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# Worldwide Report

EPIDEMIOLOGY

No. 297

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WORLDWIDE REPORT  
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FLU EPIDEMIC AFFECTS ONE-THIRD OF NSW WORK FORCE

Sydney THE SYDNEY MORNING HERALD in English 13 Aug 82 p 3

[Text]

The flu epidemic has affected almost a third of the NSW workforce, according to a survey conducted by the Sydney Chamber of Commerce.

The survey was conducted among a representative sample of shipping, accounting, manufacturing and retail companies; the executive director of the Chamber, Mr David Abba said yesterday.

The number of staff reporting absent because of illness ranged from 5 to 40 per cent with most taking between three and eight days off.

One major airline reported 3,000 staff away for a week.

"If the employees were on an average \$250 a week, which is a conservative estimate, it gives some idea of the cost of this epidemic to a single business," he said.

A random survey by the Herald yesterday found large employers split evenly as to whether their staff had been affected significantly affected by the flu.

Australia Post, the State Electricity Commission and the Urban Transit Authority all reported no

appreciable increase in the number of sick days taken.

But the Metal Trades Industry Association said many metal products factories had been badly hit.

A spokesman for Qantas said: "Those who have escaped the bug here are almost in the minority."

A spokesman for the Education Department said many teachers and pupils had been affected. At one Sydney high school, 19 teachers out of a total of 70 had taken a day off because of illness.

Some schools had been hit so badly that replacement teachers could not be found, and supervision had to be arranged for some classes.

Dr John Campbell, the director of medical and allied services for the NSW Health Commission, said he had received reports of significant degrees of absenteeism in hospitals and in the general community.

This was due to a high prevalence of a flu-like illness which tended to hang on, but did not seem to have some of the more severe symptoms associated with a typical influenza condition.

There was no evidence of a new or unusual strain of influenza.

CSO: 5400/7584

## BRIEFS

GREEN SNAIL MENACE--The Department of Agriculture hopes to eliminate the green snail menace in Perth with the help of a mollusc expert. The snail, *Helix aperta*, has already infected 300 hectares in Perth. A Sydney malacologist, Mr Phillip Colman, is here to assess the pest problem and to advise on its eradication. The snail attacks market gardens, suburban gardens and neighbouring bush and experts want to control the pest before it spreads. Mr Colman, who was active in the elimination of the giant African snail in Queensland, said: "The snail has come over here from North Africa and southern Europe. We do not know how much of a pest it is going to be, but from what we have seen it can be more damaging than the brown snail." The three-year project will receive grants of \$46,000 a year from the State and Federal quarantine authorities. The Department of Agriculture is controlling the green snail with sprays and baits. However, the snail burrows into the soil during summer, where it lies dormant. In wet weather, it emerges to mate and lay a big number of eggs. Just one fertile snail is enough to infest an area. [Text] [Perth THE WEST AUSTRALIAN in English 7 Aug 82 p 13]

CSO: 5400/7584



## BRIEFS

DIARRHEA IN JESSORE DISTRICT--Jessore, Aug 25--Diarrhea has claimed 8 lives and affected about 250 others in the district during the last 11 days. Giving out the figures the District Civil Surgeon said malnutrition and paucity of drinking water are the reasons for spread of the disease. Reports reaching from remote villages said poor section of people are taking unwholesome food. Rice is selling at Tk 5 to 7.50 per seer but they have no buying capacity. Scarcity of drinking water in the area is acute. Most of the tubewells in villages have gone out of work, reports added. Three out of 150 persons admitted into Jessore Sadar Hospital have died since August 14. According to the information given by the Civil Surgeon 58 persons were attacked by diarrhea in areas under Keshabpur police station during the period of whom one died. Three persons died in Jhikargacha police station where 18 persons were attacked by the disease. One died in Sreepur police station where 12 persons were reportedly attacked with diarrhea. The Civil Surgeon said antidiarrheal measures and hygienic education have been started in the affected areas. He said the situation is now under control. His office has a control room to monitor the situation, the Civil Surgeon added. [Text] [Dacca THE NEW NATION in English 26 Aug 82 pp 1, 8]

INFLUENZA AT FARIDPUR--Faridpur, Aug 23--Hundreds of persons have been attacked with influenza. The disease has broken out in an epidemic form in and outside Faridpur town. The rush of patients attacked with this disease were found nearby the doctors. No effective preventive steps have been taken against the disease. No death report known till the writing of this report. [Text] [Dacca THE NEW NATION in English 29 Aug 82 p 2]

HOSPITAL TETANUS CASES--A number of tetanus cases were detected in the Gynae Ward Number 34 of Dacca Medical College Hospital on Monday last and curative steps to arrest its spreading has not been taken. Though a nurse of the Gynae emergency claimed that the ward was fumigated on Wednesday the doctors expressed their ignorance of it. Immediately after detection of tetanus in the ward all the 10 patients were evacuated to an adjacent ward and the verandah. The affected ward has been put under lock and key. According to a hospital source tetanus can spread from a post operative patient who has not received proper antiseptic treatment during surgical operation. The source also claimed that the hospital not only lacks in antiseptics but operation needles etc. Whenever tetanus is detected the common practice is to fumigate the locality immediately and burn the beddings thereafter in order to ensure its complete eradication. But the beddings of the affected ward were intact till Thursday evening and as claimed the fumigation was done two days later after detection.

The patient who was the source of the outbreak was transferred to the Infectious Diseases Hospital (IDH) at Mohakhali. [Text] [Dacca THE BANGLADESH OBSERVER in English 3 Sep 82 p 1]

DIARRHEA DEATHS REPORTED--Jessore, Sept 7--At least seven children have died in different areas of Shailkupa police station in last 7 days when there was an outbreak of blood dysentery and strong diarrhea in those villages. About one hundred children are still suffering from the disease, it was learnt from a reliable source. The affected villages are Altapur, Bogura, Panch Pakia and Doharo. The disease broke out in an epidemic form last month and there was no death reports till seven days ago. But all on a sudden the virus disease took a serious turn and seven children in those four villages died in spite of medical attendance. Some of the doctors in the area have opined that most of them died of kidney disease, perhaps due to acute renal failure. [Text] [Dacca THE BANGLADESH TIMES in English 8 Sep 82 p 2]

CSO: 5400/7122

BRIEFS

MEAT STANDARDS--Meat and meat products are to be brought under Mandatory Standards. This was stated yesterday by Dr. Richard Cheltenham, Minister of Agriculture, Food and Consumer Affairs as he addressed a Barbados Manufacturers Association one-day seminar on "Profits Through Standards" at the Rockley Resort Hotel, Christ Church. Beginning from November, about seven Mandatory Standards in respect of labelling will be implemented, Dr. Cheltenham said. There are: specification for labelling of commodities (General); specification for labelling of prepackaged food; specification for labelling of all products manufactured from textiles; specification for labelling of prepackaged goods; specification for pictorial markings for handling of goods (General Symbols); Specification for the labelling of toys and play things; and specification for pictorial marking for handling and labelling of dangerous goods. "These actions are all consumer oriented and I see no reason why they should not succeed. For after all manufacturers have been prepared for this for years by the Barbados National Standards Institution," Dr. Cheltenham said. He added that these activities pointed to the fact that Government would promote certification in its national, social-economic policy in areas such as procurement, support for national products, export quality and industrial efficiency. [Excerpts] [Bridgetown ADVOCATE-NEWS in English 26 Aug 82 p 1]

CSO: 5400/7585

## 13 CASES OF BUBONIC PLAGUE CONFIRMED IN BAHIA

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 18 Sep 82 p 12

[Text] Although Governor Antonio Carlos Magalhaes forcefully denied this event (and even played the case down when a journalist told him that the information came from the Ministry of Health), Solon Ribeiro de Brito, the SUCAM (Superintendency for Public Health Campaigns) delegate in Bahia, yesterday in Salvador confirmed the existence of 13 cases of bubonic plague in the interior of the state "which have already been confirmed in clinical and epidemiological diagnoses but which still must go through laboratory tests." These are 13 cases in two different regions. In the southwest, the largest number (five cases) is in just one city, that is, Picoas. In the interior of Bahia, the region that produces sisal, there are three cases in Riachao de Jacuipe, one in Serrinha, one in Valente, one in Retirolandia, and one in Santo Estevao. There is also one case in Castro Alves, in the Bahia area surrounding the bay.

The statement by Governor Carlos Magalhaes, denying the possibility of an outbreak of bubonic plague in the state and maintaining that ministry technicians released the news "to show that the ministry exists," caused profound distress in the agency. In Brasilia, some technicians were astonished at the governor's statement, primarily because the first health minister in the Figueiredo administration was a man from Bahia, that is, Castro Lima, a friend of Antonio Carlos Magalhaes.

Solon Ribeiro Brito also announced that all cases occurred at ranches "and that is a factor that may have contributed to the good harvest this year." He explained that "when we have a good harvest, the number of diseases usually goes up because people bring what they harvest (mostly corn and beans) for storage in the homes and that attracts the rats."

He also explained that Bahia has 60 townships which are classified as being endemic and "where every 5 years or every 8 years we can have an epidemic outbreak, since the disease cannot be wiped out but can only be controlled." According to the SUCAM delegate, the agency is constantly on the alert, doing preventive work and going after every case that comes up. "We go to the place where there is suspicion of bubonic plague to administer treatment in the entire area (also exterminating rats and fleas) and in patients, as if the plague did exist, and of course we also collect material for laboratory tests."

In these last cases, SUCAM went to the house of each patient and, in addition to treatment, collected materials for laboratory tests, along with urine and liquid from the bubo.

5058

CSO: 5400/2219

## BRIEFS

MEASLES EPIDEMIC IN SOROCABA--Over the past 3 months, hospitals in Sorocaba recorded 89 admissions of patients who were carriers of measles; this has persuaded the Regional Health Department to consider the existence of an epidemic outbreak in the city. This is so because the sick persons go to the hospital only when the disease becomes very serious. Last year, the entire region had 109 cases, a number which the Regional Health Department already considered high. Worried about the development of the disease, Dalmo Herrera Feitosa, director of the Sorocaba Health Center, is sending officials to the hospitals to check on the condition of the patients. So far, there is no information on deaths but it is known that a good part of the patients admitted to the hospitals revealed a serious clinical situation. "Measles are not a benign disease, contrary to what is being assumed. They create a predisposition for other diseases, such as bronchial pneumonia, dehydration, and infections of the ear and respiratory apparatus which can lead to death. In some cases, measles can cause encephalitis and can damage the child's mental development," the doctor warned. According to him, a study is being started by the Health Center and the health districts of the prefecture to strengthen the system of vaccination against measles in the region. [Text] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 18 Sep 82 p 12] 5058

TYPHOID OUTBREAK IN JUCARI, BAHIA--Salvador (O GLOBO)--The director of the health unit of FSESP (Special Public Health Service Foundation) in Itabuna, Joao Viana Damasio, yesterday admitted an outbreak of typhoid fever in the town of Jucari, 50 kilometers from that city, with at least 60 cases already detected. The outbreak was also confirmed by Dr Hugo Santos of the Epidemiological Sector, 4th Regional Health Directorate. According to Joao Viana Damasio, the disease was possibly caused by contamination of water consumed by the population in the town, estimated 5,000 persons; practically all of these people were vaccinated in record time. According to Damasio, an epidemiological check is being conducted jointly by FSESP and by the 4th Regional Health Directorate with the objective of detecting the source of the disease. Among the preventive measures to be taken he announced the chlorination of water in the reservoir that serves the town of Jucari. [Text] [Rio de Janeiro O GLOBO in Portuguese 5 Sep 82 p 11] 5058

CSO: 5400/2219

## EDITORIAL WARNS ON VIRAL HEPATITIS

Rangoon THE WORKING PEOPLE'S DAILY in English 1 Sep 82 p 4

[Editorial]

[Text]

**T**HE highly infectious and dangerous viral hepatitis is prevalent in Rangoon, according to health officials. The Department of Health is taking extensive measures, including warning posters and educative talks, to prevent the disease from spreading. The people are advised to drink only boiled water, wash hands with soap before meals, eat boiled vegetables, avoid eating food likely to be contaminated by flies and pay more attention to personal hygiene. As it is caused by an immunologically distinct virus, which is transmitted by inadequately sterilized syringes and needles, people are advised against taking injections except in unavoidable circumstances. It is also warned that the virus can be transmitted by transfusion of infectious blood.

What makes this disease more terrible is that there admittedly is no effective cure, and according to health personnel, treatment consists mainly in containing the disease to take its course without causing a general weakness or total liver failure in the patient. Symptoms of the disease, yellow colouration of eye, skin and urine, become visible only after an incubation period of seven or eight days, after which an infection period of three weeks sets in. The best thing will be to send the patient to hospital since people around him can contract the disease from his sweat, sputum, urine or even household articles the patient has handled.

The health authorities warn that the infection exacts a heavy toll among expecting mothers especially when pregnancy is beyond six months. Even when a patient is fortunate enough to recover, he is advised to rest and recuperate for months with minimum of physical contact with other people.

We are aware that the Health Department is actively waging a prevention campaign against viral hepatitis concentrating the efforts on mills, plants, factories and departments, where educative talks are held and warning posters are hung. The success of these measures depends on a large measure on the people themselves, who should heed the advice of the health personnel and follow the instructions assiduously knowing full well that negligence of one can endanger many more around him.

