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*Scientific  
Intelligence  
Report*

# Current Health Status in North Vietnam

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OSI-SR/64-40  
26 August 1964



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**CENTRAL INTELLIGENCE AGENCY**  
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**PROJECT OFFICERS**



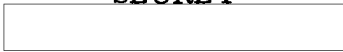
**Life Sciences Division  
OSI/CIA**

Interpretations of intelligence information in this publication represent immediate views which are subject to modification in the light of further information or analysis.

- i -

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CONTENTS

	<u>Page</u>
SUMMARY AND CONCLUSIONS . . . . .	1
DISCUSSION . . . . .	2
Incidence of Diseases . . . . .	2
Vietnamese Prophylactic and Therapeutic Measures . . . . .	2
Shortage of Medical Supplies . . . . .	3
Water and Food Problems . . . . .	4
Organization and Facilities . . . . .	5
Medical Personnel and Training . . . . .	6
TABLES . . . . .	8
ANNEX . . . . .	18



SECRET

## SUMMARY AND CONCLUSIONS

When the present Communist Government assumed control of North Vietnam in 1954, it inherited the responsibility of meeting the medical needs of its approximately 16 million people, 90 percent of whom lived in primitive crowded villages. Modern sanitation and larger cities such as Hanoi. The long rainy seasons and lack of adequate provision for food storage fomented further the widespread nutritional, infectious and parasitic diseases. There was no central public health group capable of effectively instructing the people and instituting modern disease control measures.

A Ministry of Public Health was established in 1954 and patterned after that in Red China. From its headquarters level, Hanoi, the health organization extends down to interzonal and provincial levels, each having its own hospital or health center, and its own medical and provincial administrators. In addition, the Red Cross and Red Crescent Societies and some medical teams from Sino-Soviet bloc countries operate in North Vietnam.

Ambitious programs carried out by the Soviet bloc countries included building or rebuilding 6 general hospitals. Large scale mosquito control programs and immunization programs were instituted, and many new sanitary wells were dug and others improved. Better training for physicians and ancillary personnel was begun.

In spite of this, the health problems of the country remain but little improved, and the normal life expectancy is 30 to 35 years. But the effort to improve public health has made inroads into the backward ways of the North Vietnamese. The general health and nutritional status of the country remains precarious and serves as a continuing threat to the North Vietnamese.

- 1 -

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## DISCUSSION

### A. Incidence of Diseases

Endemic diseases among the North Vietnamese are malaria, tuberculosis, trachoma, venereal diseases, smallpox, amebic and bacillary dysentery, and dietary deficiency diseases. Malaria, tuberculosis and smallpox are the leading causes of death. Animal diseases transmissible to man include rabies, anthrax, leptospirosis, schistosomiasis and parasitic diseases. A chart of diseases of military importance is shown in Table 1. Disease vectors generally are not under control although mosquito control measures have been ambitiously undertaken and the incidence of malaria has been lessened.

The following diseases generally are prevalent during the summer in North Vietnam and in the adjacent areas:

Typhoid fever, encephalitis, hog cholera, mumps, whooping cough, and measles. In addition a cholera epidemic has been raging in South Vietnam during the last three to four months. Cholera has also been reported in Thailand (Bangkok), and Cambodia (Kohking District), and plague was reported in South Vietnam (Saigon, Dalat, Nhatrang).

### B. Vietnamese Prophylactic and Therapeutic Measures

In 1964, the Council of Ministers summarized the current disease control problem: North Vietnam must still make a major effort to use public health, sanitation, and health-protection units to prevent disease outbreaks; it has not yet extended hygiene and epidemic prevention work to base-level productive establishments; it must build public health and maternity stations in the highlands and in the reclamation areas, and hygiene-epidemic-prevention stations in the provincial cities. Excrement collection, untreated sewage and garbage disposal are problems which still have not been solved. Vietnamese effort on specific diseases are given below:

Trachoma -- The Ophthalmology Institute has sent teams of specialists into more than 1600 villages in the lowlands and mountain areas to study effective measures to combat the disease. The institute is studying a method of treatment by "oriental medicine." The institute has treated over 432,000 people and has claimed cures in most cases.

