this communication method at that time (Table 9). However, twenty five (nearly half of "No") would prepare to use computers (Table 10). It seems that approximately 70% of TISCH members would utilize Internet next year. On the other hand 20 out of 73 (27%) answered no plan to use in the future too. So, we have to set up both computer communication and paper communication including newsletter and usual mail.

Deep interest and wide request have been poured on the newsletter, particularly in the field of help-wanted and the information of developing countries (Table 11 and 12).

### **Conclusion**

We recognized that TISCH was an organization in the university which members had gathered very loosely without any obligation, and that the members have been eager to join in the international cooperation programs operating anywhere in the world. TISCH has very important role in collecting and providing every information of this field. On this meaning it will be most valuable to utilize not only newsletter made by paper but Internet and computer communication properly.

### **Acknowledgment**

We would like to thank every members for their cooperation in this study.

Table 1. Member Distribution by Age and Sex

Age	Male	Female	Total
20s	4	16	20
30s	10	17	27
40s	11	7	18
50s	2	2	4
60s	3	0	3
70s	0	1	1
Total	30 (41%)	43 (59%)	73

Table 2. Profession

Medical	42
Doctors	26
Pediatricians	18
Physicians	3
Others	5
Nurses	5
Public health nurses	5
Midwives	2
Others	4
Non-medical	11
Students	20

Table 3. Experience of Stay in Foreign Country

0	6
< 1 month	24
1 month - 1 year	15
1 year <	28

Plural passages were included. Sightseeing included.

Table 4. Ability of Conversation by Foreign Languages

English	
Conference speech level	24
Ordinary speech level	30
Greeting level	17
Chinese	
Conference speech level	1
Korean	
Conference speech level	1
Spanish	
Conference speech level	1
Ordinary speech level	3
Greeting level	1
Others	
Conference speech level	8
Ordinary speech level	5

By self-declaration. Plural answers were included.

Table 5. Future Plan of TISCH Members

Domestic cooperation for foreign programs	27
Join in short-term programs in developing countries	23
Join in long-term programs in developing countries	36
Others	2

Plural answers were included.

Table 6. Place for Work

Anywhere	21
Asia	13
Africa	2
Latin America	2

Table 7. Period of Work

More than 1 year	18
More than 2 years	14
More than 3 years	5

Table 8. Starting Period of Work

Anytime	7
1-2 years later	16
3-5 years later	9
Undecided	9

Table 9. Users of Computer Communication and/or Internet

Yes	17
No	54
No answers	2

Table 10. Future Plan to Use  
Computer Communication and/or Internet

Yes	25
No	20
20s	5
30s	4
40s	7
50s <	4
No answers	9

In 54 present non-users in Table 9.

Table 11. Request for TISCH

- 
1. To establish the information network
  2. To open lectures, meetings, and forums
  3. To make mailing list
  4. To organize medical and non-medical professionals
  5. To spread an idea of international cooperation
  6. To display the characteristics of NGO based on the university
- 

Table 12. Request for the Newsletter of TISCH

- 
1. Information of help-wanted in cooperation programs
  2. Information of developing countries
  3. Information from societies and organizations
  4. Essays about experiences in developing countries
  5. Book reviews and guides
  6. Requests from natives in developing countries and foreigners in Japan
-



## **Information of Relief Project for Sakhalin Earthquake on Internet**

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Key words: Internet, AMDA, Sakhalin earthquake

### **Introduction**

Internet service has been available around the world. The greater role of the Internet as a tool for the international health would be expected. AMDA (Association of Medical Doctors of Asia) provided the real-time information on the relief activities for the Sakhalin earthquake in May, 1995. Detailed information on the situation of the disaster affected area, necessary aid materials and on going medical relief mission by AMDA was reported in the series of news release of AMDA, Japan. This information delivery system through internet was the first case in the international disaster relief activities by Japanese agencies. The whole information delivery system with the internet was analyzed for the further development of the internet communications.

### **Methods**

The original reports were sent from the medical team of AMDA by telephone and facsimile. News release was prepared by the staff and volunteers of AMDA, Headquarters in Okayama. Text files of the news release were sent to the e-mail account of Osaka University through commercial computer network (Nifty-Serve, Tokyo) by using modem and public telephone line.