CSO: 5400/5783



BRIEFS

HEPATITIS STATISTICS--Escazu is the canton with the highest incidence of hepatitis. According to the Health Ministry's Epidemiology Department, 307 cases have been reported in this canton. Up to 31 August, there have been 2,336 cases of hepatitis in the country, which is the highest rate since 1971. There were 2,492 cases last year, and this figure will be surpassed next month. [Text] [San Jose Radio Reloj in Spanish 1200 GMT 8 Sep 82 PA]

CSO: 5400/2220

## BRIEFS

NEW MYSTERY DISEASE VICTIMS--Two Fort Canje inmates were admitted to the New Amsterdam Hospital late Saturday and yesterday. Their symptoms are indicative of the unidentified affliction which killed 13 inmates of the Mental Hospital late last month. Early Saturday, a patient died at the New Amsterdam Hospital and doctors are worried about the condition of two other inmates who have been hospitalised for two weeks. They have been unconscious ever since. [Text] [Georgetown GUYANA CHRONICLE in English 7 Sep 82 p 12] Another Fort Canje Hospital inmate, struck by the mysterious illness, died at the New Amsterdam Hospital early yesterday morning without regaining consciousness. So far death-toll is 14. A New Amsterdam Hospital source said last night that the deceased, Egerton Hector, was one of two patients unconscious for the past 14 days. The source also confirmed that one patient has sufficiently recovered and has been returned to the Fort Canje Hospital. [Text] [Georgetown GUYANA CHRONICLE in English 8 Sep 82 p 1] The Ministry of Home Affairs announced yesterday that "steps are being taken with a view to holding inquest proceedings in relation to recent deaths at the Fort Canje Hospital. Relevant documents have been forwarded by the Ministry of Health to the Police authorities for necessary action," a statement from the Ministry said. Samples from the bodies were sent to the Regional Epidemiology Centre in Trinidad and Tobago in an effort to determine the cause of the deaths. (GNA) [Text] [Georgetown GUYANA CHRONICLE in English 8 Sep 82 p 1]

CSO: 5400/7586

HONDURAS

BRIEFS

TUBERCULOSIS, MALARIA, LEISHMANIASIS--Tegucigalpa, 15 Sep (ACAN-EFE)--Residents in the Department of El Paraiso, in the eastern part of Honduras, are suffering from the diseases tuberculosis, malaria and leishmaniasis. According to statistics available, some 10,000 people living near the Patuca River have caught these diseases. Although there are medicines available for tuberculosis and malaria, there is none to treat leishmaniasis. [Text] [PA162148 Panama City ACAN in Spanish 2343 GMT 15 Sep 82]

CSO: 5400/2220

## INCIDENCE OF TUBERCULOSIS REPORTED ON INCREASE

New Delhi PATRIOT in English 26 Aug 82 p 4

[Text] In view of the detection of over two lakh new tuberculosis cases in the country between April and June this year, the States and Union Territories have been advised to undertake expeditiously special surveys to determine the magnitude of the disease.

This is intended to tackle T.B., a major health hazard, more effectively.

The detections were made under a health ministry programme which had set a target of 10 lakh detections during the current financial year. The proportionate target for the year's first quarter was 2.5 lakh. Out of this, over two lakh cases have already been detected.

Reports say that in at least a dozen States and Union Territories, the number of detections far exceeded the expectations. Government feels that a large number of seizures are still unreported which ought to be identified.

According to a conservative estimate, based on the findings of a survey conducted by the Indian Council of Medical Research some years back, the number of afflicted persons today should be over 30 lakhs of which 2,500 to 3,000 die every year.

Since no survey has been conducted in the recent past, the Council of Health and Family Welfare last week asked the States to carry out special surveys to determine the extent of prevalence of the disease.

Under the National T.B. Control Programme, priority has been given to establishment of well-equipped and staffed district T.B. centres in every district for finding out T.B. cases and their domiciliary treatment. At present there are 353 such district centres and 300 clinics to undertake domiciliary treatment.

During the Sixth Plan period, material, equipments and anti-TB drugs are being supplied to district centres as a Centrally-sponsored scheme on 50:50 sharing basis between the Centre and the States. The cost of the supplies to these centres and voluntary organisations is met entirely by the Centre.

CSO: 5400/7114

## INCIDENCE OF MALARIA ON RISE IN WEST BENGAL

Calcutta THE STATESMAN in English 2 Sep 82 p 9

[Text]

**T**HE incidence of malaria in West Bengal is on the rise, according to Mr Ambarish Mukherjee, Minister of State for Health, in Calcutta on Wednesday. There have been four deaths till June this year, all of them in Jalpaiguri.

The inter-State borders were said to be vulnerable in this region, and Mr Mukherjee felt that all the States needed to work together to eradicate malaria. The border States of West Bengal, like Bihar, Orissa and Assam, had to combat the problem with help from Bangladesh. The problem seems to have escalated because mosquitoes have become immune to DDT, the Minister said.

He has asked Health Department officials in Jalpaiguri, who noticed a spurt in malaria cases recently, to make a thorough investigation and file a report. A conference of the Indo-Nepal Border Coordination Malaria Control will be held in Kathmandu on September 5 and 6. The Director of Health Services, who is expected to attend the conference, will submit a report. Mr Mukherjee said that a programme to step up preventive measures would be implemented soon, after the reports were available.

According to officers of the Health Department, the districts

which registered a rise in malaria cases in 1981 were Bankura, with 13,888 cases; Calcutta and its suburbs with 8,660 cases; Midnapore with 5,552 cases; Purulia with 5,927 cases; Jalpaiguri 4,449 cases and 24 Parganas 1,112 cases.

There were three deaths in 1980, against four deaths in 1981. In 1980, the Health Department collected 1.57 million blood slides in the State. About 1.4% were detected to be positive. In 1981, nearly 1.92 million blood slides were examined. Positive cases of malaria rose to 1.5%.

Health Department officials said malaria had been practically eradicated between 1950 and 1965. A resurgence was noticed all over the country around 1973. It rose to alarming proportions in 1975 and had abated to some extent since then.

As preventive measures, the department sprays DDT in areas where two out of thousand people are suffering from malaria. This apart, malaria surveillance is undertaken. Investigation follows treatment to stop the infection from being transmitted. In the remote areas, the Health Department has opened drug distribution centres. Panchayat members are given a drug schedule, and asked to distribute tablets to people suffering from fever.

CSO: 5400/7117

## MALARIA CASES REPORTED INCREASING IN MADRAS

Madras THE HINDU in English 7 Sep 82 p 12

[Text] Madras, Sept 6--The incidence of malaria has not come down in the State even after the implementation of the 'Modified Plan of Operation' (MPO) from 1977.

There had actually been an increase in incidence in Ramanathapuram district and Madras, which accounted for 50 to 78 per cent of the total number of cases reported in the State during 1977-80, according to a report of the Comptroller and Auditor-General for 1980-81, tabled in the State Assembly on Monday.

Under MPO, areas with an 'Annual Parasitic Index' (API) of two and above are to be subjected to cyclic spray of insecticides, while those recording API of less than two are to have only 'focal spray' around positive cases. (API is the number of positive malaria cases per 1,000 population in respect of each section with a population of 10,000 in a district).

The report has brought to light a number of lapses and inadequacies in the execution of MPO. Deficiency in spray coverage of population ranged from 39 to 61 per cent and even areas with API 20 and above had been omitted. Poor collection of blood smears under the surveillance programmes affected epidemiological assessment. Entomological study and research were confined to limited areas both in priority and non-priority zones, and not correlated to epidemiological requirements.

In Rameswaram island, the most persistent transmission area, the local foci of malaria had not been identified and susceptibility status of vectors to insecticides had not been determined.

Implementation of the Urban Malaria Scheme (UMS), operating in Madras and eight municipal towns, suffered because the surveillance personnel and laboratory facilities were not provided to the extent necessary, observed the Auditor-General. There were large-scale omissions to treat the breeding sources like wells, overhead tanks and cisterns in Madras. Imported thermo-fogging machinery supplied by the Director, National Malaria Eradication Programme, were lying idle after very limited use.

CSO: 5400/7118

## BRIEFS

TRIPURA MALARIA DEATHS--The Chief Minister of Tripura, Mr Nripen Chakraborty, told reporters at Calcutta airport on Tuesday that malaria had spread to different areas of his State and killed a sizable number of people. Areas inhabited by tribals had been affected more by the disease. The number of deaths was not available because the tribals were not in the habit of going to hospitals. Some cases of malignant malaria too had been detected. The State Government had not received any help from the Centre in its anti-malaria campaign, the Chief Minister alleged. He said the anti-malaria campaign in the State had been started with the assistance of the West Bengal Government, but had been delayed. The disease had spread to areas in Bangladesh adjoining the Tripura-Bangladesh border. The Indian and Bangladesh Governments should make a joint drive to tackle the situation, Mr Chakraborty said. [Excerpt] [Calcutta THE STATESMAN in English 25 Aug 82 p 16]

MIDNAPORE GASTROENTERITIS DEATHS--Midnapore, Aug 25--Three people, two at Amanpur in the Kespur area and one in the Kotwali area, died of gastroenteritis this week, official sources said here yesterday. More people suffering from the disease have been admitted to hospital, the sources added. [Text] [Calcutta THE STATESMAN in English 26 Aug 82 p 7]

LEPROSY ENDEMIC IN BENGAL--Calcutta, Aug 25 (UNI)--Fourteen of the 16 districts in West Bengal are considered to be 'high to moderate' endemic to leprosy, according to official sources here. The State with an estimated 380,000 leprosy patients tops the list in the eastern States. The prevalence rate of the disease is 8.58 per 1,000 population. Of the total patients, about 167,000 are yet to be detected and brought under treatment, the sources said adding that the State Government had so far recorded 214,000 leprosy patients. Of these only 162,000 had been given treatment. The sources said the State Government had decided to detect and record 61,000 leprosy patients during the current year besides extending treatment facilities to an additional 60,000 patients. Similarly, 24,000 patients, treated over the years, were expected to be discharged during the current year, the sources added. As the detection and treatment were the essential part of the leprosy control programme, the Government had also decided to set up a State leprosy control board similar to that formed in Maharashtra. It had prepared a Rs 64 lakh programme for the current financial year to tackle the disease in various ways and open temporary hospital wards. Purulia, the highly endemic district, had already been covered by the multi-drug regimen project, the sources said. [Text] [New Delhi PATRIOT in English 26 Aug 82 p 4]

ENCEPHALITIS IN GOA--Panaji, Aug 26--Fourteen persons have died of "Japanese encephalitis" in different parts of Goa in the last three months while 16 patients are either being treated in or have been discharged from Government hospitals. [Text] [Madras THE HINDU in English 27 Aug 82 p 9]

CHOLERA IN MADRAS--Madras, Aug 30--Cholera appears to be active once again in Madras. Since the beginning of August, the Madras Corporation's Communicable Diseases Hospital in Tondiarpet has been reporting an average of about nine cases every day, compared to the one or two cases a day that is normal for this endemic disease. The areas worst affected are Ashok Nagar, Triplicane, Mannady, and Tondiarpet, but no deaths have so far been reported. In separate moves to contain the waterborne disease, the Corporation has arranged for mass inoculation at its dispensaries, and Metrowater has increased the chlorine content in the water. People are also being advised to drink after boiling water. [Text] [Madras THE HINDU in English 31 Aug 82 p 1]

CSO: 5400/7112



300,000 SAID TO BE USING WATER CONTAMINATED BY POLLUTION

Kingston THE DAILY GLEANER in English 30 Aug 82 p 1

[Text]

**T**HE INITIAL FINDINGS of an islandwide water quality survey being conducted by the Government "are not encouraging," the Parliamentary Secretary in the Ministry of Health and Environmental Control, Mr. Karl Samuda, said on Friday.

Mr. Samuda was speaking at the College of Arts, Science and Technology, during the closing session of a six-week course for water works and sewage plant operators employed by the National Water Commission and by the Environmental Control Division of the Ministry of Health.

Some 300,000 Jamaicans use "inadequately treated" water for drinking, washing, and cooking purposes, according to Mr. Samuda, who cited Queensbury, an area within his St. Andrew North Western constituency, as a district in which "inadequately treated sewage" contaminated water supplies.

Pollution has caused an almost total deterioration in the environment of several areas, Mr. Samuda said, adding that he he was very concerned about the health of those citizens who lived in communities which were "mushrooming on the banks of polluted rivers".

Water pollution was becoming a major national problem, but Government water works technicians are unable to monitor water quality effectively, because they "are severely limited in terms of equipment and mobility", he said.

Mr. Samuda disclosed that the Environmental Control Division of the Ministry of Health and Environmental Control had last month "embarked on a national survey to examine the extent to which water is adequately treated. The Ministry estimates that 78 per cent of

all Jamaicans have access to chemically treated water.

**OBSERVING THAT THE** preliminary findings of the survey, "were far from satisfactory", Mr. Samuda urged Jamaicans to remember that the field workers of the Environmental Control Division and the National Water Commission "have suffered many years working under very difficult conditions".

"Clean water is a national priority", he declared, and the workers who were responsible for ensuring that water quality was maintained at satisfactory levels should therefore be adequately equipped to do their jobs effectively.

**ON FRIDAY, AUGUST 2** National Water Commission denied to the Gleaner that there was anything wrong with the quality of water in the Corporate Area.

The Commission said that there had been no increased complaints about the water quality and in fact treatment by the Water Quality Division continued 24 hours a day. Since the contamination of Water Supply in the downtown area of Kingston in July,

there had been three reports of contaminated water, but investigation has not substantiated the reports.

The **Gleaner** has however found out from further investigations that water quality had deteriorated up to 10 days ago because of inadequate treatment of

chlorine. Since then at the Government's insistence, water treatment with chlorine has been restored to normal.

But independent engineers have proposed to citizens that they boil water before drinking.

CSO: 5400/7585

## POLIO, OTHER IMMUNIZATION PROGRAMS NOW UNDERWAY

Kingston THE DAILY GLEANER in English 7 Sep 82 p 1

[Text]

**THE THIRD PHASE** of the immunisation programme against poliomyelitis is to be carried out this month.

Arrangements are also in "the final stages" for the implementation of a comprehensive immunisation programme covering German measles, whooping cough and tuberculosis. The Ministry of Health will be receiving assistance for this programme from the United Nations Children's Fund (UNICEF).

The Minister of Health Dr. Kenneth Baugh, said yesterday that the third phase of the polio immunisation programme would be carried out this month, principally in schools. Each parish would be done separately on dates to be announced.

Dr. Baugh said that the comprehensive immunisation programme would go on until next year and would start with a public education programme. It is expected to start "over the next few weeks".