Malaria -- Malaria is particularly prevalent in the lower mountainous regions, and water conditions in the delta areas are such to

provide excellent breeding grounds for its vector, the anopheles mosquito. Vietnamese efforts in malaria control have been aided by other bloc countries but the control program has progressed slowly. Soviet recommendations on control procedures, based on a pilot plant study in Thai Nguyen Province were turned over to the Vietnamese in 1960. The Ministry of Public Health and the Malaria Elimination Central Board (President: Pham Ngoc Thach, Minister of Public Health) utilized Soviet and Rumanian experts to train more than 50,000 native workers to combat malaria. The Soviet Union was expected to furnish the necessary appliances and medicines.

Tuberculosis -- The Tuberculosis Institute has employed BCG vaccination (one million in 1960), serial X-ray identification, pulmonary surgery and chemotherapy.

Health Minister Pham Ngoc Thach has reported successful use of isoniazid in the treatment of tuberculosis. In 1961 the country had 103 specialists in tuberculosis prevention, 3,220 hospital beds reserved for tuberculosis patients, and 35 antituberculosis dispensaries.

Polio -- Poliomyelitis was epidemic in 1959 in North Vietnam, according to a Soviet physician. In 1961, six million doses of Soviet oral vaccine were given in North Vietnam.

### C. Shortage of Medical Supplies

Medicines of all kinds are in short supply in North Vietnam. Essential Western drugs are obtained from foreign countries. Penicillin is imported from China and other drugs are imported from East Germany (Jenapharm), China, USSR and possibly Czechoslovakia.

Two other steps are being taken to overcome the shortage of medical supplies: 1) some native drug production and 2) the exploitation of existing "oriental medicine," which utilizes "nature" drugs and traditional remedies and practices. North Vietnam has allegedly resolved to select all the best practices and drugs from both Oriental and Western medical cultures, blend the two and enjoy the fruits of both.

Acute drug shortages are probably the reason that a captured military medical document advocates medicinal plant cultivation and use by the military and that China was training seven teams of Vietnamese medical students in oriental medicine related to the treat-

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nameese medical students in Oriental medicine related to the treatment of tuberculosis, leprosy, and other diseases.

Native drug manufacturing competence is meager but some effort is under way. The Tuberculosis Hospital (which is directed by the Health Minister) is attempting to manufacture TB culture media. The Microbiology Institute has prepared some common vaccines for pediatrics diseases, tetanus, typhoid, and cholera.

The claim has been made that in 1961 the Microbiology Institute (Director: Nguyen Duc Khoi) produced antipolio vaccine according to the Soviet method, with the assistance of the Soviet physician, Chumakov. North Vietnam asserts that it was the second country after the USSR to manufacture the product and administer it to millions of children.

#### D. Water and Food Problems

Water supplies are generally taken from nearby streams, rivers, canals or shallow wells. Deep wells are used in a few cases. Foreigners must regard all water sources as contaminated. While some of the larger cities may have potable municipal supplies, they are occasionally contaminated and users may not be so informed.

During the wet season, ground and surface water is ample. During the dry season the flow of streams diminishes so that salt water extends upstream and potability is decreased.

The water supply in Hanoi is from wells. The water is pumped into underground reservoirs where it is treated and then piped to private connections and public water taps. The water has to be boiled before Westerners can use it. A modern, Western-style municipal water treating system was projected for completion by 1966 but probably will not be completed until 1975-1980. The city has a sewage disposal system.

The sanitation problems in Hanoi are typical of other Vietnamese cities. Crowded conditions and the presence of rats and vermin contribute to the spread of diseases such as typhus, cholera, and dysentery. The present system of waste water disposal is primitive and consists of narrow, slightly covered subterranean ditches, infested with rats.

The Vietnamese have had four consecutive years of severe agricultural short falls. Rigid food rationing was established in 1961.

