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Hepatitis in the Americas

Introduction

Viral hepatitis is currently a major cause of acute and chronic illness and mortality in all parts of the world. Several causative agents (hepatitis A virus (HAV), hepatitis B virus (HBV), and delta virus) are well characterized, and at least three others, currently defined as non-A, non-B agents (two blood- or transfusion-associated forms and one epidemic form) are being studied. Worldwide, hepatitis A is known only to cause acute hepatitis, primarily in children. Both hepatitis B and the post-transfusion-associated non-A, non-B agents, however, have been associated with a chronic carrier state and with long-term consequences that include chronic hepatitis and cirrhosis. In addition, hepatitis B virus infection is strongly associated with primary hepatocellular cancer (PHC). Most PHC cases have HBV detectable in serum and HBV deoxyribonucleic acid (DNA) integrated in liver tissue. Prospective studies in Taiwan and Japan have estimated that the relative risk of HB carriers developing PHC is over 200 times that of other persons.

The development of effective vaccines for hepatitis B, and the incipient development of a vaccine for hepatitis A, made possible by tissue cultivation of this virus, are now causing a major rethinking of priorities for worldwide hepatitis control. In response, the World Health Organization convened a technical advisory group on the development of a program for viral hepatitis. A July 1984 meeting of this group strongly endorsed worldwide programs for control of hepatitis B, and noted several critical areas for action: regional production of hepatitis vaccines as a means of reducing vaccine cost; development of regional hepatitis B control programs; operational research on hepatitis epidemiology and on hepatitis B vaccine strategies; and basic research on viral hepatitis. A review of progress showed that several Regions already have addressed these priorities by convening task forces on viral hepatitis and that these task forces have begun to implement the recommendations of the technical advisory group.

Background on Hepatitis in the Americas

Although viral hepatitis has been identified as a major public health problem in several countries of the Americas, the true impact of the disease has not been determined in many. Among the factors that contribute to this lack of knowledge are: (1) deficient epidemiological information due to inadequate surveillance and notification systems in some countries; (2) difficulties in establishing correct clinical diagnoses due to inadequate laboratory diagnostic support; and (3) failure to adequately assess incidence and causes of chronic

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hepatitis, cirrhosis, and primary liver cancer. Sero-epidemiological data for both hepatitis A and hepatitis B are limited and do not yet accurately define the true extent of these problems. Nevertheless, information is available, permitting general observations about the epidemiology of hepatitis A and B and some conclusions about that of delta and non-A, non-B hepatitis (NANB).

Incidence of Acute Hepatitis

Acute viral hepatitis is a disease reportable to the national health authorities throughout most of the Americas. National statistics are available from almost all countries in South America except Brazil. In that country, however, reliable data have been compiled for rural areas by national health authorities. In the past, few countries besides the United States of America and Canada have differentiated cases according to type (A, B, NANB), since serologic tests are not widely enough available to allow accurate determination of type. Furthermore, it must be assumed that underreporting of disease is high in all areas.

Generally, incidence rates of acute viral hepatitis

Table 1. Annual morbidity and mortality due to acute viral hepatitis in the Americas, 1977 to 1980.[a]

Country or territory	Morbidity		Mortality
	Cases per 100,000 inhabitants per year	Percentage of cases in children under 15 years	Deaths per 100,000 inhabitants per year
Central America			
Costa Rica	44.8 (24.4– 73.6)	53.0	0.4
El Salvador	47.9 (44.1– 51.6)	...	0.4
Guatemala	15.6 (5.3– 22.1)	71.0	0.5
Honduras	42.0 (32.8– 50.2)	41.0	0.1
Mexico	6.4 (5.7– 7.1)	77.0	0.7
Nicaragua	19.4 (7.7– 39.0)	49.0	0.0
Panama	28.0 (22.4– 33.9)	66.1	...
Caribbean			
Bahamas	8.7 (6.4– 10.0)	40.5	0.0
Barbados	6.0 (4.0– 8.0)	10.5	0.6
Cuba	170.5 (144.7–190.9)	65.5	0.3
Dominican Republic	51.3 (48.6– 54.0)	...	0.7
Grenada	13.0 (12.2– 13.8)	12.0	0.0
Haiti	1.9 (1.7– 2.0)	26.5	...
Jamaica	2.1 (1.7– 2.4)	44.0	...
Puerto Rico	16.6 (12.4– 20.3)	...	0.2
Trinidad and Tobago	6.8 (3.4– 10.5)	...	0.5
South America			
Argentina	58.6 (44.3– 67.3)	...	0.4
Brazil[b]			
Central West	69.4 (55.9– 92.9)	52.5	3.0
Southeast	22.5 (14.5– 30.7)	66.2	0.8
Northeast	29.1 (17.8– 43.3)	65.8	0.7
North	93.9 (65.7–131.3)	45.9	4.0
Bolivia	12.4 ...	...	...
Chile	47.7 (37.4– 52.2)	85.3	0.6
Colombia	40.0 (33.9– 43.6)	73.0	0.5
Ecuador	9.4 ...	...	0.4
Guyana	3.3 (2.4– 4.2)	21.5	1.1
Paraguay	9.5 (7.1– 11.3)	50.3	0.5
Peru	33.8 (30.0– 35.5)	54.3	0.9
Uruguay	93.3 (72.9–116.3)	68.0	0.4
Venezuela	23.7 (23.2– 24.1)	...	0.4
North America			
Canada	9.4 ...	34.0	0.2
United States of America	14.5 ...	15.0	0.3