A MINISTRY OF HEALTH spokesman who was asked whether there were adequate supplies of the polio

vaccine to be used in the programme, said there was "more than enough".

Students in some Corporate Area schools without their Polio immunisation cards were turned away yesterday when the new school year began for most schools the GLEANER understands. Earlier in the programme the Health Minister had warned that children be fully immunised since it would be a pre-requirement for entry into schools.

The Gleaner understands that as part of the comprehensive immunisation programme, there is to be a survey to find out people's attitudes on knowledge of immunisation, so as to plan an educational programme. Interviewers, Public Health Nurses and Inspectors, midwives and Health educators will be given six weeks in which to send in the information.

It is understood that immunisation against certain diseases will be done in specific age groups such as the 1-year to 4-year olds for diphtheria, tetanus and whooping cough; and 10-12 year-olds for German measles. The aim is to cover the school-age population up to 12 years.

CSO: 5400/7586

NICARAGUA

BRIEFS

MALARIA OUTBREAK--Chinandega--Maximo Mendoza Toruno, one of the regional officials responsible for the malaria eradication control program, has reported that seven brigades of sprayers are working in the Chinandega rural region. This work is being carried out because malaria cases were detected in those areas. Mendose Toruno added that 356 positive cases out of 2,546 malaria tests were discovered in June. [Text] [Managua EL NUEVO DIARIO in Spanish 28 Aug 82 p 6]

CSO: 5400/2220

## BRIEFS

VACCINATION CAMPAIGN--THE National Health Programme office is busy making arrangements to launch a mass vaccination campaign in October which is expected to cover 200,000 children in the Sultanate. The campaign will be launched in the Batinah Coast area and will then take in other parts of the country. A door-to-door approach will be followed to cover the maximum number of children and, in certain cases, mobile teams will be pressed into service, Dr Khalifa Nasser al Mawaly, head of the programme said. During the campaign, vaccinations will be administered to prevent the outbreak of diphtheria, poliomyelitis, tetanus, and measles. All children from the newly-born to 12-year-olds will be covered Dr Mawaly said. [Text] [Muscat OMAN DAILY OBSERVER in English 31 Aug 82 p 1]

CSO: 5400/4746

## LOW QUALITY AND HIGH COST OF MEDICAL CARE

Lahore VIEWPOINT in English 2 Sep 82 pp 7, 8

[Article by Groundsman]

[Text]

THE decision to examine the functioning of hospitals in the country has not been taken a day too soon, for their growing deficiencies have been agitating the public mind for quite some time. The terms of reference given to the Federal Committee set up for the purpose have not been revealed but judging from the hints dropped by the Health Minister there is some reason to hope that the probe will be comprehensive and thorough. It had better be so if the requirements of an appreciable improvement in hospital services, qualitative as well as quantitative, are to be met, or at least properly identified.

Obviously, the first problem is the gross inadequacy of hospital facilities. With just 600 hospitals, a bed for 1,600 persons, and a nurse for three doctors, it is easy to see that the existing network cannot serve more than a small percentage of the population. The traditional answer to the problem has been to plan big hospitals at principal cities and towns and link them with medium-sized institutions at smaller towns. However convincing this policy may have looked in theory, in practice it has not yielded the desired results. The programme of building hospitals away from the major towns has never taken off, with the result that hospital services in the vast countryside are only marginally better than they were two decades ago. At the same time, it has all along been conceded that the creation of hospitals of the stipulated standard in a number sufficient to cover the entire

population will need a much heavier investment and a longer period of time than Pakistan can afford. The situation can only be tackled through a radically different strategy for hospital services than the one hitherto followed.

## Private clinics

One of the methods adopted in this respect is to encourage the growth of hospitals in the private sector. While the addition to health facilities made by private hospitals and clinics is substantial, they have produced several unhealthy side-effects. These private institutions, too, have emerged in the larger towns and have thus made little contribution towards extending the health cover to the under-privileged rural masses. Besides, they have prospered at the expense of efficiency at Government hospitals, making adequate health care more and more elitist in character. It would, therefore, be unrealistic to expect that private enterprise will be able to make up for the shortage of hospitals in the non-urban areas or to offer medical assistance to the teeming millions at a cost they can bear.

The combined effect of shortage of Government hospitals and the high cost of treatment at private clinics is that the pressure on the former has become unmanageable. A sharp deterioration in the quality of service is visible all round. The staff at these

hospitals cannot possibly attend to the large number of patients crowding the premises and it is no longer possible to supply them with anything more than the most inexpensive pills. It is now fairly clear that pressure on the existing all-purpose hospitals cannot be eased merely by increasing their number. The needs of a very large number of patients, who at present call at the bigger hospitals, can easily be met by small clinics and dispensaries. This is true not only of cities but also of the countryside. There are reports that in the next five-year plan the emphasis will be on the creation of basic health centres in the rural areas but one should like to hope that the old system of establishing dispensaries in different parts of cities will also be revived.

### Privileged cadres

Among the other causes of the decline of services available at Government hospitals, attention needs to be paid to the unhappy consequences of allowing senior doctors at almost all the leading hospitals to also teach and join private clinics. Under this system both teaching assignments and duty at hospitals suffer because it is humanly impossible for anyone to satisfactorily discharge these responsibilities, wholetime jobs both, and yet have time to participate in the national craze for quick money through private practice — a pursuit that gets priority in most cases. It should be possible to break up the senior cadre into branches exclusively meant for teaching and hospital duty so that those appointed at hospitals can devote all of their time to their jobs.

Then, there are such matters as the gaps in essential facilities at most of the hospitals. Special children's wards exist at only a small number of hospitals. Laboratory facilities are equally inadequate. The shortage of qualified medical attendants is so acute that absolutely untrained sweepers perform a variety of crucial tasks, from provi-

ding first aid in casualty wards to giving injections and testing urine for sugar content. Further, even the best hospitals lack modern equipment in cardiology, urology, and neuro-surgery sections. However, these are matters on which the medical experts can be trusted to give fairly competent advice.

### Community medicine

What they have shown a remarkable incapacity to appreciate is the growing anxiety in the advanced countries over the alienation of the hospitals from the population and the increasing awareness, in the Third World, of the role of community medicine. For these issues the Federal Committee will have to elicit the views primarily of non-official social scientists and public representatives. That our hospitals and the medical personnel are getting more and more alienated from the people they are supposed to serve is manifest and the urgency of achieving effective community participation in the development of health care cannot be disputed.

However, community medicine means much more than the creation of charity clinics or hospitals with community funding. In essence it implies, on the one hand, effective say by public representatives in the planning and management of health facilities and, on the other, creation of opportunities for medical personnel to study and assess the specific health needs of the people around them and contribute to the evolution of the best possible strategies of medical care. In the final analysis, a welfare-oriented health system may be possible only through democratisation of health institutions and if that depends on a similarly constituted political superstructure, the fact cannot be blinked at for long.

## BRIEFS

DRUG FOR KIDNEY DISCOVERED--LAHORE, Sept 2--The Atomic Energy Medical Centre (AEMC), Lahore, has developed a redioactive drug that helps in diagnosis of all symptoms of abnormalities and malfunctions of the kidney. Pakistan is the first country to develop this drug which has given excellent test results according to AEMC sources. The drug was developed by a radio-pharmacist of the centre after an effort of two years and has been accepted by the Nuclear Society at its latest meeting held in Florida. The drug is injected in the body of the patient and records the true position on a screen. Efforts are also being made to make the drug available commercially and to supply the same to all the atomic energy medical centres in the country. The AEMC has also developed a drug which monitors all the symptoms of heart in similar manner. Although it too is giving excellent results, but is yet to be recognised internationally. Its composition will be discussed at an international conference to be held in December this year. Both drugs, however, have not been named so far. [Karachi DAWN in English 3 Sep 82 p 9]

CSO: 5400/5787



EPIDEMIOLOGICAL ANALYSIS OF EPIDEMIC MENINGITIS IN XUCHANG PREFECTURE

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 1, 10 Feb 82 pp 8-11

[Article by Ren Shouli [0117 1343 4409] Dong Yongwei [5576 3057 0251] Liu Sihua [0491 0934 5478] of Xuchang Prefecture Public Health and Epidemic Prevention Station]

[Text] In order to understand the epidemiological condition of epidemic meningitis in the prefecture and master its principle to provide a basis for forecasting the tendency of occurrence, the authors carried out an epidemiological analysis of the survey results of all the counties and municipalities in 1953-79 and those of key counties and communes in 1976-79. Epidemiological indications for forecasting the condition of epidemics are preliminarily investigated.

General Conditions

Xuchang Prefecture is located in the central part of Henan Province, at about 113-114° E. Long. and 33.5-34.3° N. Lat. The terrain is high in the west and low in the east. The western part is largely mountainous; the eastern part is a plain, and the central part is hills and plains. It has the continental climate of north China. The summer is hot, with frequent rains; the winter is cold and dry. The annual mean precipitation is 730.5 mm, mostly in July (267.3 mm) and the least in December (12.2 mm). The annual mean temperature is 19°C, the highest in July (32.68°C) and the lowest in January (6.16°C).

Epidemiological Analysis of Epidemic Meningitis

1. Distribution of Epidemic Years

(1) Definition of an Epidemic Year: For the convenience of arranging and analyzing the data, an epidemic year is defined as the period from July of the previous year to June of the following year.

(2) General Condition of Epidemics: Judging from the recorded data (Table 1) epidemics of this disease in the prefecture may generally be divided into three periods:

Table 1. Condition of Epidemic Meningitis in Xuchang Prefecture in the Past 27 Years

Year	Incidence as compared with the base year	Mortality rate as compared with the base year	Fatality rate as compared with the base year	Intensity of the epidemic
1953	1.0	1.0	1.0	scattered cases
1954	0.43	0.58	1.15	scattered cases
1955	0.22	0.60	2.82	scattered cases
1956	0.35	0.60	2.05	scattered cases
1957	8.22	7.42	0.87	small epidemic
1958	0.82	0.80	0.93	decreasing
1959	1.62	1.40	0.81	scattered cases
1960	0.79	0.50	0.64	scattered cases
1961	1.46	1.76	1.35	scattered cases
1962	1.35	5.60	0.78	scattered cases
1963	11.30	8.00	0.76	small epidemic
1964	10.08	11.67	1.46	decreasing
1965	3.85	3.10	0.85	scattered cases
1966	23.68	17.10	0.77	medium epidemic
1967	180.90	72.18	0.42	severe epidemic
1968	20.23	9.96	0.45	medium epidemic
1969	9.89	4.26	0.45	decreasing
1970	8.78	7.56	0.57	decreasing
1971	3.42	2.78	0.87	scattered cases
1972	1.88	1.28	0.72	scattered cases
1973	1.46	0.66	0.48	scattered cases
1974	3.36	1.28	0.40	scattered cases
1975	10.55	3.68	0.41	small epidemic
1976	7.69	2.80	0.83	decreasing
1977	24.11	5.56	0.34	medium epidemic
1978	6.91	2.24	0.34	decreasing
1979	2.80	0.66	0.25	scattered cases

The First Period (1953-62): The incidence of epidemic meningitis was in the range of 0.78 to 33.3/100,000 of population, averaging 8.42/100,000. [From year to year] the incidence varied 42.69 fold. The incidence did not fluctuate very much for a few years after 1953, perhaps being a period of stability following an epidemic. The first peak of epidemic meningitis was reached in the prefecture in 1957.

The Second Period (1963-72): The incidence varied from 6.79 to 653.05/100,000, averaging 98.92/100,000. [From year to year] the incidence varied 96.18 fold. Starting in 1963, the incidence rose in a large scale to reach a second peak in 1967.

The Third Period (1973-79): [From year to year] the incidence was in the range of 5.27 to 87.05/100,000 averaging 29.34/100,000. It varied 16.52 fold from the lowest to the highest. Starting in 1975, it rose in a large scale to reach a third peak in 1977.

(3) Epidemic Cycles: Since 1953, four epidemic cycles have appeared, i.e. 1957, 1963, 1966-68, and 1975-77 epidemics. Those of 1957 and 1963 were mild epidemics, lasting 1 year each; the epidemic of 1966-68 was severe, lasting 3 years; that of 1975-77 was medium, lasting 3 years. Following the severe epidemic of 1967, the incidence dropped gradually and fluctuated for 7 to 8 years before beginning to rise in 1975. After the epidemic of 1977, there was another gradual decrease. In the prefecture, a mild epidemic appears about every 3 to 5 years and a relatively severe epidemic every 8 to 10 years.

(4) Variation of Exponent of Incidence of the Few Years Before and After a Severe Epidemic: The incidence often rises or rises suddenly in the year before a severe epidemic; after the peak is reached, it decreases gradually. When the exponent of incidence of 1965 is considered to be 1, the variation of the exponent of incidence for the years 1966 to 1970 is in the following order: 6.15, 46.98, 5.25, 2.57, and 2.28.

(5) The Relationship Between the Rate of Occurrence, the Mortality Rate and the Fatality Rate: In the year of a severe epidemic of meningitis, the incidence is high and the mortality rate is high also. There is a tendency of a positive relationship between the two, and this relationship is especially obvious in the years just before and after a severe epidemic, but the fatality rate does not vary with the rise and fall of the incidence. Due to the continuous rise in the standard of living and the gradual improvement of medicine and hygiene, the fatality rate drops from year to year in the form of a wave (figure attached). In the past 27 years, the average fatality rate was 9.16 percent. The highest was 1955 (37.03 percent) and the lowest was 1978 (4.49 percent). The fatality rate characteristic of this severe epidemic [1978] was its being high first and low later. Perhaps, when the incidence first began to rise, some cases were not reported or mild cases were left out and in the later period of the epidemic, the reporting work was strengthened and mild cases were added in the statistics. As the base figure thus increased the fatality rate fell in relation to the base number of cases. It appeared that the possibility of a change of toxicity of the pathogen leading to a rise of the fatality rate may be excluded.