Graphic information of photography and VTR (Video Tape Recorder) was also sent to the same account as GIF(Graphic Interphase Formate) files. News release from AMDA, HQ was converted to html (hypertext markup language) files those were viewed by the clients' browser of the computers (Fig-1). News release was presented at the home pages of Sakhalin earthquakes at the WWW(World Wide Web) sites of WNN(World NGOs Network) at the home pages of Osaka University (URL- <http://www.osaka-u.ac.jp>). The home page of WNN was originally prepared for the communication for survivors of the Kobe earthquake. English version of news releases were also presented at the WWW server. The first new release was reported on May 29, immediately after AMDA decided to dispatch medical mission. After news release was reported on the Internet, a large number accessed to the WWW server of Osaka University. "Mirror server"- the alternate server that has identical content of the server, were prepared on the WWW server at NTT and University of Tokyo to bypass the traffic at Osaka University. Total number of request to the home page of Sakhalin earthquake at Osaka university, the information transferred from the server to the clients were analyzed by the WWW stat (ver. 1)

### **Results**

Total number of access to the homepages of Sakhalin earthquake at Osaka University on May 29 to June 8 was 7,728 (702.5/day). The daily transmission statistics of the WWW stat showed that the number of the access increased so rapidly-1st day; 86, 2nd day; 1,101, 3rd day 2,877. Then reached the highest number. Judging from the domain name of the clients who accessed these home pages of the Sakhalin earthquake, the origins of the country were as follows; 6,119 from Japan, 357 from US, 21 from Switzerland, 13 from Canada, 12 from Great Britain, 10 from Germany and 7 from Korea. Domain names of 1,171 clients were not revealed by this analysis, which is considered that the setting of the domain name server of the clients were not correct. Analysis of the hourly transmission statistics showed that the total transmission number was largest in 1-2 pm with 599 accesses, while lowest in 5-6 am with only 5 accesses.

### **Discussion**

The impact through the internet was much larger than we expected. For the

emergency relief operation, prompt information collection, immediate response and public relations are crucial. Internet will be an essential tool for the international emergency relief. The strengths of the internet are as follows; Internet enables immediate information delivery such as needed relief materials, medicine and registration of the volunteers. On the other hand, we should be cautious when we use the internet on the following points; Infrastructure for the information, knowledge for the network system is required for installation of the internet system. Wrong information or unconfirmed information might be released from Internet since no check system is working. Rules of the internet- privacy, copyright and some more legal issues have not been established. AMDA has been able to utilize the resources of internet much effectively since its own WWW server (<http://www.amda.or.jp>) was installed for the direct handling by the AMDA staff. Internet would play a crucial component in the informatin system in the internatioanl disaster relief.