- 4 -

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A Vietnamese doctor has stated that the biggest health problem of the country in 1962 was malnutrition. The authorities included food studies in the nation's "Medical Task" for 1962. In this connection, the aim of the Five-Year program was said to be to acquire an understanding of the composition and nutritive value of different foods and the selection of a diet that is most wholesome for the people.

Insects, diseases, and rats have caused serious and sometimes permanent damage to North Vietnam crops and agricultural products. The annual loss of food from this problem is from 15 to 20 percent of the total production. For rice alone it is from 600,000 to 700,000 tons.

E. Organization and Facilities

Public organization of medical affairs in North Vietnam was modelled after those of other bloc countries. After the Democratic Republic of Vietnam was established in 1954, the Ministry of Public Health was organized and superimposed on the existing inadequate public health service.

Central control of the public health system is exerted by the Ministry in Hanoi. This control is supplemented at interzonal and provincial levels, each of which has its own hospital, agency or health center, and medical and political administrations. North Vietnam has two City Medical Services (Hanoi and Haiphong) and three Zonal Medical Services (Hong-Quang, Thai-Meo, and Viet-Bac). All public health services which are made available at zone, province, city or village levels are under the jurisdiction of the Ministry.

The Ministry is directed by Pham Ngoc Thach and has a few competent and well trained individuals. (See annex) Vice Ministers are Nguyen Duc Thang, Chief Political Officer; Dinh Thi Can, Political Officer; and Vu Van Can, Senior Colonel, Chief of the Military Medical Bureau. The organization of the ministry is as follows:

Administrative Bureau (Director: Le Loi)

Experts Division (Chief: Cuong. Conducts liaison with foreign medical experts.)

Special Bureau

Preventive Medicine Division (Chief: Vo To)

Medical Treatment Division (Chief: Nguyen Van Tin)

Pharmacy Division (Chief: Ha)

Training Division (Chief: Hoang Dinh Cau)

Research Institutes

Ophthalmology Institute (Chief: Nguyen Xuan Nguyen)

Antimalaria Research Institute (Chief: Dang Van Ngu)

Tuberculosis Institute (Chief: Pham Ngoc Thach)

Oriental Medicine Institute (Chief: Nguyen Van Huong  
and Deputy Chief: Pho Duc Thanh)

Radium Institute (Chief: Hoang Su)

Microbiology Institute (Chief: Nguyen Duc Khoi)

Sanitation Institute (Chief: Nguyen Van Huong)

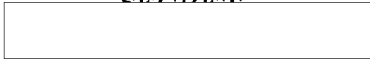
The country has 263 medical establishments (hospitals, dispensaries, convalescent houses), 25,000 hospital beds, 2,297 village medical stations, and 8 tuberculosis sanatoriums. Hospitals about which information is available are listed in Table 2.

Soviet bloc aid after 1954 consisted especially in material support and assistance in the reconstruction and expansion of hospital facilities. The USSR gave the largest bulk of aid--refrigerators, hospital instruments and ambulances--and constructed the Vietnam-Soviet Friendship Hospital in Hanoi around the existing Don-Thuy Hospital. East Germany, Czechoslovakia, Poland, Bulgaria, Hungary, and China also contributed amounts of badly needed aid.

F. Medical Personnel and Training

Adequate numbers of scientifically trained personnel do not exist in Vietnam. Many competent people were lost when much of the University at Hanoi was moved to Saigon in 1954-55.

In 1959, North Vietnam had 1,900 doctors, probably not more than 400 of whom could meet Western standards for the medical profession. To alleviate the shortage of technically trained personnel and to acquire a large number of people who would be useful in auxiliary medical jobs, intensive training courses were set up in 1961 by the North Vietnam regime. These programs are for training "second grade doctors," nurses, midwives, pharmacist's assistants, and



medical specialists and include a regular medical specialist program, refresher training course, hospital-on-the-job-training, a pharmacist regular training program, pharmacist's assistant training, and university education for physicians. Except for the university program for physicians, these courses represent accelerated education. The existence of such a program with the attendant danger of superficial training is striking evidence of the shortage of competent medical personnel. Since 1962, the provincial centers have conducted their own medical specialist schools at existing hospitals.