## 2. Monthly Distribution of Cases of Epidemic Meningitis

(1) Epidemic Periods: Each epidemic year is divided into four periods:  
1) Early-epidemic Period: from November to January of the next year;  
2) Epidemic Period: from February to April; 3) Late-Epidemic: May to June; 4) Remittent Period: July to October.

(2) Seasonal Peak: In November before the year of an epidemic, the number of cases begins to rise, it reaches a peak in the following February to April. In May, the number begins to fall and after June the incidence level of a normal year will again be reached. In either an epidemic or a nonepidemic year, the number of cases is fewer from July to October and the incidence is the highest in February to April. During an epidemic year, the number of cases in February to April amounts to 80-90 percent of the total number of cases of the entire epidemic year. During a nonepidemic year, the number of cases in February to April amounts to 50-60 percent of the total number of cases in the year. During an epidemic, the number of cases is the most numerous in the month of March. In the past 25 years, the peak occurred in March in 18 years, in April in 6 years, and in January in 1 year. An understanding of the month of the peak is important in lowering the seasonal peak in order to reduce the incidence of the entire year.

(3) Variation of Monthly Incidence in an Early-epidemic Period: The epidemic data of these years indicate that the range of increase of the incidence from month to month in the early period of an epidemic year is relatively great. This fact is definitely significant in forecasting. In the 2 epidemic years of 1967 and 1977, the incidence increased 2-8 fold from November to the following March. The range of increase is smaller in a nonepidemic year. For example, in 1959 and 1973, the increase was 0.54-4 fold, and a sustained higher increase did not occur. This fact indicates that whenever the monthly increase of incidence in an early-epidemic period reaches more than 2 fold, there is a possibility of an epidemic. To use this as an index for forecasting an epidemic is very significant for a county, city or a commune.

## 3. Regional Distribution of Incidence of Epidemic Meningitis

(1) Topographical Distribution: On the average, the incidence of epidemic meningitis in the prefecture is the highest in the plains (60.31/100,000), hills next (49.08/100,000), and the lowest in mountainous regions (29.55/100,000). In 1957, the incidence was the highest in Yanling County; in 1977 it was the highest in Lushan County. In individual mountainous areas, there are few contacts with the outside and once the source of infection has entered such an area, it often causes an outbreak. The explosive epidemic of 1977 in Shiputou Commune of Lushan County, reaching a rate of 2,497.95/100,000, was this kind of condition.

(2) Phenomenon of Alternated Epidemics: Each time, an epidemic of meningitis would begin in one commune first before spreading to nearby brigades or communes to finally cause the majority of communes or even the entire county to have an epidemic. The epidemic often spreads outwardly from the initial area, and the commune-brigade that has had a high incidence in the first year will

have a lower incidence in the second year and those surrounding communes and brigades will have a higher incidence, to form a phenomenon of alternated epidemics. After this situation continues for 2-3 years, an overall drop will occur. In mountainous and hilly areas, an epidemic is more intense and lasts longer.

#### 4. Age and Household Distribution Characteristic in an Epidemic

(1) Relationship Between Incidence of Epidemic Meningitis and Age: According to the statistics of 745 cases in Wuyuang County and Lushan County, incidence of the 7-15 year group is the highest, 0-3 year group is the next, and the group older than 16 years of age is the lowest (Table 2).

Table 2. Gender and Age Distribution of 745 Cases of Epidemic Meningitis

Age group (years)	Male		Female		Total	
	Number of cases	Percentage of total number of cases	Number of cases	Percentage of total number of cases	Number of cases	Percentage of total number of cases
0-3	70	9.39	55	7.38	125	16.77
4-6	63	8.46	55	7.38	118	15.84
7-15	207	27.79	180	24.16	387	51.95
16 and above	56	7.52	59	7.92	115	15.44
Total	396	53.15	349	46.85	745	100.00

This is perhaps due to the fact that school age children have more frequent contacts with one another, and children under 6 years of age are injected with epidemic meningitis vaccine and thus have a higher immune level. Of the 295 cases in 1976-78, 15 died, amounting to a fatality rate of 5.08 percent. Of these, the fatality rate of the 0-3 year group was 12.08 percent; the 4-6 year group 9.8 percent; the 7-15 year group 2.53 percent; and the group older than 16 years of age 8.83 percent.

(2) Household Distribution of Epidemic: Generally, one household has one case (except during an explosive epidemic). The 458 victims of Shipotou Commune of Lushan County in 1977 were distributed in 345 households, and 76.52 percent of these households have 1 case per household, 17.10 percent have 2 cases per household, 4.35 percent have 3 cases per household, and 2.03 percent have more than 4 cases per household. In 1977, of the 7 children of a certain household of Xuchang City, 5 came down with the disease; of the 8 children of a certain household in Lushan County, 6 came down with it. Wherever multiple cases in a single household occur, especially in an explosive area, it is often the area of high incidence of that year.

## 5. Relationship of Epidemic Meningitis and the Weather

In the winter-spring, the temperature is low and the relative humidity is also low and the air is dry so that the body's resistance to pathogens is reduced and inflammatory diseases of the respiratory tract occur easily. Judging from the monthly average incidence through the years and the meteorological data, whenever rainfall is scarce and the temperature is rising, cases of epidemic meningitis increase suddenly. Its epidemic is influenced by the weather.

## 6. Pathogen-carrying Characteristic of Groups of People

It is generally believed that meningitis diplococcus is highly contagious; the pathogenicity is weak; the carrier rate of a group of people is high; but the incidence is low. Among groups of people, the increase of the carrier rate of the A group pathogens is definitely related to the incidence of the disease. In 1976-79, the authors carried out a survey of 2,359 persons of an epidemic and a nonepidemic region. A total of 673 persons were discovered to be carriers, amounting to a rate of 28.55 percent. The carrier rate of the epidemic region was 61.64 percent and that of the nonepidemic region was 13.30 percent. The carrier rate of the A group pathogens of an epidemic region was found to be 26.11 percent; and that of a nonepidemic region 1.18 percent. The difference was very obvious. The carrier rate of the 1-6 year old group was 17.20 percent; that of 7-15 year old 20.93 percent; that of the group of 16 years and older was 40.31 percent. The increase of the A Group carrier rate foretells a coming epidemic. In 1976, the A group carrier rate was found to be 41.75 percent of the total carriers and an epidemic of meningitis occurred in 1977 in the prefecture.

### Forecasting the Condition of Epidemic Meningitis

On the basis of the four epidemics in the prefecture, the authors analyzed the condition and tried the following ways of forecasting:

1. Based upon the characteristics of periodic epidemic of meningitis, the trend of the epidemics throughout the years should be regularly observed to gain an understanding of the dynamic condition of the disease, to analyze the incidence, the mortality rate, the fatality rate, and to find the principle of and the reason for their variation, rise, and fall so as to make forecasts according to the periodic epidemic characteristic.
2. The change of incidence in the early-epidemic period should be observed. If compared with the same time 1-2 years previously, the incidence of the early-epidemic period has increased obviously, in terms of hundreds of percent, this fact forms an indication of the obvious increase or an increase in multiples of cases in the epidemic about to occur. If during the early-epidemic period, the incidence increases continuously more than 200 percent month after month, there is the possibility of an epidemic.
3. If during an early-epidemic period, the immune level of a group of people drops while the carrier rate of the group increases to above 20 percent, this is the sign of an epidemic coming.

4. The areas surrounding the eruption point of the previous year have the possibility of having an epidemic this year. If as an epidemic is barely starting, a large group of transient persons begin to gather, to come and go frequently, or to assemble for a meeting, epidemic meningitis often spreads faster.

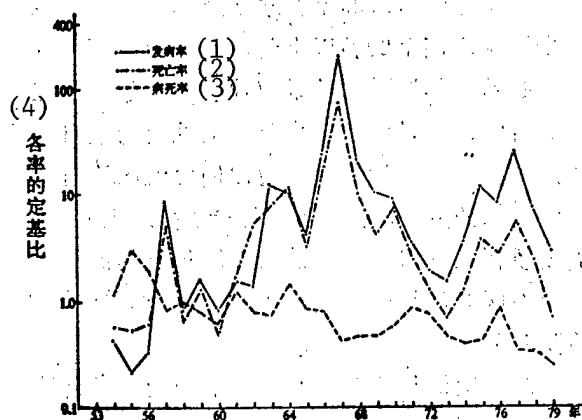
5. Attention should be given to communes of an incidence higher than 50/100,000, to observe the dynamic condition of the epidemic and to prevent it from spreading. In the process of an epidemic, the region often has several eruption points first, then, the epidemic spreads, in a geometric progression, surrounding these points.

6. Once an epidemic has involved more than 80 percent of a brigade or a commune, its intensity will begin to weaken.

### Conclusion

1. This paper provides an epidemiological analysis of the condition of epidemic meningitis in Xuchang Prefecture in the past 27 years. Epidemiological characteristics in the yearly, monthly, regional, and age aspects are demonstrated. In the prefecture, a small epidemic of epidemic meningitis occurs every 3-5 years and a severe epidemic every 8-10 years. The seasonal peak is in March. The incidence is higher in the plains than the mountainous and hilly areas. The incidence is the highest in the 7-15 year age group; the fatality rate is the highest among the 0-3 year age group. The pathogens belong to the A group.

2. On the basis of analysis of the condition of epidemics, ways of forecasting an epidemic are preliminarily investigated and several opinions are proposed for reference. For example, the characteristic of periodic epidemics, the monthly changes of incidence during the early period of an epidemic, the increase of the A group carrier rate, the shifting of the age-group of the sick, and the influence of the weather on the incidence are tentatively used as indices for forecasting an epidemic.



Attached figure

Key:  
 (1) incidence [rate of occurrence]  
 (2) mortality rate  
 (3) fatality rate  
 (4) comparison of various rates with the base year

Trend of Development of Epidemic Meningitis in Xuchang Prefecture, 1953-79

(The year 1953 is considered to be 1.0 for all the rates)

6248

CSO: 5400/4019

DISTRIBUTION OF BACTERIAL TYPES OF SHIGELLA AMONG NORTHEASTERN TROOPS

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 1, 10 Feb pp 18-21

[Article by Military Research Institute of Medicine, Department of Supplies, Military District of Shenyang]

[Text] Bacterial dysentery is one of the common and high incidence diseases among the troops. An understanding of the yearly changes of the bacterial types of the various troops and the principle of epidemics of dysentery may provide a basis for studying and creating specific measures of immunization and prevention. Since 1973-79, the institute, in cooperation with related troops and hospitals, carried out a year-to-year survey of the bacterial types. In these 7 years, 27,585 strains of Shigellae have been collected from the troops of 13 areas, including Shenyang. Results of identification of these bacteria are reported in the following:

Origin of the Bacterial Strains

The 27,585 strains of Shigellae in the collection came from a yearly supply by the 32 units of designated troops and hospitals, according to a unified plan and identification procedure. In November-December, each unit had some selected representative strains delivered to the institute for reidentification. All of these strains came from the dysentery patients and carriers of the various troops and hospitals and the number of strains is computed according to the number of cases. The majority of the units used the dry SS agar medium, iron trisaccharide agar medium, and microbiological tubes prepared by the institute. The serum used for identification is the product of Changchun Institute of Biological Products, which is purchased by the institute in a unified manner and distributed to the various units.

Results of Identification

1. The Composition and Variation of Bacterial Groups: In the 1973-79 collection of 27,585 strains of bacillus dysenteriae, there are 903 strains of Shiga's bacillus (A group) (3.27 percent); 24,557 strains of Shigella flexneri (B group) (89.02 percent); 247 strains of S. boydii (C group) (0.9 percent); and 1,878 strains of S. sonnei (D group) (6.81 percent).



In the 7 years, the ratio of the B group had a tendency to increase from year to year, from the 86.77 percent of 1973 to the 93.45 percent of 1978; there was some reduction in 1979 compared with 1978. The D group relatively decreased and by 1978 it had dropped to 3.34 percent; but in 1979 there was an obvious increase of 10.16 percent. The ratio of the A group fluctuated very little. Regarding the ratio of the C group, aside from the sudden increase of 5.55 percent in 1979, the variations of the other years was not great (Table 1).

Table 1. Ratio of Various Shigellae in Troops of the Three Northeast Provinces (percent)

Year	Number of strains	Shiga's bacillus group	Shigella flexneri group	Shigella boydii group	Shigella sonnei group
1973	1,565	3.07	86.77	0.32	9.84
1974	3,963	3.30	86.47	0.42	9.84
1975	5,465	3.26	89.77	0.40	6.57
1976	4,863	3.86	90.30	0.39	5.51
1977	5,008	3.43	90.68	0.32	5.57
1978	3,746	3.10	93.45	0.11	3.34
1979	2,975	1.98	82.29	5.55	10.16
1955-64	17,292	7.7	80.6	1.6	10.1
1973-79	27,585	3.27	89.02	0.92	6.81

Judging from the composition of the groups in the various troops from the years of 1955-64 to the years of 1973-79, the B group increased from 80.6 percent to 89.02 percent, while the other three groups relatively reduced.

The above results indicate that the dysentery cases of troops of this region are caused mainly by the Shigella group of *S. flexneri*.

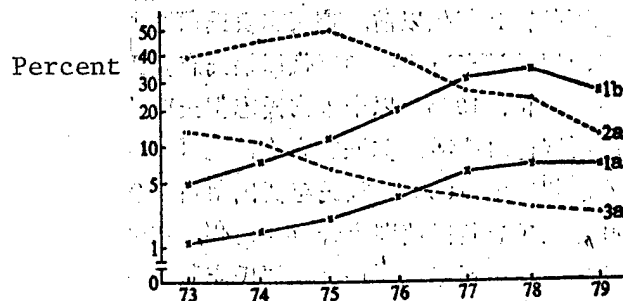
## 2. Condition of Changes of Bacterial Types:

(1) The Shiga's bacillus group: The type 1 has been detected every year since 1973, but the ratio is relatively low, amounting to 0.02-0.37 percent of the total number of strains in a year. According to the result of a 1955-64 survey of the distribution of bacterial types in the various troops, the Shiga's bacillus type 1 was as high as 7.8 percent in 1961; somewhat lower in 1962-64 but remained above 1 percent. In epidemics after 1973, this type is very rarely observed and its geographical distribution is also relatively limited.