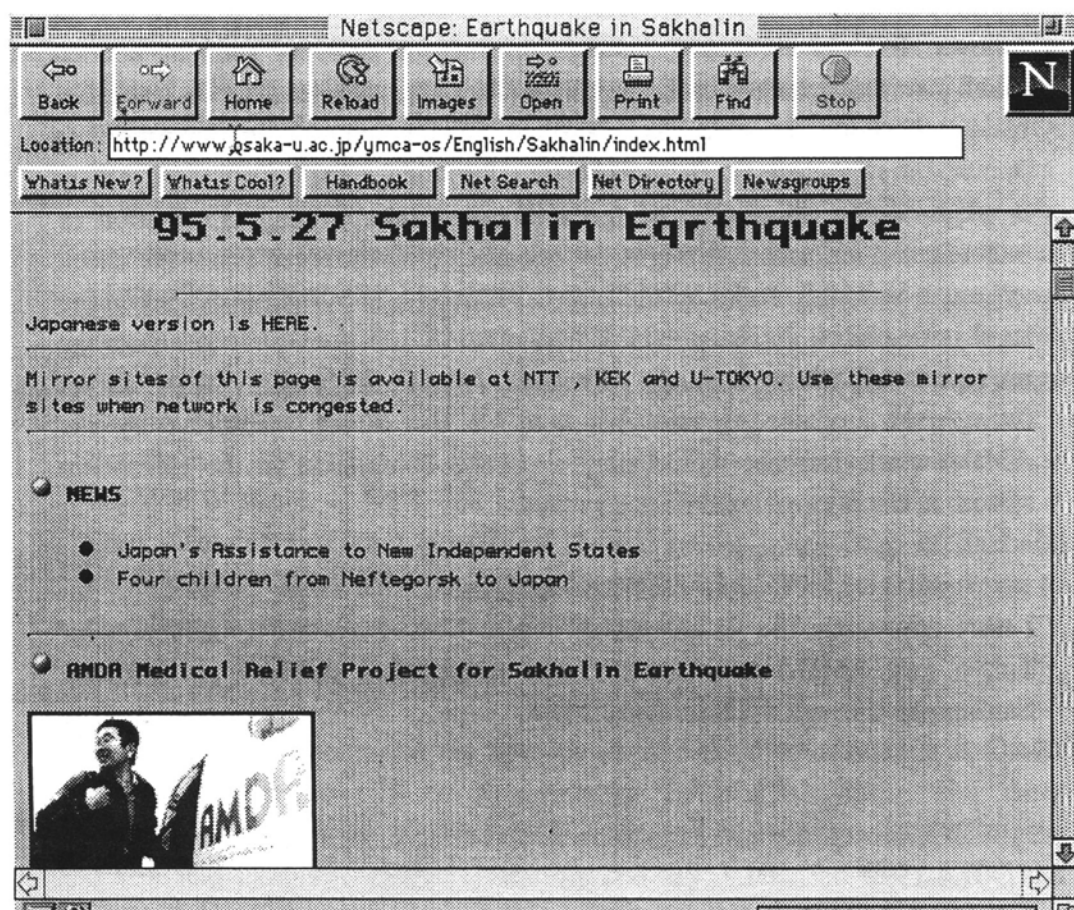
### **Acknowledgement**

I truly appreciate the volunteers of Osaka University, NTT, University of Tokyo and AMDA who assisted the information delivery on Sakhalin Earthquake through the internet.

### **References**

- 1) WHO, Emergency and Preparedness and Response, WHO / ERO / EPR / 901.1.1990
- 2) Yamamoto (1994); Internet at Harvard University (in Japanese), Medical Mac Mook,4, 97-103

Fig-1, Home page of Sakhalin earthquake at WWW server of Osaka University  
(English version)



# **Foreigners' HIV Infections and Trial for Organizing Medical Care Network in a Nagano Prefecture District**

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Key words: Foreigner's HIV infection , medical care network , community

## **Introduction**

Nagano Prefecture is known for many reports on HIV infections to the AIDS Surveillance Committee of the Ministry of Health and Welfare. The majority of the reported cases consist of foreign women. Above all, it is projected that the eastern part of Nagano Prefecture has many reported cases. With the Saku and Komoro Municipal Medical Associations in the eastern part of Nagano Prefecture taking the lead, we organized a HIV medical care network and made a fact-finding survey on HIV infections in the district. In or around 1994, on the other hand, we began to provide medical counseling and aid to persons with HIV infections and AIDS with the cooperation of an organization of volunteers ,the International Solidarity of Saku-Area Citizens (ISSAC), and the Lamsai Association. Before our activities began, it had been exceedingly difficult to follow up on foreign patients with HIV infections and all such cases had not been covered. After our activities had started, it became possible to follow up on more half of them, and all foreign patients with AIDS could return to their countries with our help. This is an attempt to introduce our effort to organize a network.

## **Methods**

In early 1994, we organized a HIV medical care network with the hospitals and clinics which were members of the local medical associations and began a fact-finding survey on patients with HIV infections and AIDS in an attempt to work out measures to cope with them. On the other hand, we have begun to organize a local HIV medical care network, including aid to persons with HIV infections and AIDS, with the cooperation of volunteers' groups delivering medical care and providing livelihood counseling to foreign residents.

## **Results**

As indicated in Table 1, 69 persons were found positive in HIV antibody

tests in the eastern part (population: 410,000) of Nagano Prefecture from 1991 to February 1994. They were found positive in the screenings done by six medical care institutions. They were in their teens through thirties, including 60 females and nine males. By nationality, they include two Japanese people and 67 foreign residents including 63 Thais. Indications were that 68 persons were infected in heterosexual transmission. Of those who were found positive in the antibody tests, 32 persons underwent a confirmation test in which 29 persons were confirmed as positive. Only three persons were confirmed as negative but only IFA was done in their confirmation tests. Thirty-seven persons did not undergo a confirmation test. Of the 67 foreign residents who were either patients with HIV infections or persons suspected of HIV infections, only two AIDS patients were hospitalized. With the exception of those two persons, it became impossible to make a follow-up after one or two examinations for all patients. The number of cases officially registered with the HIV Surveillance Committee of the Ministry of Health and Welfare 26, or less than half of all cases.

With this actual state in mind, we began in 1994 to positively offer medical counseling to local foreign residents with the cooperation of volunteers fluent in Thai. Given information from local medical care institutions and volunteers, foreign residents with HIV infections and AIDS began to gather. Table 2 shows the cases with whom we have dealt since the start of our HIV medical care network. The broad range of aid from volunteers made it possible to follow up on the consulted cases and, when they wanted to return to their country, they were encouraged to do so after consultation with the Immigration Control Bureau and the Embassy of Thailand. Four Thais have suffered from AIDS since March 1994, but all of them have returned to Thailand, accompanied by volunteers, after their condition improved. The condition of Case 6 had been so serious that she died while in hospital in Thailand, but her family and friends were thankful for us. Case 5 returned to Thailand after she had given birth to a boy at a hospital in Nagano Prefecture. Fortunately, no HIV infections were detected after the childbirth. Evidently, one case is still living in Japan but there is no contact with any medical care institution. It is no longer possible to follow up on one case despite our efforts. It is evident that it has become more feasible to follow up on foreign patients since the start of our activities in close cooperation with volunteers than before.