0.0 = Quantity more than 0 but less than 0.05.
... Data not available.
[a]WHO statistical reports (1977 to 1982).
[b]Statistics of Transmissible Diseases, DS-CIEPRO, Fundaçao SESP, Brasilia, Brazil.

(all types combined) are very high in South America, nging from rates of 24 per 100,000 inhabitants per year in Venezuela to 93 per 100,000 in Uruguay and arts of Brazil (Table 1). Rates are highest in temperate South America, reaching two to four times those in the United States and Canada; in all such areas the majority (50 to 85%) of cases is reported in children under age 15. Areas reporting lower disease rates include less populous countries such as Bolivia, Ecuador, Guyana, and Paraguay; in these areas it is likely that disease reporting is least successful. Rates reported from Central America also tend to be above those in the United States, with the exception of low rates in Mexico and Guatemala; as in South America, the majority of cases occurs in children under age 15. Finally, rates reported in the Caribbean are variable, ranging from very high levels in Cuba and the Dominican Republic to low levels on most smaller Caribbean islands. On the larger islands, the large population probably allows sustained endemic hepatitis A as in South and Central America, while in the smaller populations of other Caribbean islands, cyclic epidemics may be the common disease pattern. On the smaller islands, the majority of cases occurs in adults. Mortality due to acute viral hepatitis generally ranges from 0.2 to 0.9 cases per 100,000 inhabitants per year, with rates being ɔwer in North America (0.2 to 0.3) than in the remainler of the Region. Extremely high mortality rates (0.3 to 4.0) are reported in rural parts of the northern (Amazon Basin) and central/western regions of Brazil.

Table 2. Percentages of acute hepatitis in children and adults caused by hepatitis A, B, and non-A, non-B in selected countries of the Americas, 1974 to 1984.

Country or territory	Children under 15 years			Adults		
	A	B	NANB[a]	A	B	NANB[a]
Argentina	85	4	5	43	35	17
Brazil						
Southeast	85	5-10	8	27	49	24
Northeast	...	16	...	...	54	...
North	...	...	...	70[b]	25[b]	5[b]
Chile	78-83	1-2	16-20	71	7	22
Colombia	81	...	19	50	25	25
Costa Rica	...	...	...	...	...	12[b]
Honduras	...	...	...	...	67	...
Mexico	...	13	...	...	...	...
Peru	...	...	...	...	42	...
United States of America	78	5	16	38	35	27

... Data not available.
[a]Non-A, non-B.
[b]Adults and children.

Serologic testing of cases of acute hepatitis for markers of both hepatitis A and B has been reported from large cities in certain countries—Argentina, Brazil, Chile, Colombia, and Costa Rica and from several sites in the United States (Table 2). In children under age 15, the majority of hepatitis cases is due to hepatitis A (78 to 85%). Both hepatitis B (1 to 16%) and non-A, non-B (5 to 20%) are less frequent causes of acute illness. In adults, frequencies of hepatitis types are more variable and more balanced among the three types, with hepatitis A accounting for 27 to 71%, hepatitis B, 7 to 67%, and non-A, non-B, 5 to 27% of acute cases.

Hepatitis A

Serologic prevalence studies indicate that hepatitis A is an infection of childhood in the whole Region, with the exception of the United States, Canada, and possibly the smaller Caribbean islands. Table 3 reveals that the prevalence of anti-HAV in adult blood donors is above 95% in the majority of the countries. Although data for children are not available for most areas, studies of children from Mexico and Chile show that the infection is acquired at an earlier age in lower socioeconomic classes, with the infection rate reaching 95% during preschool years in the lower classes but

Table 3. Prevalence of anti-HAV[a] in adult blood donors, by country, 1970 to 1980.