The variation of the Shiga's bacillus type 2 in 1973-78 was not very great, all within 3-4 percent; in 1979 it dropped to 1.61 percent.

(2) The *Shigella flexneri*: In recent years, the *S. flexneri* 1b, 2a remain to be the major types among the troops of this region; the condition is largely similar to the survey result of 1955-64. The ratio of the two types has changed somewhat, however. The 1b type has a tendency of increasing from year to year. In 1975, the 2a type reached as high as 47.28 percent and dropped gradually after 1976 to reach only 13.01 percent in 1979 (Table 2). The 3a type was one of the major types before 1975, but since then it has gradually reduced in a speed of reduction more obvious than that of the 2a type. Although the ratio of the 1a type is not high, at 1.03-7.70 percent of the total number of strains in a year, it has increased yearly and the speed of the increase is similar to that of 1b (Fig. 1). The 2b type has been detected in relatively few number of strains in the past, not exceeding 3 percent; in 1973-79, it obviously increased to reach 4.34-11.51 percent. The 4 (4:-) type has a similar condition. The remaining types of *S. flexneri* are relatively rare, at levels below 3 percent.

3. Distribution of Bacterial Types in Various Areas: Geographically, the distribution of Shiga's bacillus type 1 is relatively limited, slightly higher in the areas of Harbin and Chaoyang, and aside from the two strains found in Tonghua, it is not detected in the other areas. The Shiga's bacillus type 2 varies in different ratios in different areas; it is the highest in Jinzhou at 6.34 percent, the lowest in Changchun and Siping, below 0.7 percent. The ratio of *Shigella flexneri* type 2a is the highest in all the areas; it is 40-50 percent in Changchun, Jinlin, and Duduanjiang, and 20-40 percent in the other areas. The next highest ratio is the 1b type at 15-30 percent. The difference in ratios of the two types in the various areas is not very great (Table 3).



Attached Figure. Condition of Increase and Decrease of *Shigella flexneri* Types 1a, 1b, 2a, 3a

#### Discussion

In the past decades, the composition of bacterial types of epidemics of dysentery in China change continuously; i.e. the Shiga's bacillus 1 type is gradually decreasing and in some areas it is already nonexistent. The *Shigella flexneri* is gradually increasing to become the dominant group. At present, the *Shigella sonnei* is also continuously increasing.<sup>1</sup> In Beijing City, the Shiga's bacillus type 1 was 34.4 percent in 1930-39 but in 1960 it reduced to 0.6 percent, while *S. flexneri* increased from 65.1 to 87.7 percent (1956), since then it decreases to 62.6 percent, and *S. sonnei* increases from

Table 2. Composition of Shigellae in Troops of the Three Northeast Provinces (percent)

Year	1973	1974	1975	1976	1977	1978	1979
Number of strains	1565	3963	5465	4863	5008	3746	2975
Shiga's bacillus type 1	0.06	0.15	0.04	0.06	0.02	0.03	0.37
" type 2	3.01	3.51	3.22	3.74	3.41	3.07	1.61
Shigella flexneri type 1a	1.03	1.64	1.88	3.48	5.41	7.61	7.70
" 1b	5.11	8.68	11.20	19.66	27.62	31.69	25.48
" 1c	0.32	0.13	0.27	0.08	0.36	0.29	2.08
" 2a	40.70	45.12	47.28	38.02	25.40	22.29	13.01
" 2b	9.65	4.34	8.96	11.29	10.34	11.51	9.85
" 3a	14.95	9.99	6.61	4.13	3.37	2.08	2.18
" 3b	0.38	0.38	0.42	0.72	0.40	0.24	0.94
" 3c	1.92	2.25	1.65	1.03	1.12	0.77	1.51
" 3	--	--	--	--	0.74	0.69	0.24
" 4a	0.19	1.06	0.35	0.74	0.57	0.96	1.24
" 4b	0.06	0.76	1.15	0.33	0.84	1.28	0.30
" 4c	0.38	0.03	0.02	0.23	0.02	0.53	0.13
" 4(4:-)	5.43	4.80	3.86	3.93	6.39	7.26	9.92
" 5	--	0.20	0.04	0.21	0.14	0.05	0.03
" 6	0.89	0.96	0.75	1.01	1.40	0.83	1.08
" x	1.80	2.49	1.59	2.28	2.76	2.75	2.39
" y undeter-	2.04	1.84	3.09	2.47	3.12	2.27	2.32
" mined	1.92	1.43	0.75	0.70	0.68	0.35	1.88
Shigella boydii	0.32	0.40	0.40	0.39	0.32	0.11	5.55
Shigella sonnei	9.84	9.84	6.57	5.51	5.57	3.34	10.16

Table 3. Distribution of Bacterial Types in Troops of Various Areas in 1973-79

Area	Jinzhou	Chaoyang	Changchun	Jinlin	Tonghua	Siping	Harbin	Total
A <sub>1</sub>	0.03	0.27		0.16			0.45	0.09
A <sub>2</sub>	6.34	5.15	0.67	1.95	1.88	0.59	2.96	3.18
1a	6.92	3.64	6.58	2.98	5.94	1.19	3.77	4.13
1b	17.53	16.16	15.76	14.03	18.98	39.17	28.61	19.29
1c	0.14	1.08	0.31				0.97	0.44
2a	29.86	29.43	51.01	44.74	37.73	36.50	18.48	33.90
2b	13.64	15.72	2.70	3.77	3.28		12.20	9.42
3a	1.62	3.47	3.11	7.78	11.01	3.26	7.09	5.45
3b	0.24	0.24	0.10	0.53	0.16	2.67	1.17	0.49
3c	1.96	1.01		2.71	2.03	0.89	0.54	1.41
3			0.41	1.99	0.08			0.25
4a	1.41	0.13	0.67	1.06	1.64	0.59	1.17	0.73
4b	1.03	1.68	1.45	0.53	1.95	0.59	0.54	0.76
4c	0.17	0.07				0.30		0.16
4(4:-)	6.34	8.82	3.01	4.10	3.67	0.89	6.73	5.67
5	0.14		0.16				0.45	0.11
6	0.41	1.35	0.41	1.16	0.55		2.06	1.00
x	1.38	2.83	3.63	1.85	1.64	1.78	1.52	2.31
y	1.62	1.38	2.95	2.42	3.75	2.97	1.70	2.55
	0.52	1.08	2.02	0.50	0.31	5.04	0.72	0.96
Shigelli boydii	1.65	0.47	0.16	1.06	0.47		0.54	0.90
Shigelli sonnei	7.06	6.03	4.87	6.85	4.77	3.56	3.34	6.81

Note: Due to limitation of space, areas of Shenyang, Dalian, Dandong, Yanji, Qiqihar, Dudanjiang, and others are not included in the table, but in the column for "total" these unlisted areas are included.

0.5 to 32.6 percent.<sup>2</sup> There is a similar condition in Shanghai. In Lyuda, the Shiga's bacillus type 1 was 39.33 percent in 1929; by 1953-55 it decreased to 0.13 percent while the *S. flexneri* increased from 60.6 to 94.83 percent.<sup>3,4</sup> According to the report of Zhou Huimin [0719 1920 3046]<sup>5,6</sup> in Shenyang (1954) and Changchun (1954-55) the *S. flexneri* types were all at 91 percent and were the major group of epidemics. The authors collected and identified 27,585 strains in 1973-79 in the troops of the 3 Northeast Provinces and they were mainly *S. flexneri* (89.02 percent). Shiga's bacillus type 1 is very rare (0.09 percent) and among the troops in Changchun, Siping, Jinlin, and Yanji, it has not been detected for 7 consecutive years. This condition is similar to that of other areas of the Northeast and the rest of the country, except for the fact that the ratio of *S. sonnei* is lower than that of Shenyang (1972)<sup>7</sup> and Xuzhou (1973-75)<sup>8</sup> and there is also a tendency of decreasing. In the *S. flexneri* group, the 2a type is the most numerous in the majority of areas in the country; type 3 is the next. Some areas are the exception; for example in Lyuda City (1953-55) and Xuzhou (1973-75), the *S. flexneri* type 1b was the most numerous.

In foreign countries, below the 40's, Shiga's bacillus type 1 was the dominant type; it has since been decreasing; in the 50's the *S. flexneri* was the important group; since 1965, *S. sonnei* has been increasing to become the major type.<sup>9</sup> In [Zabuluo Huang] Zaborovka (?) of the USSR, Shiga's bacillus was 66 percent and *S. flexneri* was 34 percent in 1946, by 1949, *S. flexneri* has risen to 81.4 percent, and in 1950 Shiga's bacillus had disappeared. In 1952, *S. flexneri* decreased to 58 percent and *S. sonnei* increased to 22 percent.<sup>10</sup> In the United States, of the 105,832 cases of 1964-73, the *S. flexneri* reduced from 60.6 percent of 1964 to 15.5 percent of 1973, while *S. sonnei* increased from 38.1 percent of 1964 to 83.6 percent of 1973.<sup>11</sup> In most countries, Shiga's bacillus has almost disappeared and this condition is basically similar to that of China except for a few areas in the Northeast. In the majority of areas, it has not been detected for several years. In China, *S. sonnei* increased somewhat in some cities in the 70's. Of the 2,142 strains reported in Shanghai, the ratio of *S. sonnei* is as high as 67.13 percent<sup>12</sup> but among the troops of various areas of the Northeast, it is mainly *S. flexneri* 1b, 2a. This fact is different from that of foreign countries and the cities of South China.

In the recent 7 years, the *S. flexneri* types 2a and 1b are also the major types among the troops of the three Northeast Provinces. Judging from the condition of distribution in 1973-79, although the composition and ratio of bacterial types of different areas in different years were somewhat different, the range of variation was not very obvious. Within a given period of time, the major epidemic types remain relatively stable. This situation provides the necessary condition for the use of specific preventive agents.

#### Conclusion

Of the 27,585 strains of *Bacillus dysenteriae* collected in 1973-79 from troops of 13 areas including Shenyang, results of identification reveal that *Shigella flexneri* was the most numerous, at 89.02 percent, and *S. sonnei* the next, at 6.81 percent. *S. flexneri* types 1b, 2a are the major types among the troops of this region. The two types together amount to 2/5 - 3/5 of the total number

of strains. Before 1976, type 2a was the leading type and after 1977, type 1b takes the place of type 2a. The distribution of the bacterial types in the various areas is generally similar. In 1979, the *S. boydii* and the *S. sonnei* groups increased over 1978. This is worthy of attention, but its reason still awaits further analysis.

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CSO: 5400/4019

COUNTERMEASURES FOR PREVENTION OF NOSOCOMIAL INFECTIONS

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 3, 10 Jun 82 pp 173-176

[Article by Yu Qian [0060 3480] of Research Institute of Epidemiology, Chinese Academy of Medical Sciences]

[Excerpt] With respect to the problem of controlling nosocomial infections, the most basic principle is to grasp the real condition of nosocomial infections in the hospital quickly and accurately so as to adopt effective, practicable, and strict measures in time.

1. Grasping the actual condition of nosocomial infections. Whenever a patient of suspected nosocomial infection is discovered, the hospital leaders should be immediately reported to and a specialty team should be organized to be responsible for determining whether or not nosocomial infection exists. In the initial stage, it would not be realistic to demand all nosocomial infections to be reported. There should be a regulation to specify several types of infectious diseases to be reported; the emphasis should be the infectious diseases most possibly leading to cross-infections. Later, based upon the condition in the hospital, the types of nosocomial infections requiring reports may be gradually expanded. When a patient is admitted, the patient should be examined as thoroughly as possible to determine whether a certain infectious disease exists.

This specialty team may be called nosocomial infections survey and control team, and be made into an advisory body of the director of the hospital to proceed with the task. This team should be composed of representatives of all clinical departments (several physicians of departments of internal medicine, surgery, pediatrics etc. having close relationship with infectious diseases), representatives of the nursing department, the chief of the department of clinical examination, representatives of the department of supplies, the deputy director in charge of hospital management, etc.

In order that the overall condition of nosocomial infections in a hospital should be grasped, all the nosocomial infections should be investigated; therefore, persons of specialized skill must be trained.

2. Establishing a nosocomial infection ward. In a general hospital, as much as possible, a ward of infectious diseases should be established for patients of staphylococcal infection, enteritis, or postoperative pyocyanic infections,

to treat patients of nosocomial infections and patients of severe infectious diseases. In this manner, cross-infection may be prevented and concentrated reasonable and effective treatment may proceed.

3. Education of hospital employees. Hospital employees should be systematically and thoroughly taught the knowledge of infection prevention and disinfecting. Physicians have received education of these aspects in the schools, but in the work environment, they often overly trust the effects of treatment with chemical drugs and often neglect the problem of infection prevention and disinfecting. Reeducation after graduation may reinforce the concept of disinfecting and infection prevention so as to implement this knowledge seriously.

Nonmedical hospital employees have not had the education of infection prevention and disinfecting. After they have been hired, such professional education should be repeatedly carried out.

4. Formulating regulations of antibiotics application. Careless abuse of antibiotic chemicals will only increase drug-resistant bacteria in hospitals to cause the incidence of nosocomial or hospital associated infection to rise and to add new difficulties to the treatment procedure. When a newly introduced antibiotic drug, especially a drug effective for treating drug-resistant bacteria, begins to be extended, the formulation of rules of its application should be studied. There should also be certain definite regulation for preventing infection before and after surgery in terms of selecting antibiotic drug for this purpose.

5. Periodical inspections of cleanliness of hospitals. Areas of the hospital, such as the operating rooms, the hallways, the dialysis rooms, the nursery, and the infant-care equipment, etc. where nosocomial infections occur easily should be periodically inspected for bacteriological cleanliness. That is to say the number of bacteria falling from the air, the water used to wash hands before surgery, etc. should all be examined. Concrete methods for implementing these bacteriological inspections should be formulated by the nosocomial infection survey and control team.