When it comes to care after return to Thailand, we call on several Thai medical care institutions and AIDS hospices so that the returnees may be able to receive care.

A wider variety of issues have come to light through our activities. The language barrier is one such big issue, and it is indispensable to make competent interpreters available on a voluntary basis. The expenses for medical care are yet another big issue, all patients of our not subscribing to any health care insurance scheme. It was difficult to pay high bills for medical care. All the infected persons and the patients illegally stayed in Japan so that there were legal issues which had to be cleared away for their return to Thailand. The costs for their return, including the air fares, are high. In many cases, AIDS patients have to be accompanied by an attendant, depending on the condition, but it was difficult to pay the air fares, including that of the patient, in almost every case. As it is difficult to make a routine approach in a follow-up at the outpatient clinic so that the contact with volunteers outside the medical care institution is needed. In special conditions where patients had been involved in prostitution, it was indispensable to step up measures to prevent the environment around them from being infected.

### **Discussion**

Many foreigners are living in Japan in conjunction with internationalization. HIV infections and AIDS among foreign residents have become an important issue for our community medicine. The number of persons with HIV infections officially released by the Ministry of Health and Welfare is nothing but a fraction of the actual number. Since persons with HIV infections began to fall victim to AIDS one year or so ago, the development of a system of receiving foreign patients has become an urgent issue, but the local system is wholly insufficient. In order to cope with the variety of problems posed to foreign residents and step up health care measures for prevention of HIV infections, it is important to set up a community network with the cooperation of volunteers outside the hospitals. Our attempt has just started but makes it possible to follow up on foreign patients. The attempt is significant both for the medical institutions and the patients. We hope that our local HIV care network will be tied in with medical care institutions and NGOs in Asian countries for care and help after the return of patients. While cooperating with them, we hope to grapple with issues on AIDS in Asia at a level of community medical care.

**Table 1**  
**Characteristics of Non-Hemophiliac HIV/AIDS cases(1991-1995.1)**

Year of Diagnosis		Cause of Infection	
1991	18	Heterosexual	68
1992	32	IVDU	1
1993	9		
1994	9	Confirmation Test	
1995	1	(IFA and/or WB)	
Age		Positive	29
10s	8	Negative?	3
20s	48	Not Done	37
30s	8		
U	5	Registration	
Sex		Registered	26
Female	60	Non Regist.	43
Male	9		
Nationality		CDC Classification	
Thailand	63	II	66
Philippines	1	III	1
Unknown	3	IV	2
Japan	2		



Table 2

Medical Care and/or Consultation HIV/AIDS cases

Komoro-Saku HIV Network ( 1994.3-1995.9 )

Case	Age	Sex	Nationality	Cause of Infection	Place of Infection	Clinical Characteristic	CDC Classification	Result of Medical Care Consultation
1	30	M	Thai.	IVDU?	Thai.	Tbc	III C	Improve & Return home
2	38	F	Thai.	Hetero sex	Thai.	PCP	III C	Improve & Return Home
3	27	F	Thai.	Hetero sex.	Thai.		II	Unknown
4	22	M	Thai.	Hetero sex.	Thai.	H.Zost.	II	Improve Stay Japan
5	26	F	Thai.	Hetero sex.	Japan?	Delivery	II	Return home Child HIV(-)
6	36	M	Thai	Hetero sex.	Thai.	PCP	IV C	Return home & Dead
7	28	F	Thai.	Hetero sex.	Thai.	Weight loss & Fever	IV A	Improve & Return home
8	43	M	Japan	Hetero sex.	Oversaes?	PCP	IV C	Improve & Stay Japan
9	50	M	Japan	Unknown	Unknown	PCP	IV C	Dead

# **HIV Related Problems of Foreign Residents in Japan**

## **- Based on Calls Received by AMDA International Medical Information Center Tokyo -**

Katori Mieko et al. (1995)

AMDA International Medical Information Center Tokyo

Hygeia 2-44-1 Kabuki-cho, Shinjuku-ku, Tokyo 160

### **Introduction**

AMDA International Medical Information Center Tokyo was established in April 1991 to provide medical information to non-Japanese residents over the phone. The number of HIV related calls has been increasing over the past few years. Although the ratio of calls over total is not high, the number of calls is higher than that of other illnesses.