Country or territory	No. tested	Percentage positive
Argentina	1,005	94.2
Barbados	489	64.2
Brazil	1,023	98.4
Colombia	484	97.3
Costa Rica	444	99.8
Chile	491	98.0
Dominian Republic	468	99.8
Ecuador	483	99.4
Mexico	496	98.4
Peru	492	97.0
Puerto Rico	484	84.3
Suriname	486	81.5
United States of America	...	40.0
Venezuela	497	96.0

Source: Nath, N., S. Mazzur, C. Frang, *et al.* Prevalencia de los anticuerpos contra el virus A de la hepatitis (VAH) en donantes de sangre de 13 países y territorios del hemisferio occidental. *Bol Of Sanit Panam* 90:425-429, 1981.
... Data not available.
[a]HAV = Hepatitis A virus.

not reaching this level until later school years in the middle or upper classes.

Incidence rates of acute hepatitis A disease are not available directly; nevertheless, given that most hepatitis in the Region occurs in children under age 15, and that for the most part such hepatitis is due to HAV, one can predict that the majority of symptomatic acute viral hepatitis is due to HAV. Indeed, using numbers of reported cases and serologic data from studies of acute hepatitis in Chile, it can be estimated that 80% of hepatitis in that country is due to HAV, and that the rate of hepatitis A disease presently reported is 40 per 100,000 inhabitants per year, three times that of the United States. It is likely that this reasoning would apply to most other countries, and that the incidence of acute hepatitis A disease is much higher in the Region as a whole than in the United States and Canada.

Outbreaks of hepatitis A have been reported from several countries (Argentina, Brazil, Costa Rica, Panama) of the Region. A prospective study in Costa Rica indicates this disease is usually transmitted directly from person to person, with susceptible household contacts of an index infection having highest rates of secondary infection (70 to 83%). Outbreaks of waterborne disease have been reported, but the importance of food or water in hepatitis A transmission has not been clearly documented.

Hepatitis B

Because of the general unavailability of hepatitis B serologic testing of acute hepatitis cases, except in the United States and Canada, assessment of the epidemiology of hepatitis B in the Region relies almost entirely on studies of prevalence of certain HBV markers in various population groups, particularly volunteer blood donors. The markers include hepatitis B surface antigen (HBsAg) and, less commonly, antibodies to the hepatitis B surface and core antigens (anti-HBs and anti-HBc, respectively). Nevertheless, Table 4 reveals a pattern of HBV endemicity. Prevalence of HBsAg in blood donors using sensitive assays (reversed passive hemagglutination (RPHA), radioimmunoassay (RIA), or enzyme-linked immunosorbent assay (ELISA)) ranges from low (0.3%) to very high (more than 10%) within the Region. In most areas, levels are low to moderate (0.5 to 3.0%), but in certain areas rates are much higher. In South America, HBsAg prevalence increases from south to north, from 0.5 to 1.1% in temperate regions (Chile, Argentina, Uruguay, and southern Brazil) to moderate levels (1.4 to 2.8%) in central and northeastern Brazil and in the cities of the Andean countries except Chile. Very high prevalences (5 to 15%) of HBsAg have been observed throughout the Amazon region and in other areas in Brazil, and in some regions of Colombia, Peru, and Venezuela. In Central America and the Caribbean, HBV prevalences are low (Mexico) or moderate (1.0 to 3.0%) except on Hispaniola—both Haiti and the Dominican Republic have high disease prevalence. However, recent studies in Saint Christopher and Nevis and Trinidad and Tobago suggest high HBV endemicity on some of the small islands of the Caribbean. Prevalence of HBsAg in the United States and Canada is very low (0.3%), except in specific high-risk groups.