The Hanoi College of Medicine and Pharmacy conducts a five-year course to train physicians and pharmacists. Two additional years in internship are required before the medical graduate is recognized as a doctor. In 1960, graduates numbered 208.

In addition to this regular training of physicians, a correspondence course is also available from the college. The program lasts about three years at the end of which the successful student become a "physician." The internship is waived for on-the-job trainees. In 1962, 107 doctors graduated from the college first correspondence course.

Vietnamese physicians have received grants and scholarships from bloc countries to do graduate work or to take special training abroad.

A three-year course for "Medical Specialists" conducted in a regular full-time hospital program followed by 18 months of on-the-job experience is required before a Medical Specialist's Certificate is awarded.

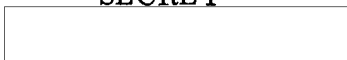


TABLE I

## DISEASES OF MILITARY IMPORTANCE

DISEASE	GEOGRAPHICAL DISTRIBUTION AND INCIDENCE; SEASONAL INCIDENCE		VECTORS	NORMAL PRECAUTIONS FOR MILITARY FORCES		REMARKS
MALARIA	INCIDENCE IS HIGHEST IN THE MOUNTAINS AND FOOTHILLS UP TO ABOUT 4500 FEET; SOME CASES OCCUR IN THE DELTA AND OTHER LOWLANDS; RAINY SEASON (JUNE - SEPTEMBER)	ANOPHELES MOSQUITOES	PROPHYLACTIC DRUGS; MOSQUITO CONTROL; STRICT ENFORCEMENT OF CLOTHING REGULATIONS AND USE OF MOSQUITO NETS	WIDESPREAD ANTI MALARIAL MEASURES BEING TAKEN		
TUBERCULOSIS	WIDESPREAD		VACCINATION	IMPORTANT HEALTH PROBLEM		
TRACHOMA	40 PERCENT POPULATION AFFECTED ESPECIALLY IN RIVER DELTA AND COASTAL PLAINS	FLIES	PERSONAL HYGIENE	ONE OF MOST SERIOUS HEALTH PROBLEMS IN COUNTRY		
DENGUE	ENDEMIC WITH TENDENCY FOR EPIDEMICS TO OCCUR AT INTERVALS OF YEARS	MOSQUITOES, Aedes Aegypti and A. albopictus	SIMILAR CONTROLS TO THOSE OF MALARIA			
SMALL POX	ENDEMIC		VACCINATION	A GREAT PROPORTION OF POPULATION HAS BEEN VACCINATED		

TABLE 1 (CONTINUED)

DISEASE	GEOGRAPHICAL DISTRIBUTION AND INCIDENCE; SEASONAL INCIDENCE	VECTORS	NORMAL PRECAUTIONS FOR MILITARY FORCES	REMARKS
VENEREAL DISEASES	GONORRHEA MOST PREVALENT; BUT SYPHILIS AND CHANCROID ALSO COMMON			
POLIOMYELITIS	OCCURS SPORADICALLY THROUGHOUT THE YEAR; EPIDEMICS DURING WARM RAINY SEASON			
LEPROSY	ENDEMIC			FURTHER SPREAD CAUSED BY LACK OF COMPULSORY ISOLATION AND SEGREGATION OF LEPERS
CHOLERA	ENDEMIC; EPIDEMICS OCCUR	FLIES	INOCULATION; FOOD AND WATER HYGIENE	
TYPHOID AND PARATYPHOID FEVERS	OCCUR REGULARLY	FLIES, HUMANS	FOOD AND WATER HYGIENE	
RABIES	COMMON	DOGS, CATTLE		

TABLE 2 (CONTINUED)