### **Aim**

To take statistics of the number of HIV related calls received and to analyze the contents of these calls.

### **Method**

Classify HIV related calls taken during April 1994 to March 1995, according to month, language and content.

### **Results**

Total number of calls received from April 1994 to March 1995 was 2,796. 106 calls (3.8%) out of 2,796 were HIV related (Graph1). 29 calls (27%) were from English speakers, 41 calls (39%) were from Japanese, 19 calls (18%) were from Asians and 17

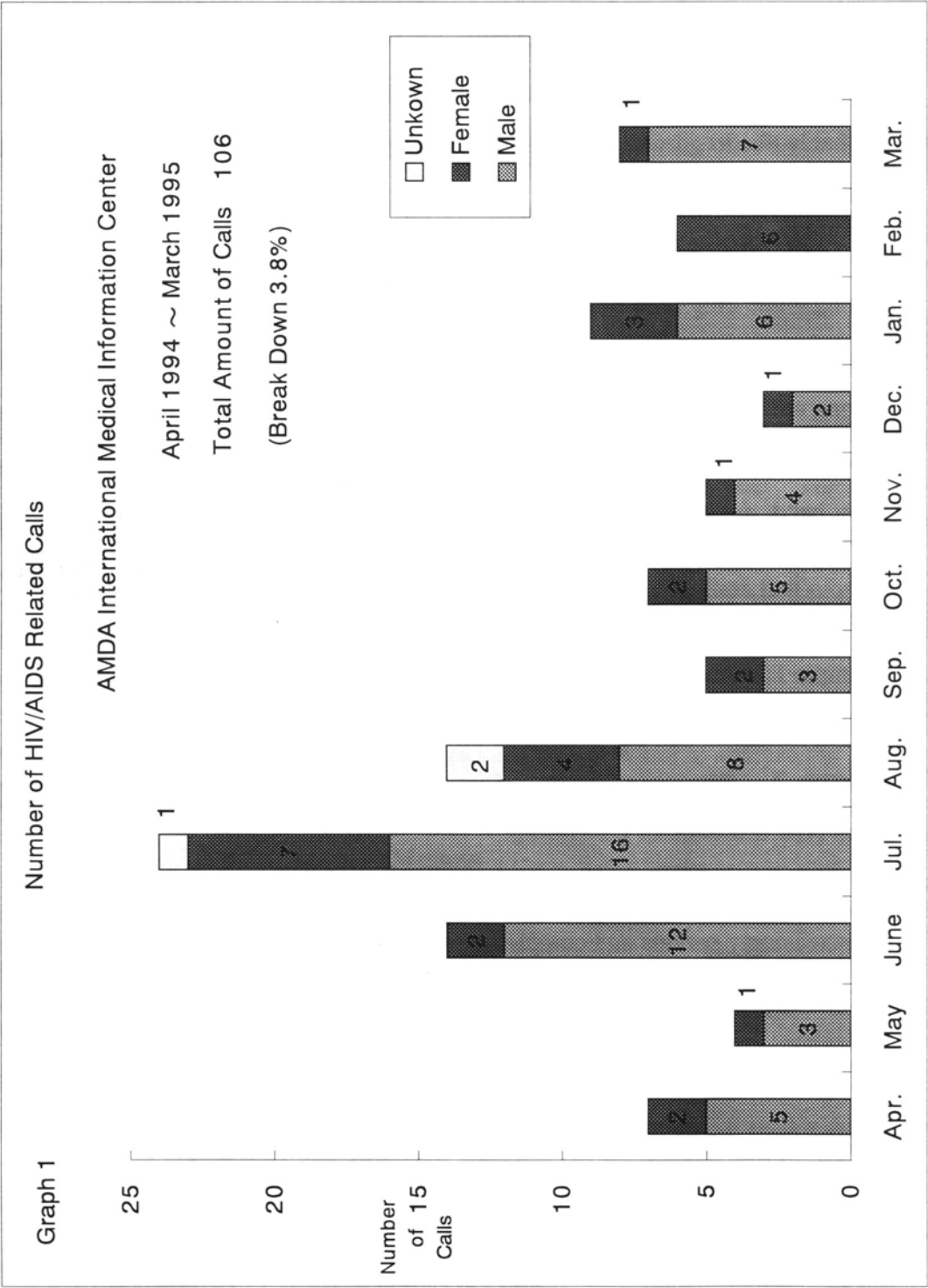
calls (16%) were from Central and South Americans (Graph2). The reason why there were more calls from Japanese was because a Japanese newspaper did an article about our Center, explaining that we also provided consultation on AIDS. A majority of calls in other languages were taken in June, July and August 1994. This was probably due to growing concern toward HIV due to the AIDS Conference held in Tokyo in August 1994.