The available data are often limited to studies of blood donors from one or two large cities in each country. Almost no data on HBV prevalence by age, race, urban versus rural status, or socioeconomic level is available for any country outside the United States and Canada, and in South America only Argentina and Brazil have reported data from sensitive tests from more than a few localities. Nevertheless, these data do suggest that disease prevalence within each country may vary with each of these factors. Data from Brazil suggest higher prevalence in low socioeconomic classes. Similarly, data from Brazil and Trinidad and Tobago indicate a higher disease prevalence in persons of black or mixed as opposed to Caucasian origin, while studies in Suriname indicate persons of Indonesian origin to be at highest risk. Indigenous people from Brazil, Colombia, Panama, and Venezuela generally show very high HBsAg prevalences, although some groups in the last three countries appear to have low HBsAg prevalence. Geographically, the widest variation in prevalence has been observed in Brazil. Regions of Colombia (Santa Marta region), Venezuela (indigenous), Trinidad and Tobago (Tobago Island), and Peru (Amazon Basin) also have been demonstrated to have very high disease prevalences, and the northernmost parts of Chile and Argentina may have higher prevalences than the central and southern regions of the same countries.

Those persons who appear to be at increased disease risk in South America are similar to those in high HBV risk groups in the United States and Canada. Studies of health care workers (Argentina and Brazil) suggest a risk 1.5 to 2.0 times higher than that of local populations. Hemodialysis patients (Brazil, Argentina, Colombia), homosexuals (Brazil, Chile), and mentally retarded children (Brazil) all appear to be at very high disease risk. In addition, prostitutes (Chile) and diabe-

Table 4. Prevalence of hepatitis B virus markers in adult blood donors.

Country or territory	Percentage positive			Estimated[b] no. of HBV[c] carriers (thousands)
	HBsAg[a]		All B markers	
Central America				
Costa Rica	0.6		20.6	12.7
El Salvador	1.2		...	52.2
Guatemala	2.2	(1.4 - 3.0)	...	145.6
Honduras	3.0		...	103.2
Mexico	1.0	(0.33- 1.6)	16.8	669.4
Nicaragua	1.1		...	26.4
Panama	1.0	(0.7 - 1.4)	...	18.3
				1,027.8
Caribbean				
Bahamas	1.4		...	3.2
Barbados	1.4		13.1	3.7
Cuba	0.8		...	77.8
Dominican Republic	4.1		82.8	209.9
Grenada	2.1		...	2.0
Haiti	2.7	(1.4 - 4.0)	61.0	130.4
Jamaica	1.6		...	3.4
Puerto Rico	0.2		11.1	6.7
Trinidad and Tobago	1.4		...	15.8
				452.9
South America				
Argentina	1.1	(0.7 - 2.1)	18.6	290.3
Bolivia	1.6		...	84.6
Brazil				
South	1.0	(0.2 - 1.8)	...	187.7
Central West	1.0	(0.7 - 1.1)	...	75.5
Southeast	2.0	(1.2 - 2.8)	34.0	1,034.5
Northeast	2.5	(1.2 - 3.9)	...	890.5
North[d]	8.0	(5.0 -13.0)	...	411.2
Chile	0.5	(0.4 - 0.6)	6.7	54.3
Colombia	2.8	(1.0 - 4.7)	29.3	333.5
Ecuador	2.0		35.3	156.2
Paraguay	0.9		...	26.0
Peru	1.4	(0.8 - 3.5)	27.3	235.5
Suriname	2.3		41.0	8.6
Uruguay	0.9		...	2.6
Venezuela	2.0	(1.3 - 2.8)	18.0	262.4
				4,053.4
North America				
Canada	0.3	(0.1 - 0.5)	5.0	71.5
United States of America	0.3	(0.1 - 0.5)	5.0	654.3
				725.8
			Total	6,259.9

... Data not available.
[a]Hepatitis B surface antigen.
[b]Using 1978 estimated population.
[c]Hepatitis B virus.
[d]Excludes Belem.

tics (Brazil) may be at higher risk than the general population.

Few studies of HBV transmission have been completed in the Region. Presumably transmission occurs by the same routes described in other parts of the world—by percutaneous or permucosal exposure to infected blood or other body secretions. In adults, the predominant routes of transmission might be sexual contact (heterosexual or homosexual) and contact with contaminated hypodermic needles (either used for illicit drugs or inadequately sterilized). In areas of high endemicity where the disease occurs among children, transmission might be perinatal, via contamination of open skin wounds, or possibly via contaminated needles or even insects. The importance of these routes, particularly perinatal transmission, needs to be assessed in such areas. Outbreaks of hepatitis B due to contaminated immune globulin have been reported from Brazil.

The consequences of hepatitis B infection, in causing acute hepatitis, chronic active hepatitis (CAH), and

Table 5. Prevalence of hepatitis B virus in chronic hepatitis and primary hepatocellular carcinoma in the Americas.