DISEASE	GEOGRAPHICAL DISTRIBUTION AND INCIDENCE; SEASONAL INCIDENCE	VECTORS	NORMAL PRECAUTIONS FOR MILITARY FORCES	REMARKS
DYSENTERY-- AMOEBC AND BACILLARY	WIDESPREAD; EPIDEMICS OF BACILLARY DYSENTERY OCCUR IN RURAL AREAS DURING RAINY SEASON	FLIES	FOOD AND WATER HYGIENE; PERSONAL HYGIENE	
INFLUENZA AND PNEU-- MONIA	EPIDEMICS; SPRING AND AUTUMN		INOCULATIONS; PERSONAL HYGIENE	
TYPHUS LOUSE--- BORNE	ENDEMIC IN DENSELY POPULATED AREAS EPIDEMICS OCCUR	LOUSE, PEDICULUS CORPORIS		
MURINE TYPHUS	PERIODIC LOCALISED EPIDEMICS, ESPECIALLY IN TOWNS; BEGINNING OF RAINY SEASON	RAT FLEA XENOPSYLLA CHEOPIS		
SCRUB TYPHUS	ENDEMIC, SPORADIC CASES OCCUR ALL YEAR ROUND; EPIDEMICS AT END OF DRY SEASON	MITE--TROMBICULA AKAMUSHI	IMPREGNATED CLOTHING	
YAWS	WIDESPREAD		ENVIRONMENTAL SANITA-- TION; PERSONAL HYGIENE	

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TABLE 1 (CONTINUED)

DISEASE	GEOGRAPHICAL DISTRIBUTION AND INCIDENCE; SEASONAL INCIDENCE	VECTORS	NORMAL PRECAUTIONS FOR MILITARY FORCES	REMARKS
LEISHMANIASIS	OCCURS THROUGHOUT NORTH VIETNAM	SAND FLIES	SAME AS MALARIA	VISCERAL LEISHMANIASIS OR KALA-AZAR ALSO OCCURS
RELAPSING FEVER	FEW CASES	BODY LICE	PERSONAL HYGIENE	
SKIN DISEASES	PREVALENT, SCABIES PARTICULARLY PREVALENT AMONGST HILL TRIBES; FAVUS COMMON IN DELTA AREA		ENVIRONMENTAL SANITATION; PERSONAL HYGIENE	
LEPTOSPIROSIS	COMMON, ESPECIALLY IN SWAMPY REGIONS; ESPECIALLY AT END OF RAINY SEASON	RODENTS	VECTOR CONTROL	
BLACKWATER FEVER	PREVALENT IN MOUNTAINOUS REGIONS	MOSQUITOES	SAME AS MALARIA	HIGH MORTALITY RATE

TABLE 1 (CONTINUED)

DISEASE	GEOGRAPHICAL DISTRIBUTION AND INCIDENCE; SEASONAL INCIDENCE	VECTORS	NORMAL PRECAUTIONS FOR MILITARY FORCES	REMARKS
FILARIASIS	OCCURS, ESPECIALLY RED RIVER DELTA AND COASTAL REGIONS	CERTAIN SPECIES OF ANOPHELES, AEDES AND CULEX MOSQUITOES	MOSQUITO CONTROL	
INTESTINAL PARASITES HOOKWORM ETC.	EXTREMELY COMMON; MORE THAN 50 PERCENT OF POPULATION IN SOME AREAS		FOOD AND WATER HYGIENE; PERSONAL HYGIENE	
SCHISTOSOMIASIS	ENDEMIC IN RED RIVER DELTA REGION	CERTAIN SPECIES OF SNAILS	AVOIDANCE OF BATHING IN POLLUTED WATER	
CLONORCHIASIS	ABOUT 50 PERCENT OF POPULATION IN RED RIVER DELTA INFECTED	FRESHWATER FISH	AVOID EATING UNDER-COOKED OR RAW FISH	
FASCIOLOSIASIS	OCCURS	FRESH-WATER PLANTS; CERTAIN SPECIES OF SNAILS		
PLAGUE	SPORADIC CASES REPORTED	RATS, FLEAS	VACCINATION; RODENT CONTROL	