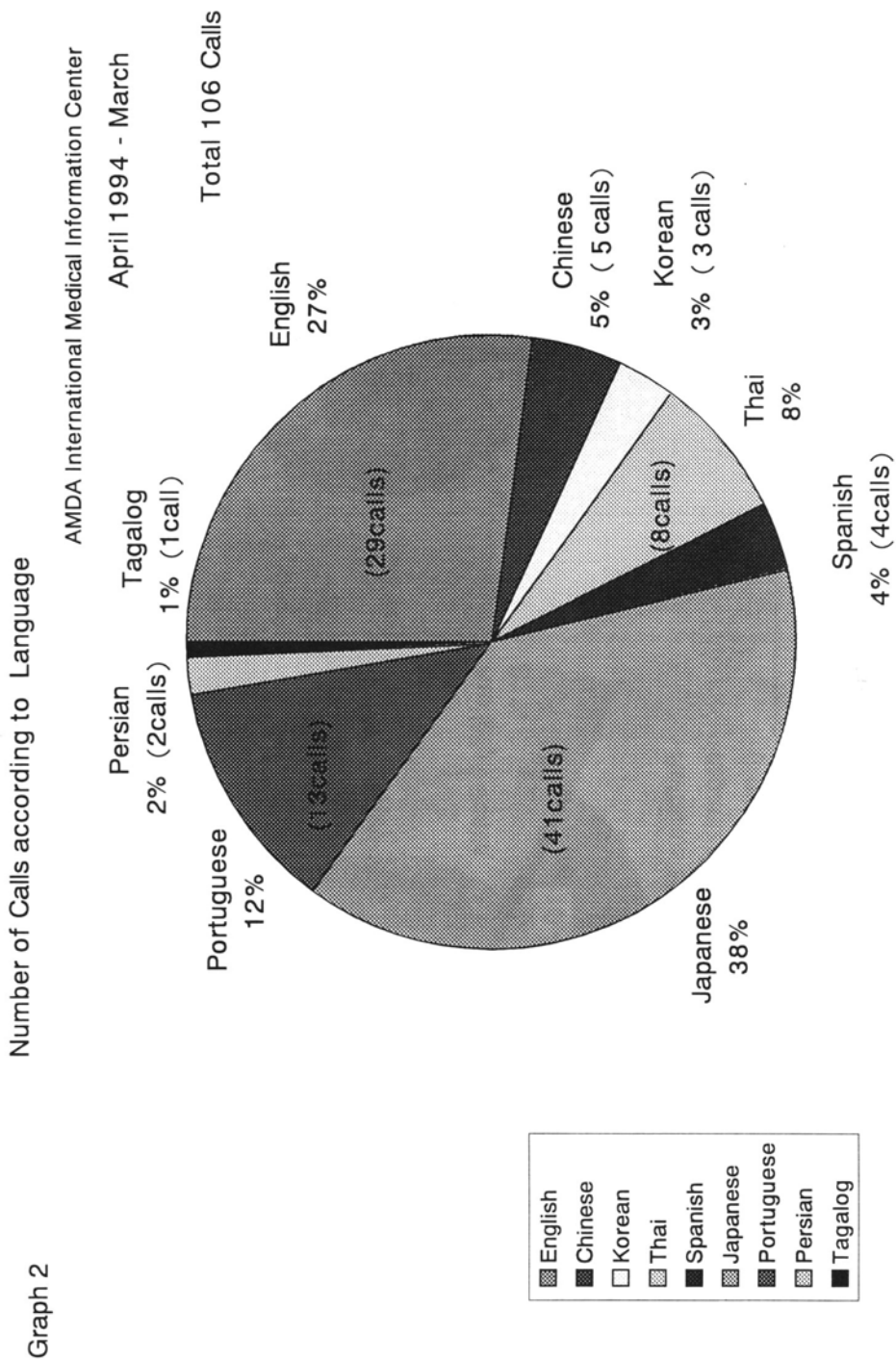
As for the contents of the calls, 50% of our English speaking callers wanted testing while only 20% of our Asian callers showed interested. Only 7% of our English speaking callers expressed concern over AIDS, while the number rose to 27% among our Asian callers (Graph3). Many of our English speaking callers asked for general information such as referrals to a testing center that speaks English. On the other hand, our Asian callers had more complex and serious problems. Since there are few places where they can consult in their own language, the calls often went into financial issues and visa problems.