6. Periodical examination and diagnosis of employees of special rooms and special types of jobs. At present, periodical feces examinations are required for those of the food and beverage industries and those of child-care organizations for the purpose of detecting pathogens of intestinal infectious diseases. In order to prevent and detect early stage hepatitis B, to detect HBs antigen, to protect health workers, and to prevent cross-infection with patients, it should also be required to have periodical examinations and diagnoses of those who work in the operating rooms, the dialysis rooms, the blood banks, the central chemical analysis laboratories, and those whose work is to treat and take care of patients and those who may possibly be contaminated by the blood of the sick. Because of the work environment, such periodical examinations are necessary to prevent the possibility of more extensive infections.

7. Other measures. A hospital should limit visitors. Bringing food into the hospital, visits by those suffering from colds or infectious diseases should be



prohibited. Children should not be allowed to enter a sick room. These measures should be gradually but thoroughly implemented.

Moreover, when a new hospital is being built or an existing hospital is being renovated, the architects and construction engineers must be given suggestions to take into consideration of nosocomial infection prevention. The air circulation system and air regulation equipment of a hospital must not be neglected.

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CSO: 5400/4013

EPIDEMIC OF HEMORRHAGIC FEVER STUDIED

Henan Province

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 4, 10 Aug 82 pp 197-200

[Article by YAN Yuchen [0917 3768 6591], LIU Xueli [0491 1331 4409], et al.: "Preliminary Investigation on Etiology and Host Animals of Epidemic Hemorrhagic Fever in Henan Province"]

[Summary] In Jan-Jun 81, the first outbreak of epidemic hemorrhagic fever (EHF) occurred in 16 counties and 2 cities of Henan Province, with 8,138 reported cases and 80 deaths. Clinical symptoms are mainly fever, hemorrhagic spots under the skin, and gastroenteric disorders, and albuminuria in more than 80 percent of the cases. Compared with EHF reports of other regions of the country, the epidemic is milder and the fatality rate is lower. Most of the patients were infected indoors. EHF virus antigen was detected from rodents of the species, *R. norvegicus*, the locally dominant species. This paper reports serological comparison of the EHF virus antigen of this epidemic and the EHF antigen isolated from other parts of China and results of etiological studies of the EHF virus carried by *R. norvegicus* and field rodents of other species captured indoors and outdoors of this region.

Shanyi Province

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 4, 10 Aug 82 pp 201-203

[Article by XU Changwu [1776 2490 2976], JING Zengxiang [5427 1073 4382], et al.: "Epidemiological Investigation on An Outbreak of Mild Type Hemorrhagic Fever"]

[Summary] The first epidemic of hemorrhagic fever occurred in Shanxi in 1981, with a few cases in Yuanqu County on 9 March and some scattered cases all over the county by the end of April. In late May, a rodent extermination program was carried out in the entire county and the incidence of this epidemic began to drop in late June. In all, chemical analysis data were complete for 416 cases. From the patients, 64 serum specimens were examined with Korean Hemorrhagic Fever antigen and the specific epidemic hemorrhagic antigen provided by Danyang Co-operative group; 45 specimens were found to be positive (70.3 percent). Compared

with the Korean type, the clinical symptoms of this group are mild, the duration of the disease is short, the kidney damage is slight, and the fatality rate low (1.4 percent). It is believed that as no rodent of the species *Apodemus agrarius* was found locally and from the locally dominant species of *R. norvegicus*, 11.6 percent virus carrier rate was discovered, the latter must be the host of this epidemic. It is very possible that the change of host has weakened the toxicity of the virus. It should be worthwhile to isolate the virus for possible preparation of a vaccine.

Shenyang Military District

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 4, 10 Aug 82 pp 206-208

[Article by HE Yixiang [0149 0076 4382], ZHANG Rong [1728 1369], et al.: "Epidemiological Survey of Epidemic Hemorrhagic Fever in Shenyang Area"]

[Summary] In the 50's, only one epidemic of hemorrhagic fever (EHF) was reported in Santaizi in Shenyang area. In the 5 years of 1975-79, the occurrence of EHF was so frequent that a new epidemic area appeared to be established in the western suburb of Shenyang City, involving 11 of the 16 communes of that area. All EHF epidemics occurred in October-December with a single peak in late November to middle December. From the lung specimens of the 320 live rodents of the species *Apodemus agrarius*, an antigen carrier rate of 7.9 percent was detected. From the 425 rodents of the same species captured in 1980, a positive rate of 5.9 percent was detected. The serum IgG antibody examination of patients of the recovery stage produced a positive rate as high as 94 percent. The IgM antibody positive rate during the acute stage was 88 percent; 71.4 percent among patients on the 3d day of the disease; 100 percent on the 5th day. It appeared that IgM determination may be used for early stage diagnosis. Antibody determination of 39 healthy persons of the epidemic area produced no positive cases. There has yet been no discovery of latent infection.

CSO: 5400/4021

SURVEY, STUDY OF DENGUE FEVER UNDERTAKEN

Guangdong Province

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 4, 10 Aug 82 pp 209-212

[Article by ZHANG Qien [1728 0796 1869], AI Chengxu [5337 2110 4872], et al.: "Serological and Epidemiological Survey of Dengue Fever at Ya County, Hainan Island, Guangdong Province"]

[Summary] In May 1980 there was a sudden dengue III epidemic of relatively large scale in Hainan Island. A serological survey was conducted in Maling and Nanhai Communes of the southern tip of the island and Tongshizheng [a town] of the central part to compare the positive rate of dengue antibody of persons of the epidemic areas and the nonepidemic areas, to determine the antibody titer of different groups of people after an outbreak, to ascertain the cross immune reaction of dengue virus and encephalitis B virus antibodies, and to compare HI antibody reaction types of the acute stage and the recovery state. Results demonstrate that the serum antibody of all persons of the dengue fever epidemic area is elevated to some extent and there is no obvious difference in the serum antibody positive rate among persons of different age groups or different genders. Results of dengue III antigen HI tests of double serum specimens of the acute and the recovery stages indicate that this is the first dengue fever infection of this locality. There is no evidence of compound infection of Chikungunya disease in that area.

Hainan Island

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 4, 10 Aug 82 pp 213-214

[Article by CHEN Wenzhou [7115 2429 3166], ZHOU Liwen [0719 4539 2429], et al.: "Isolation of Virus Type III Dengue Fever From Aedes Aegypti, Collected in Hainan Island"]

[Summary] In 1980, in the coastal region of Hainan Island, dengue fever of primary mosquitoes of Genus Aedes occurred for the first time. Dengue virus type III was isolated from Aedes aegypti alone at first; later as the epidemic

spread gradually, in 1981, 5 strains of the virus were isolated by the authors from 7 batches of 50 mosquitoes, captured from the homes and surrounding areas of dengue fever patients, belonging to *Aedes albopictus*, and another 3 strains of virus from 4 other batches of 18 mosquitoes of the same species. Through complement combination and neutralizing tests, these strains were identified to be dengue fever type III virus. This is the first type for this virus to be isolated in China from *Aedes albopictus*. The process and the result of the process of identifying this virus are reported.

CSO: 5400/4021

## BRIEFS

INFANT EPIDEMIC AND DRINKING WATER--In July 1980, in Dongwanmao Brigade of Tanghekou Commune, of Huairou County of Beijing there was an epidemic of a disease with major symptoms of suffocation, fever, and violent headache, attacking mainly infants. The first case occurred in early July and the last in the middle August, totaling 122 cases, at a rate of occurrence of 27.73 percent. There was no death. Among the 88 persons of the neighboring village, 5 li away and drinking from a different well, there was not a single case of this disease. Cox B<sub>3</sub> virus was isolated from 1 saliva specimen and 4 feces specimens and clinical symptoms confirm with those of CoxB infection. Epidemiological survey did not reveal any suspicious food. The barefoot doctor dropped a bag of bleach in the well and incidence of the disease dropped suddenly 25 days later. [Article by BAI Fengqin [4101 7364 3830], WU Guikun [0702 6311 0981], et al.: "Epidemic Chest Pain Caused by Coxsackie Virus B<sub>3</sub>" [Summary] [Beijing ZHONGHUA LIUXING-BINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 4, 10 Aug 82 pp 221-224]

GASTROENTERITIS EPIDEMIC--Epidemics of gastroenteritis involving mostly infants under 2 years of age occur frequently in Lianyungang City. Treatment with various types of antibiotics usually produces no effect and serious dehydration and malnutrition in the early stage led to some fatalities. In 1974 Middleton et al reported similar epidemics in Canada, occurring mostly in the winter with about 4 days incubation period and the tentative identification of Rotavirus as the pathogen. In the middle of October 1980, there were some such cases in the outpatient clinics. Later the incidence began to rise to reach a paroxysm in the early and middle November; it dropped in late November. Feces specimens were collected of typical acute cases for etiological inspection. Electromicroscopic observation revealed rotavirus granules. Whether or not these epidemics of acute infant gastroenteritis are in fact due to rotavirus is not yet conclusively determined, however. [Article by LIU Yilin [0491 0001 7792], CHEN Bojin [7115 0130 3866], et al.: "Epidemic of Acute Gastroenteritis Due to Rotavirus in Lianyungang City" [Summary] [Beijing ZHONGHUA LIUXING-BINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 4, 10 Aug 82 pp 225-226]

TWO VIRUSES CAUSE EPIDEMIC--In 1977, the new A<sub>1</sub> type influenza occurred in Liaoning and Jilin and was spreading southward. In Guangdong, the variation of A<sub>3</sub> type (Yuefang 77-38) appeared and was spreading northward at the same time. In early August, an epidemic of the new A<sub>1</sub> was found in Shijiazhuang City and

by early September the A<sub>3</sub> was also isolated. During the first period, August-November 77, of the epidemic, it was primarily the new A<sub>1</sub> type; during the later period, January-February 1978, it was primarily the A<sub>3</sub> type. When antigens of both subtypes were used to determine the antibody of a patient, in some patients, the type of serum antibody growth was found to be not the same type of virus strain isolated from the saliva of the same patient. Details of the epidemiological study are reported. [Article: "Etiological and Serological Investigation of Influenza Epidemic, Caused by Two Types of Virus Simultaneously in Shijiazhuang City in 1977"] [Summary] [Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 4, 10 Aug 82 pp 236-238]

SEASONAL SPREAD OF MALARIA NOTED-- In Shandong Province, malaria -- epidemic is obviously seasonal. From late June to early October 1980, the authors observed the factors relating to the malaria vector *Anopheles hyrcanus sinensis* and calculated the variation of the capacity of the vector to spread malaria, using the equation in Molineaux, L. 's "Lecture on Epidemiological Mathematical Models." Results of the calculation reveal that the epidemic is relatively low in June, rises slightly in July to reach an obvious peak in August and begins to ease up in late September. These results coincide with the fact in Shandong Province. [Article by FAN Tianbao [2868 1131 1405], CHENG Yiliang [4453 5030 0081], HU Yuxiang [5170 3768 4382]: "Observation of Seasonal Dynamics of *Anopheles Hyrcanus sinensis* as Vector of Malaria *Plasmodium vivax* in Rice Fields of the Southern Part of Shandong Province"] [Summary] [Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 4, 10 Aug 82 pp 218-220]

CSO: 5400/4021

PHILIPPINES

BRIEFS

H-FEVER EPIDEMIC REPORTED--GUAGUA, Pampanga, Sept. 7--An H-fever epidemic has broken out in barangay Pulongmasle here, claiming the life of a nine-year-old girl and downing 20 other children. The lone fatality was identified as Alice Balatbat. Mayor Israel B. Usoof said he has asked Pampanga Gov. Estelito P. Mendoza for assistance in supplying the needed medicine. Usoof said local health authorities and a medical team sent by the Ministry of Health could not contain the epidemic due to lack of medicine. [Manila PHILIPPINES DAILY EXPRESS in English 8 Sep 82 p 2]

CSO: 5400/5783



EDITORIAL WARNS ON MALARIA

Colombo SUN in English 4 Sep 82 p 7

[Editorial]

[Text] Despite a highly organised offensive during the last three or four decades, malaria remains a major health hazard in Lanka. Two days ago the government finalised another agreement with the World Health Organisation (WHO) to launch a five year plan costing 636 million rupees to eradicate the menace.

Reportedly the targets set by this world body and the government have hardly been achieved despite significant accomplishments in containing the spread of this dreaded disease.

The deadly mosquito Anopheles which has killed thousands of people in Lanka down the years seems to continue to strike with a vengeance. Considerable success was achieved in fighting the menace with DDT several years ago.

But that had its own limitations. Not only did the mosquitoes develop resistance to it, but experts soon realised the environmental adversities that followed the spraying of DDT. Lanka is still dependent on pesticides like malathion. There seems to be no safer alternatives.

The battle against malaria cannot really be fought only with foreign funds and expertise. It must be done at grass-root level with the help of the people and their local officials.

What is most vital is the information and monitoring mechanism to keep tab of affected areas and patterns of recurrence. It must be followed by an honest officialdom to ensure that preventive measures like spraying operations are done in a systematic manner.

The lethargy and indifference that is rampant among most local officials and their minions have already compounded the crisis. It is also regrettable that some bureaucrats continue to wilfully under-estimate the crisis for the sake of the laurels from abroad for a 'job-well-done' in containing the epidemics as stipulated in their own reports. This could even be a ruse to obtain plum foreign appointments.

Unstinted public co-operation particularly in keeping sources of mosquito breeding under control is imperative. At present the lack of civic consciousness has been one of the most significant contributory factors of the malaria syndrone.

Unless the people decide to help themselves in removing these veritable stumbling blocks, malathion or any other medicine cannot produce miracles.

Besides the indiscriminate use of pesticides in Lanka (believed to be one of the highest in the world) is already having disastrous ecological consequences. The ultimate backlash of that would be worse than malaria.