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TABLE 2

MAJOR NORTH VIETNAMESE HOSPITALS

<u>NAME AND LOCATION</u>	<u>NUMBER OF BEDS</u>	<u>REMARKS</u>
<u>HANOI</u>		
BACH MAI	1500	EQUIPPED BY EAST GERMANY AND CHINA
PHU DOAN	1200	EQUIPPED BY EAST GERMANY; STRONG COMPETENCE IN SURGERY
HOSPITAL A	1000	SOVIET, CZECH, AND BULGARIAN AID; ANTI-T.B. HOSPITAL
HOSPITAL C	1500	EAST GERMAN AND CZECH AID; RESERVED FOR PARTY MEMBERS
HOSPITAL B	1500	
HOSPITAL 330	1000	CHINESE AND SOVIET AID
BICH CAU	100	
HOSPITAL 108		FORMERLY HOSPITAL DE LANESSAN
ST. PAUL CLINIC	150	
CHINESE HOSPITAL		

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TABLE 2 (CONTINUED)

<u>NAME AND LOCATION</u>	<u>NUMBER OF BEDS</u>	<u>REMARKS</u>
<u>HANOI (CONTINUED)</u>		
EASTERN MEDICINE EYE HOSPITAL	50	DRUG PROCESSING ROOMS; HERB GARDEN
HOSPITAL V		POLIOMYELITIS HOSPITAL
MILITARY HOSPITAL NO. 108		
GERMAN	500	GIVEN BY EAST GERMANY
SURGICAL HOSPITAL	410	LARGE SURGICAL CLINIC
VIETNAM-SOVIET FRIENDSHIP	800	SOVIET AID; FORMERLY SOVIET RED CROSS HOSPITAL
FUSON	1600	FREE HOSPITAL; FORMERLY FRENCH WITH 400 BEDS; NOW OVERCROWDED
<u>HAIPHONG</u>		
CZECH HOSPITAL	600	FORMERLY CITY HOSPITAL; SURGERY, X-RAY, PLASTIC SURGERY
WORKERS HOSPITAL	120	MATERNITY WARD, PHARMACY, BACTERIOLOGICAL LABORATORY

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TABLE 2 (CONTINUED)

<u>NAME AND LOCATION</u>	<u>NUMBER OF BEDS</u>	<u>REMARKS</u>
<u>HAIPHONG (CONTINUED)</u>		
MATERNITY HOSPITAL	50	
HONA BINH CHINESE	40	MATERNITY WARD
MILITARY HOSPITAL NO. 7	1000	
<u>THAI MEQ AUTONOMOUS REGION</u>		
AHAI MEQ	1100	SURGICAL, DENTAL, PHARMACY
LEPROSARIUM	100	
<u>DONG HOI</u>		
DONG HOI	400	
<u>HA DONG</u>		
HA DONG	70	
THUONG TIN SANATORIUM	700	
<u>HAI DUONG</u>		
NINH GIANG	300	

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TABLE 2 (CONTINUED)

NAME AND LOCATION	NUMBER OF BEDS	REMARKS
<u>LAO KAY</u>	75	MEDICAL ASSISTANTS IN ATTENDANCE
<u>YEN BAI</u>	50	
SANATORIUM		
<u>PHAT DIEM</u>	160	SHORTAGE OF EQUIPMENT AND DRUGS
PHAT DIEM		
<u>PHU THUAN CHAU</u>		
MILITARY	500	
<u>SON LA</u>		
MILITARY	550	
<u>LANG SON</u>		
MILITARY HOSPITAL NO. 4		
<u>VINH LINH</u>		
VINH LINH	200	

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TABLE 2 (CONTINUED)

<u>NAME AND LOCATION</u>	<u>NUMBER OF BEDS</u>	<u>REMARKS</u>
<u>NGHE AN</u>		
MILITARY HOSPITAL A		
<u>THANH HOA</u>		
MILITARY HOSPITAL B		
RUMANIAN HOSPITAL		
<u>CHA PA</u>		
CHA PA	6	DONATED BY POLAND; X-RAY, LABORATORY
<u>NAM DINH</u>		
NAM DINH		
<u>CAM PHA</u>		
CAM PHA		
<u>BAI CHAY</u>		
BAI CHAY		
<u>THAI NGUYEN</u>		
VIET BAC		