Example 1: Asian male. He called nine times. Although he tested negative, he still feared that he had AIDS. He connected various physical symptoms to AIDS.

Example 2 : European female. She was pregnant and feared that her doctor might do an HIV test without her consent.

We are anticipating a further increase in HIV related calls, many of which will be increasingly serious and complex. Therefore, we especially feel that we should be prepared to cope with highly anxious callers.





Graph 3

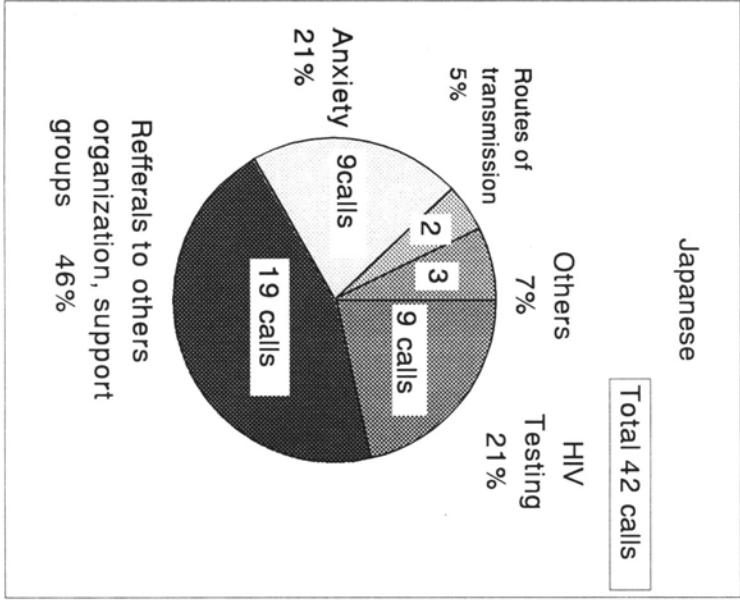
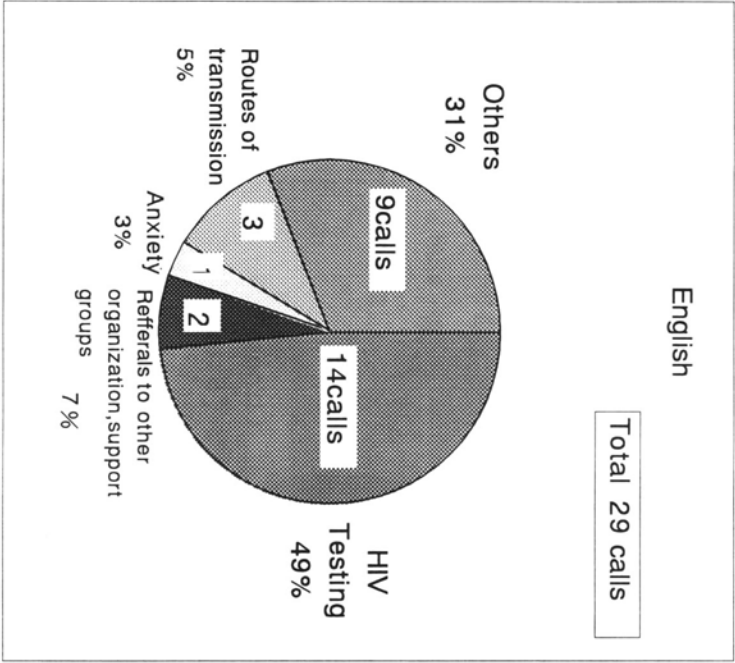
Breakdown of calls in Each Language