CSO: 5400/5783

SRI LANKA

BRIEFS

CHOLERA REPORTED IN TRINCOMALEE--Two people have died of Cholera after being admitted to the Trincomalee Hospital, according to reports from Police Headquarters. [Colombo THE ISLAND in English 6 Sep 82 p 1]

CSO: 5400/5783

## STEPPED UP MEASLES IMMUNIZATION CAMPAIGN PLANNED

Lusaka TIMES OF ZAMBIA in English 4 Sep 82 p 5

[Text]

A CAMPAIGN should be launched to combat measles in shanty townships from where the disease mainly originate, acting assistant director of medical services Dr Sam Nyaywa has said.

The low immunisation coverage on the Copperbelt was causing concern in the Ministry of Health and it was clear that failure was because of poor management and lack of initiative.

Speaking at the national expanded programme of immunisation seminar held at the Ridgeway campus of the University of Zambia, Dr Nyaywa said the Government had more than met its obligations in the immunisation campaign.

Despite the unfavourable economic situation the recurrent budget allocation to the immunisation campaign had risen from K45,000 last year to K300,000 this year.

The budget allocation for buying vaccines had also gone up from K99,000 last year to

K300,000.

In spite of the scarcity of foreign exchange the country had never experienced a shortage of vaccines at any time of the year.

To speed up the exercise on the Copperbelt, Dr Nyaywa directed provincial supervisors to convene a meeting of immunisation supervisors from the mines, district councils and hospitals to thrash out an effective campaign.

Some provinces were doing well and would be able to achieve the target of immunising every child before 1990.

The Eastern Province was at the moment leading in the campaign. In 1981, 60 per cent of the children in the province were immunised.

"I am calling on the three most backward provinces in immunisation, namely Southern, North-Western and Copperbelt to work even harder this year so that they can raise their coverage from the present 30 per cent to around 60 per cent next year."

CSO: 5400/5784

ZAMBIA

BRIEFS

MEASLES DEATHS in 1981--NEARLY 2,000 children died from measles last year due to lack of health education, acting assistant director of Medical Services [preventive], Dr Sam Nyaywa, said yesterday. Dr Nyaywa said out of 51,748 cases of measles recorded by health institutions last year, 1,857 died from the disease. [Excerpt] [Lusaka DAILY MAIL in English 4 Sep 82 p 1]

CSO: 5400/5784

CONTROVERSY CONTINUES OVER RESEARCH USE OF LIVE VIRUS

Views of Scientists

Canberra THE AUSTRALIAN in English 25 Aug 82 p 3

[Article by Vernon Graham: "Scientists Split on Disease Imports"]

[Text] SCIENTISTS are seriously split over Federal Government plans to import foot and mouth and other dangerous exotic animal viruses.

At a special forum at Geelong, Victoria, yesterday they disagreed about the value of importing the diseases.

The CSIRO wants to hold the diseases for diagnosis and later research and vaccine-making at the \$145 million Australian National Animal Health Laboratory, which is nearing completion on the outskirts of Geelong.

The conference was organised by the National Farmers Federation, which hoped the scientists could reach a consensus on the disease plans.

A group of scientists led by the head of the Department of Immunology at the Australian National University, Professor Bede Morris, said the live virus was not necessary for diagnosis and posed a great risk to livestock industries.

An outbreak of foot and mouth would jeopardise Australia's best overseas meat markets.

Professor Morris said Australia could not justify spending large amounts of money on diseases the country did not have, while more pressing agricultural research was neglected.

He said foot and mouth could be easily identified with inactivated material from overseas which could be stored at the laboratory.

Professor Morris said new generations of "synthetic" foot and mouth vaccines were being developed, and would eventually make the laboratory a white elephant.

Three overseas scientists at the meeting agreed that a live virus was not needed for diagnosis, but said foot and mouth should be held at the laboratory.

A former secretary of the British Agricultural Research Council, Sir William Henderson, said live foot and mouth virus should be brought to Australia in advance of an outbreak.

He said the virus could be safely held at the laboratory and used to teach staff and veterinarians how to identify and handle an outbreak.

This view was shared by the director of the Plum Island Animal Disease Centre in the United States, Dr Jerry Callis, and the deputy director of the Pirbright Animal Virus Research Institute in England, Dr Fred Brown.

Dr Brown said new types of safe vaccines produced by techniques such as genetic engineering were on the way.

Vaccines made from a live virus could spread the disease and would be used in Australia only as a last resort if slaughtering programs could not cope.

Both men stressed that Australian scientists must work with the live disease if they were to gain competence in recognising and testing foot and mouth.

The Federal Government's top veterinarian, Dr Bill Gee, said the risk of a disease escape from the laboratory was nil.

He urged producers to recommend that foot and mouth be imported so scientists at the laboratory could learn to diagnose quickly and competently.

## Government Position

Perth THE WEST AUSTRALIAN in English 24 Aug 82 p 27

[Text]

**CANBERRA:** Research into live exotic animal-disease viruses should be undertaken at the Australian National Animal Health Laboratory, the Primary Industry Minister, Mr Nixon, said yesterday.

He said that the laboratory needed to work with live viruses if it was to carry out its functions properly.

But the Government would be guided by the findings of a special security assessment group and by industry organisations on whether such viruses should be introduced.

The livestock industry has strongly opposed the proposed use of live foot-and-mouth disease virus at the laboratory for fear that it could escape.

The \$120 million laboratory, which is being built at Geelong, is expected to be fully oper-

ational in 1984-85.

At a forum at the laboratory yesterday, Mr Nixon said that the Government was not trying to bulldoze through any decision on the issue.

### Testing

The laboratory would be ready to handle live viruses only after rigorous testing and proving by the special security group.

It would be at least two years before the laboratory would be equipped to go ahead with such research.

Mr Nixon denied recent assertions that

primary industry groups were not told about the presence in Australia of rabies, swine fever and Newcastle disease.

He said that four industry organisations had acknowledged the use of exotic-disease viruses in a submission prepared in 1977. The commission had supported the laboratory's establishment.

The organisations were the Australian Dairy Farmers' Federation, the Australian National Cattlemen's Council, the Australian Wool and Meat Producers' Federation and the Woolgrowers and Graziers' Council.

CSO: 5400/7587

CHARACTERISTICS, TREATMENT OF ANTHRAX EPIDEMIC REPORTED

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI [CHINESE JOURNAL OF EPIDEMIOLOGY] in Chinese No 2, 10 Apr 82 pp 77-79

[Article by Ye Zongyin [0673 1350 5593] of Yanning Prefecture Public Health and Epidemic Prevention Station, Hubei Province: "Outbreak of Anthrax Infections in Humans and Domestic Animals and Treatment of Infectious Foci in Jiayu County"]

[Text] 1. The Process of Epidemic

On 18 July 1979, a water buffalo died suddenly while feeding; that was the beginning of an epidemic of anthrax infections in the two brigades of Wujing and Weixing of Maan Commune, Jiayu County, Hubei Province, involving human beings and domestic animals. The epidemic lasted 19 days among the cattle to cause 51 water buffalos to be sick and 15 of them died. Due to the fact that the disease was not discovered in time, Chengguan Township and three other communes were contaminated to leave serious aftereffects. It spread among the cattle, two brigades, and seven production teams. The anthrax epidemic among human beings started about 48 hours after the death of the first water buffalo, i.e. on 20 July and the last case involving a person appeared 4 days after the last cattle death, i.e. on 9 August. The epidemic continued for 21 days, involving two brigades, four production teams, some direct subsidiary units of the commune, and Chengguan Township.

2. Clinical Characteristics of Patients

The shortest incubation period of patients was 1 day and the longest 12 days, averaging 6 days. There were a total of 32 cases of anthrax infection: 1 case of intestinal anthrax and 31 cases of skin anthrax.

The case of intestinal anthrax took sick on 1 August, suffering from sustained high fever, abdominal distention, diarrhea, and watery feces. When the condition became more severe after emergency care, a massive dose of penicillin, 14 million units/day, was intravenously dripped. The fever receded after 3 days and the patient recovered a week later.

Of the 31 cases of skin anthrax, the majority had local involvement of the exposed parts of the body, amounting to 86.67 percent of all cases of the skin anthrax group. In 16 cases, the upper limbs were involved, in 9 cases the



lower limbs, 2 cases the head and neck (1 involving the lips) and 4 cases the trunk. Patients of skin anthrax were all able to tell the process of involvement. The disease started out as papules, eczema, and the formation of blisters followed. The blisters opened up, festered, and became ulcers, with a coal-like black scar in the center and edema surrounding it, which did not cave in when pressed. There were also small blisters not obviously painful but they swelled and itched. The victim's lymph nodes swelled and aside from the localized skin symptoms, the patient generally suffered from headache, dizziness, chills, a slight fever, general discomfort, lack of energy, and sleepiness, with a white cell count of 4,900-8,700/mm<sup>3</sup>, and a neutral polymorphic cell ratio of 51-70 percent, not very high as a rule, a lymphocyte count of 21-41 percent, an acidophil cell count of 2-19 percent.

Specimens of the scar and the secretion of patients were taken for Ascoli's reaction test, microscopic examination, isolation culture, and animal test and the results were all positive. During the period of the epidemic, the temperature was very high and before the onset of the illness, the skin of these patients was not in a very perfect condition.

### 3. Forms of Infection

Butchering the dead cattle led to 7 cases of infection, cutting the meat led to 12 cases, washing the meat led to 3 cases, touching the dead cattle led to 3 cases, swimming in the pond contaminated by the dead cattle led to 3 cases, standing by to watch the dead cattle being butchered and being splattered by the blood of the cattle led to 2 cases, eating the meat of the infected cattle led to 1 case, using teeth to bite the vein of the meat when a knife could not cut through led to 1 case.

In the Production Team No 7 of Wujing, there were more persons who ate the meat than the other teams. Aside from the 31 cases of skin anthrax caused by direct contact with the dead cattle or the meat, of the 269 persons who ate the meat, 139 suffered from various degrees of toxic reactions, including headache, dizziness, discomfort, and mild diarrhea, amounting to 51.67 percent of all the persons who ate the meat.

### 4. Epidemiological Characteristics

(1) This epidemic occurred during the peak season of this disease. The temperature was regularly at about 40°C. After the water level of Changjiang receded, it had not rained for a long time. The shortness of the duration of such an intense epidemic was the result of the adoption of effective measures, however.

(2) Concentration of Units of Epidemic Prevalence. Aside from Daxing Brigade, the production teams of all the sick and dead cattle were located on a line next to the bank of the river. At Wujing Brigade, the work of transplanting the intermediate rice crop had just concluded and the water buffalos were all grazing day and night on the willow-tree-dotted grassland of the alluvial beach below the embankment of Changjiang. This patch of grassland just emerged from the receded tidal water about 10 days before the first water buffalo got sick.

(3) The epidemic among human beings occurred after the epidemic among the cattle and when the epidemic of the cattle ended the disease also stopped spreading among the people. The sick people concentrated in the Production No 7, where the members ate the 4 dead water buffalos, numbering 21 cases, 65.63 percent of the total number of cases of the epidemic.

(4) The epidemic involved mainly water buffalos and humans. After emergency rescue and treatment, there were no deaths among the sick. The dead water buffalos and the sick people were all correctly diagnosed to have anthrax infection. At the peak of the epidemic, there were several deaths of pigs and sheep, but they were not precisely diagnosed to be infected by anthrax. There was no observation of anthrax infection of other domestic fowls or animals and no dead fish was observed. The sick persons were mostly adults (29 cases) and only a few children (3 cases). They were mostly male (24 cases), and only a few females (8 cases).

(5) Analysis of Origin of Infection. There had been no occurrence of anthrax infection in the two brigades of Wujing and Weixing, and no cattle had been purchased or exchanged from outside the area in recent years. There was no doubt that the infection originated in Wujing Brigade, which is located on the river embankment line. According to an analysis of the epidemiological characteristics, as the water buffalo became sick just after the conclusion of the work of transplanting the intermediate rice crop and just when the water buffalos were grazing on the willow-dotted grassland on the alluvial beach below the embankment, it may be inferred that this low area was contaminated by the swelling water. Due to the fact that the high temperature was favorable for the propagation of the anthrax spores, the area had become the breeding spot for anthrax and the forage of the breeding spot became the source of infection. This type of source of infection is in need of attention.

#### Treatment of the Area of Epidemic

##### 1. Elimination of Anthrax Among Domestic Animals

(1) Strictly sealing off the area of epidemic, disinfecting it, and forbidding men and animals to enter it. There should be designated areas for the healthy cattle to graze and to drink water. Eating the meat of animals that have died of the disease should be prohibited. The meat, hide, and bones of the sick water buffalo that had been butchered should be located and after taking specimens they should all be burned. Purchasing and transferring in the epidemic area should cease and the masses should be organized to catch the dogs and cats to prevent the disease from spreading. The shed of the dead cattle, the place where the cattle died, and the place where the dead cattle were butchered should be burned with diesel oil before being disinfected with 10 percent caustic soda.

(2) Sick cattle should be seriously isolated for treatment: The treatment technique is muscular injection of massive doses of penicillin for 6 days. On the basis of the general condition of the cattle, there should be cardiotoxic fluid supplements, intravenous injection of glucose, with ascorbic acid and 10 percent antianthrax serum. The healthy cattle of the infected area should be given muscular injection of penicillin for 3 days as a preventive treatment.

(3) Establishing an immune zone: The cattle of nearby communes that are seriously threatened by the epidemic and the healthy cattle of areas surrounding the contaminated area should be injected with nonpoisonous anthrax spore vaccine. Those cattle and pigs of the epidemic area that had been injected with penicillin for preventive treatment and observed for 3 days, should be injected with nonpoisonous anthrax spore vaccine.

2. Isolating Patients for Treatment. All patients of skin anthrax were admitted to the temporary isolation room of the brigade to be treated locally, with 1 - 2 million units/day of penicillin, divided into four muscular injections. For those whose symptoms were on the head or neck, the dosage of penicillin was enlarged to 5 - 10 million units/day for intravenous drip. The local lesions were washed with 1:1,000 potassium permanganate before applied with a solution containing 1,000 units/ml of penicillin. Surgery and squeezing or pressing were prohibited. The duration of treatment was 7-10 days.