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ANNEX

THACH, Pham Ngoc--Minister of Health, since 1958. Vice Minister of Health, 1954. Member, National Scientific Research Board. Director, Vietnamese Tuberculosis Institute, May 1958. Attended Hanoi School of Medicine. Received M.D. in France and interned at the Hautville Sanatorium in Jura, returning to Vietnam in 1936. Established a clinic in Saigon. One of Indochina's pre-World War II most prosperous physicians. A lung specialist, credited with development of new treatments for tuberculosis. President, Vietnam Youth Federation and long a leader in youth activities. Reportedly Communist Party member. Not believed influential in the formulation of policy. Has visited USSR, Communist China, North Korea, European satellites, Indonesia, India, and France. Born 1909. Speaks French, some English.

TUNG, Ton That--Director, Vietnam-Germany Friendship Hospital. Former Vice-Minister of Health, Professor of Surgery, Hanoi University. Former President, Vietnamese Red Cross Society. Re-elected to the National Assembly, April 64. Reportedly one of the outstanding medical men in North Vietnam. Performed the first heart operation in North Vietnam reputedly. Experimented with Filatov method of treating wounds. Published on pancreatism. Surgeon in charge of all military hospitals in the Thai Nguyen area in 1947; in 1948 writing for the medical service of the Vietminh army. Born 1912.

KHOI, Nguyen Duc--Director, Microbiological Institute of the Ministry of Health. Director, Hanoi Municipal Public Health Service, 1955-56. Member, Preventive Medicine Association of North Vietnam. Engaged in bacteriological research since 1951, specializing in parasitology, especially Leptospira. Supporter of Ho Chi Minh.

HUONG, Nguyen Van--Director, Oriental Medicine Institute of the Ministry of Health. Vice President, Oriental Medicine Association of Vietnam. Specializes in utilization of indigenous herbs and plants for medicinal purposes. Studied Oriental medicine in China, 1958.

SU, Hoang--Director, Radium Institute of the Ministry of the Public Health. Head, provincial medical department, Thanh Hoa Province, 1946-50. Director, medical service, Fourth Interzone, subsequent to 1950. Specializes in irradiation treatment, specially of cancer.

THANG, Nguyen Duc--Political vice minister, Ministry of Public Health. Member, Scientific and Technical Council of the Ministry, 1959. Member, Department of Medical Science, Vietnam National Science Commission.

CAN, Vu Van--Vice Minister of Public Health, since 1960. Chief, Military Medical Bureau, Vietnam People's Army, since 1950. Senior Colonel. Reportedly, member, Vietnam Medical Association.

NGU, Dang Van--Director, Antimalaria Research Institute and Member, Central Executive Committee and Technological Subcommittee, Vietnam Medical Association. Research Director, College of Medicine and Pharmacy of the People's University of Vietnam. Outstanding personality in medical research; currently working on plan to eliminate malaria. Produced the first "Vietnamese" penicillin; developed "Betlein," an antibiotic said to be comparable to penicillin; grew streptomycin, recommended use of tapioca roots to make alcohol for army. Educated in Hanoi, France, and Japan. Visited USSR, 1955. Born 1910.

BAO, Nhu The--Director, Vietnamese-Soviet Friendship Hospital (reputedly used almost exclusively by military personnel) since 1958. Ho Chi Minh's personal physician. Member, Executive Committee, Vietnam Medical Association, 1957. Vice-Chairman, Internal Medicine Association of Vietnam.

DI, Ho Dac--Rector, College of Medicine and Pharmacy, since 1945. Head, Department of Higher and Vocational Education of the Ministry of Education. Member, National Scientific Research Board, since 1958. Director of all medical activities including the training of military doctors for the Communist forces, 1946. One of the best surgeons in Vietnam and author of a number of medical works. Studied at the Faculty of Medicine in Paris, 1923-27. Visited USSR and France. Born 1901.

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## REFERENCES

The source references supporting this paper are identified in a list published separately. Copies of the list are available to authorized personnel and may be obtained from the originating office through regular channels. Requests for the list of references should include the publication number and date of this report.

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