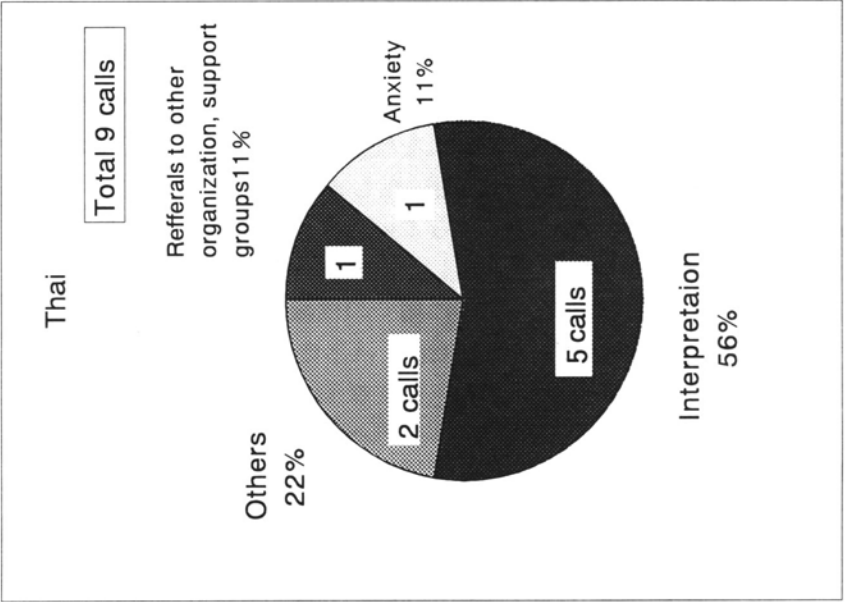
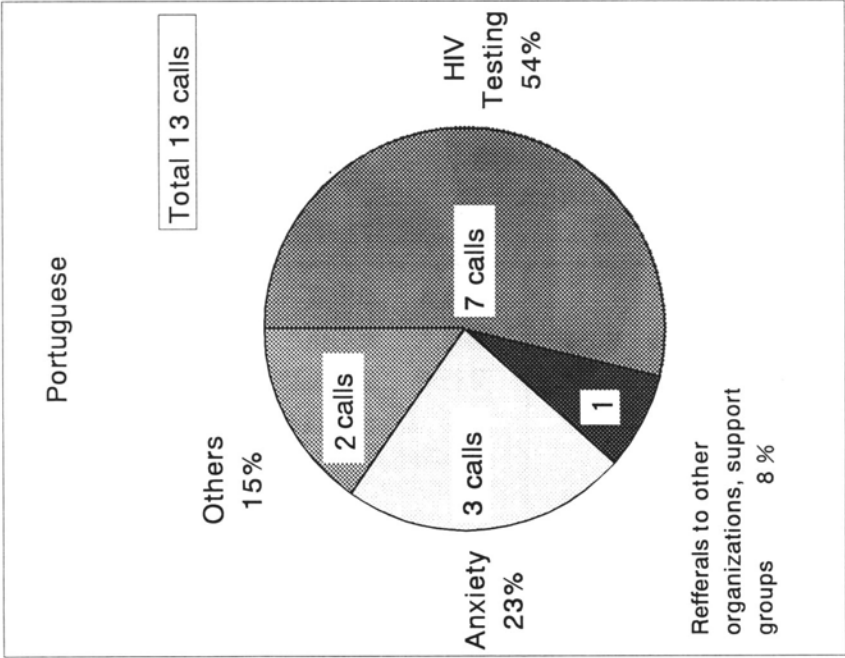
AMDA International Medical Information Center

April 1994 - March 1995

Total number of calls 110 (Multiple answers)  
Other • • Information, Interview, Treatment, Medical system,

Financial Issues





Language	Contents	Total
Chinese	HIV testing • • 2 calls      Anxiety, Routes of transmission, Interpretation • • 1 each	5 calls
Korean	Anxiety • • 2 calls      HIV testing, Routes of transmission, Other • • 1 each	5 calls
Spanish	HIV testing, Treatment, Medical system, Interpretation • • 1 each	4 calls
Persian	HIV testing, Anxiety • • 1 each	2 calls
Filipino	Anxiety • • 1	1 call

## 編集後記

今年は例年になく寒い冬を過ごしました。4月に入っても気候が不順で、寒い春です。お陰で桜の花はいつまでも散らずに枝に残っていましたが、それも若葉にかわりました。

昨年の本学会に於いては多くの先生方、会員の皆様のご参加をいただいて成功裏に総会を終えることが出来ました。不慣れな設営にもかかわらず皆様のご寛恕とご助力があればこそなし得たことと感謝いたします。

そのような総会のまとめをどのようにしたらよいか考えた結果、英文のプロシーディングの形でまとめさせていただきました。今ようやく整理を終えて印刷の段階まで進んだ次第です。皆様のお手元に届くのは緑も深くなった頃でしょうか。プロシーディングにつきましてはお忙しいところを寄稿いただいた方々にこの場を借りて深くお礼申し上げます。また紙面の都合で全てのご発表を掲載することが出来ませんでした。そのような方々には深くお詫び申し上げます。このプロシーディングを次の活動、研究にお役立て頂ければ存外幸いです。

もう、まもなく第11回の総会が待っております。またその時に皆様にお目にかかって親しく世界の保健医療協力についての経験と知識とシェアしたいと存じます。

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