3. Protecting susceptible persons: For those of the epidemic area who ate the meat of dead cattle, 2 g/day per adult of terramycin was administered to be taken in 4 doses and continued for 5 days before preventive vaccination. For persons living in areas surrounding the epidemic area, nonpoisonous live anthrax vaccine was used for inoculation as a preventive measure.

4. Disinfecting source of epidemic. The dressing, bandage, cotton, leftover food, and indoor trash related to the sick were burned. The leftover beverage or liquid food and excretory materials were mixed with 20 percent emulsion of bleach to disinfect for 10-12 hours. All food containers were boiled for half an hour in a 2 percent soda solution. The bedding, clothing, etc. of the sick were high pressure disinfected; the floor and walls of the bedroom were sprayed with 20 percent bleach emulsion in doses of 500 ml/m<sup>2</sup>. The bathrooms, trash, wastewater tanks, and all others that were possibly contaminated were sprayed with 20 percent bleach emulsion twice, 3 hours apart. The contaminated sources of water were treated with bleach for superchlorine disinfecting. The cattle sheds and the bodies of the cattle were sprayed with 223 emulsion to exterminate mosquitoes and gadflies to prevent mechanical spreading of pathogens.

After the above measures were carried out, the areas were observed for 12 days, and as there was no more occurrence of the disease, the epidemic was considered as basically over. Close observations must be continued for 10 years, however.

#### Discussion and Conclusion

1. For 19 days, from 18 July to 5 August, there was an epidemic of anthrax among the cattle of the two brigades of Wujing and Weixing in Maan Commune of Jiayu County and for 21 days from 20 July to 9 August there was an epidemic of anthrax among the people. There were a total of 51 affected water buffalos and 15 died; there were 32 cases among the people and all were cured. The human anthrax occurred after the cattle anthrax epidemic and was caused by the dead cattle. This fact coincides with the general principle of epidemic of this disease.<sup>2</sup> Compared with conditions of epidemics of this disease reported from various places in recent years, the number of dead large animals was greater than the anthrax epidemic of Huaiyuan County of Anhui Province in 1974

in the same season of the year<sup>7</sup> but smaller than the epidemic in Jiaxing County of Zhejiang Province in 1971,<sup>8</sup> the epidemic in Boyang County of Jiangxi Province in 1976,<sup>4</sup> the epidemic in Baoshan County of Yunnan Province in 1976,<sup>6</sup> and the epidemic in Dujun City of Guizhou Province in 1977.<sup>5</sup> This was the result of effective measures and the all-out efforts of the veterinarians. The duration of the epidemic is basically the same as the epidemics of the same period of the year in other regions (such as the epidemic in Junxian of Hubei Province in 1975,<sup>9</sup> the epidemic in Xuwen County of Guangdong Province in 1976,<sup>11</sup> the epidemic in Lingao County of Hainan Island in 1972,<sup>13</sup> the epidemic in Baoshan County of Yunnan Province in 1976.<sup>6</sup> It is, however, much shorter than the epidemic in Jiaxing of Zhejiang Province in 1971,<sup>8</sup> the epidemic in Huaiyuan County of Anhui Province in 1974,<sup>7</sup> the epidemic in Boyuang County of Jiangxi Province in 1975,<sup>4</sup> and the epidemic in Duyun City of Guizhou Province in 1977.<sup>5</sup> The basic problem is timely diagnosis, fast adoption and implementation of measures to control the epidemic among the cattle to guarantee the safety of the people.

2. It has been surmised that the origin of this epidemic is water. The disease spreads through water to form a propagation point of anthrax to contaminate the forage which causes the cattle to be infected. The infected cattle spreads the epidemic to the people. This condition is common in regions of low and humid terrain or in regions frequently flooded.<sup>14</sup> It is to be regretted, however, that the anthrax propagation point, the forage, etc. were not examined with bacteria isolation techniques and treated with disinfectants.

3. Aside from one case of intestinal anthrax, all the 31 cases were skin anthrax. The white cell count was not high, or even too low. The neutral granular cell ratio was not high, or even too low, lymph cell count was high, however. According to related literature<sup>1,3</sup> the white cell count of all forms of anthrax is mostly elevated (to about 15,000/mm<sup>3</sup>) and may reach as high as 60,000-80,000/mm<sup>3</sup>; and the ratio of neutral granular cells is also elevated. This does not coincide with the result of observation of this epidemic and this difference is worthy of further research.

4. In 1966, Zhang of the Chenzhou Prefecture Public Health and Epidemic Prevention Station of Hunan Province reported that the dead animals contaminated the fish pond to cause the fish to die.<sup>12</sup> In 1977, Yan and Zou of the Shangyao Prefecture Public Health and Epidemic Prevention Station of Jiangxi Province isolated *Bacillus anthracis* from the dead fish of the anthrax contaminated pond.<sup>14</sup> This time, one water buffalo died in a fish pond; afterwards, 3 children went into the pond and were infected with skin anthrax. The phenomenon of dead fish was not discovered, however. This is perhaps because of the degree of contamination being insufficient to cause the fish to die but sufficient to infect humans. Can this fact demonstrate that the susceptibility of fish to this disease is lower than that of human beings?

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## HEMORRHAGIC SEPTICEMIA STRIKES CATTLE

Colombo SUN in English 7 Sep 82 p 7

[Article by Dr. Malcolm De Alwis, Veterinary Research Institute, Peradeniya]

[Text] The development of irrigation schemes and the consequent expansion in paddy cultivation on one hand, coupled with the spiralling cost of tractors and fuel on the other has resulted in a tremendous increase in the requirement of draught animals.

In areas covered by major projects like the Mahaveli development scheme, this need has already been felt. Steps taken by the Mahaveli Authority of Sri Lanka to meet the shortage of animals in the Mahaveli 'H' area were spotlighted recently.

Sri Lanka has a cattle population of 1.6 million and a buffalo population of 0.9 million. Of this, about 1.0 million cattle and 0.6 million buffaloes live in what is called the "dry zone" comprising the districts of Anuradhapura, Polonnaruwa, Trincomalee, Mullaitivu, Vavuniya, Mannar, Jaffna, Batticaloa, Amparai, Moneragala, Puttalam, and parts of the Kurunegala, Matale, Kandy and Badulla districts.

Traditionally cattle and buffaloes, particularly the indigenous types are reared in these areas for draught purposes. A small proportion of animals where possible, are milked either for local consumption or for the sale of milk, where a marketing facility exists. Part of the stock are usually sold to the butcher periodically, and constitute the principle source of beef in Sri Lanka.

### Killer Diseases

In the face of an increasing demand for draught animals and programmes designed to increase the stock numbers, Sri Lanka can no longer bear the losses caused by devastating contagious diseases of cattle and buffaloes.

Since the eradication of the dreaded disease Rinderpest in the 1940s, haemorrhagic septicaemia (popularly known as HS) emerged as Killer No. one in the dry zone of Sri Lanka. The disease is well recognised by the dry zone farmers as cattle plague and in different regions. The former is a very appropriate

term to describe the disease as it is caused by a bacterium (known as Pasteurella), which belongs to the same family as the bacterium that causes human plague. The latter term signifies a characteristic symptom of the disease viz the swelling of the throat region.

Sporadic cases of HS have been suspected to have occurred since 1915 but the disease assumed epidemic proportions in 1955/56 when its identity was confirmed. In the dry zone the disease has become endemic. It occurs almost at all times of the year, but particularly during August to December with a peak around October.

#### Economic Losses

It has been estimated that about 7 per cent of cattle and about 14 per cent of buffaloes are lost annually due to HS. Most of the losses are among young animals over 6 months and under 2 years of age. The incidence of the diseases is higher in large, free grazing herds than in small groups of animals, reared in isolation.

In the non-endemic parts of the country, particularly the south-west quarter, occasional outbreaks occur and in such instances losses may be higher, reaching at times up to 80 per cent of the herd. The hill country (over 3000 ft.) is virtually free of the disease.

Economic losses in the dry zone alone have been estimated at 90 million rupees, taking the carcass value alone. The actual losses, taking into account the breeding and production potential of the animals, the loss of draught power, and the prohibitive cost of alternate sources of draught power, is inestimable. These losses often escape unnoticed, but is in fact a tremendous drain on Sri Lanka's livestock resources.

#### Diagnosis

The disease is recognised by the characteristic swelling in the throat region, and respiratory distress, death occurring from a few hours to one or two days. Occasionally, a few animals, particularly cattle may linger for a few days. HS is almost invariably fatal. Animals respond to treatment only if carried out in the very early stages, but early detection is hardly possible among the semi wild dry zone animals. A clinical diagnosis can be made by any veterinarian, and confirmed by the examination of blood at the Veterinary Research Institute or at any of the Regional Veterinary Investigation Centres.

The disease strikes suddenly, and takes a toll of its victims with lightning speed. In some instances by the time veterinary assistance is sought, neither clinically ill animals nor carcasses are available for a diagnosis. In such situations, detection of the antibody against the disease in the incontact survivors helps to establish a diagnosis.

HS can be prevented by vaccination. This has been the practice in Sri Lanka since the mid fifties. The vaccine is prepared locally. Due to difficulty in

in securing the semi-wild dry zone animals for vaccination, annually, only about one third of the susceptible cattle and buffaloes get vaccinated, and the impact of such vaccination programmes on reducing losses have been small.

#### Prevention

A considerable amount of research on the epidemiology of the disease and on vaccines has been done in Sri Lanka. This has led to a better understanding of the disease and the economic production of improved vaccines.

Last year an intensive vaccination programme was carried out in the Mahaveli 'H' area by collaboration between the Department of Animal Production and Health and the Mahaveli Development Board, and the incidence of HS during the season was effectively controlled.

This year, Rural Industrial Development Minister, S. Thondaman has initiated a scheme to extend this intensive vaccination programme to the entire Anuradhapura and Polonnaruwa districts and the endemic parts of the Kurunegala district. This is done by a collaborative effort between the Department of Animal Production and Health and the National Livestock Development Board. This crash programme aims at immunising at least 75 per cent of the susceptible stock in these districts during a 3 month period prior to the season. The vaccine required for this purpose is prepared at the Veterinary Research Institute, Gannoruwa, incorporating the improvements resulting from all recent research findings in Sri Lanka.

#### Progress

A scheme to carry out an intensive immunisation programme in the entire endemic zone has been prepared by the Ministry. It is estimated that the approximately 2 million doses of vaccines required for this purpose can be produced using the appropriate technology developed locally at a cost of under 15 cents per dose and the cost of field services required for the administration of the vaccine is approximately Rs. 1.50 per animal.

In the face of the massive economic losses resulting from this disease, as a result of losses to our National herd, an intensive control programme on an islandwide scale is considered economically worthwhile.

CSO: 5400/5783

'LETHAL YELLOWING' DISEASE WIPING OUT COCONUT PALMS

Nassau THE TRIBUNE in English 4 Aug 82 pp 1, 12

[Article by Marcia Bethell]

[Excerpts] Hundreds of Coconut Palm trees in the downtown Freeport area have been "wiped out completely" by the incurable "Lethal Yellowing" disease which has spread extensively throughout Grand Bahama over the past two years.

The disease, which has biological researchers baffled as to exactly what it is and how it is transmitted, reached epidemic proportions in some areas of the Caribbean and Florida during the mid-1970's. The disease is fatal to the Jamaican Tall coconut tree, common to the Bahamas, and a dozen other species of palm including Thatch Palm, Royal Palm and Date Palm.

According to Mr Albert Grey, vice president of the Lucaya Services, responsible for the maintenance of all public landscaping in Freeport, "a hell of a lot of money" has been spent by the Port Authority over the two years on trying to save the stricken coconut trees. However, Mr Grey said that the disease is spreading rapidly throughout Grand Bahama and there is no known cure for it.

"We have been injecting the trees with an antibiotic for the past two years. But this hasn't done anything. The disease is spreading from one tree to another so rapidly. It has cost us a hell of a lot of money and although I can't give an exact figure I can tell you that one pint of this medicine costs between \$500-\$600. It has also cost us a lot of money to have the stricken trees cut down and carried to the dump," Mr Grey said.

He also said that the Port Authority is presently importing the Malayan Dwarf Palm from Abaco and the Queen Palm to replace the dying, unsightly, coconut trees in Freeport. These two palms have a resistance to the deadly disease.

Mr Grey said that the first sign that Lethal Yellowing is attacking your palm is "shelling" the premature dropping of the coconuts regardless of their size. Most of the fallen nuts have dark shiny discolourations at the stem end.



Then, the next inflorescence or flower stalk to appear will be blackened at its tip. Almost all of the male flowers will be dead and no fruit will set on such a stalk.

In the third stage of the disease the leaves turn yellow, beginning with the lower fronds. Leaves that die prematurely cling to the tree as the younger leaves turn yellow. The vegetative bud then dies as do all the remaining leaves and rot-inducing organisms invade the dead bud which later gives off an unpleasant odour.

The final symptom of the disease is the falling away of the entire top of the palm leaving nothing except a lifeless trunk, or "telephone pole". Diseased palms die within three to six months after the first symptoms appear if left untreated.

Although the trees may be injected with an antibiotic to retard the destruction and prolong their life, the disease is incurable and eventually the tree will die.

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## BRIEFS

RICE PEST CAMPAIGN LAUNCHED--The Ministry of Agriculture and the Palawan provincial government have launched a campaign to eliminate black rice bugs damaging rice and corn plants in some areas of Palawan. The ministry found out that the population density of the plant pests in the infested ricelands is 30 per hill. In the lowlands, some 115 bugs per square meter were observed. The agencies have adopted several measures to reduce damage to ricecrops. Among them are the use of contact insecticide to supplement systematic insecticides at recommended rate and frequency of application; synchronized planting in wide areas and coordinated application of control measures by farmers; cleaning, flooding, and draining the infested ricefields; and eradication of the pest by applying modern chemicals. [Manila BULLETIN TODAY in English 7 Sep 82 p 5]

CSO: 5400/5783

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