Country or territory	Chronic hepatitis		Primary hepatocellular carcinoma	
	No. tested	Percentage positive	No. tested	Percentage positive
Argentina	276	63	16	12.5
Brazil				
Southeast	85	38	246	26–41
Northeast	...	...	...	53
North	89	55	...	...
Chile	...	27	48	70
Guatemala	74	15	...	...
Peru	63	32	12	50
United States of America	...	25–30	...	15–25

... Data not available.

cirrhosis, and primary hepatocellular carcinoma (PHC), have been assessed by measuring the proportion of cases of each disease that is due to hepatitis B. Studies from large cities in several countries have shown HBV infection to account for only 1 to 16% of acute viral hepatitis in children; nevertheless, in adults HBV infection accounts for a significant proportion (25 to 67%) of the disease in all areas studied except in Chile (7%) (Table 2). Other studies have shown HBV infection in 15 to 63% of cases of CAH and cirrhosis, and in 12 to 70% of PHC cases (Table 5). Reporting of cirrhosis as a cause of death shows rates that vary widely, from levels similar to those in the United States to 3 to 4 times higher (Chile, Colombia). Cirrhosis death rates do not correlate with HBsAg prevalence rates in the Region. Population-based studies of PHC incidence are available from only seven areas, all with low-to-moderate HBV endemicity; they show rates which are similar to those of the United States and Europe, and much lower than those in Southeast Asia and sub-Saharan Africa. However, no population-based data on cirrhosis and PHC rates from high HBV prevalence areas are currently available.

Delta Infection and Fulminant Hepatitis

An unusual type of fulminant hepatitis (severe hepatitis resulting in encephalopathy or other signs of hepatic insufficiency) has been documented in three localities in this Region. In two areas—the Santa Marta region of Colombia and the Amazon Basin, severe hepatitis has been described for over 40 years and distinct entities are known as Santa Marta hepatitis and Labrea hepatitis, respectively. Interestingly, the mortality rate due to acute viral hepatitis in the Amazor Basin is the highest in the Region. In addition, a severe hepatitis epidemic occurred from 1979 to 1981 among the Yucpa Indians in western Venezuela. Recent studies have documented that all occurred in areas of high HBV endemicity where 5 to 15% of the population are HBsAg carriers and in which HBV infection occurs during childhood. Studies in Venezuela have shown the outbreak to be due to delta infection of hepatitis B carriers. Other studies have shown delta virus infection to be highly endemic in the Santa Marta region and in the Amazon Basin, and it is currently suspected that delta virus is in part (or fully) the cause of Santa Marta and Labrea hepatitis.

The endemicity of delta infection varies widely throughout the Region. In low HBV endemicity areas, delta infection probably has modest prevalence. Studies of HBV carriers in Chile and the United States showed 5% to be positive for delta, while in Rio de Janeiro only one delta-positive person was found among 200 HBV carriers. In Argentina, about 15% of cases of HBsAg-positive CAH show delta positivity. In contrast, studies in high HBV endemicity regions show higher prevalence of delta infection. Studies in the Amazon Basin have identified the presence of delta antibody in at least 15 localities including Manaus. In general, positivity is found in 20 to 30% of HBV carriers and acute hepatitis cases, 85 to 90% of cases of CAH and cirrhosis, and 30 to 50% cases of fulminant hepatitis B in this region. Studies in Venezuela indicate that delta virus continues to spread among Yucpa Indians who are HBV carriers, and that 5 to 10% of susceptible HBV carriers become infected yearly. Delta virus infection is also present in the Santa Marta region of Colombia, and is found with highest frequency in villages with fulminant Santa Marta hepatitis.

Non-A, Non-B Hepatitis

Non-A, non-B hepatitis has been identified in several studies of acute hepatitis cases, and appears to account for 5 to 20% of the hepatitis in children and 20 to 30% of the hepatitis in adults in most localities studied (Table 2). In most studies, NANB is associated with prior transfusion or needle exposures: however, evidence from Costa Rica and Argentina suggests that person-to-person or waterborne transmission may occur. Nevertheless, hepatitis outbreaks due to non-A, non-B agents with waterborne or person-to-persor transmission have not yet been documented in this Region. Thus, it may be concluded presently tha

bloodborne non-A, non-B agents are certainly present nd account for significant hepatitis morbidity among adults in the Region; infection with the fecal-oral non-., non-B agent may occur but there is no clear documentation of this.

(*Source:* Oscar H. Fay, Public Health Service, University of Rosario, Rosario, Argentina; Stephen C. Hadler and James E. Maynard, WHO Collaborating Center for Reference and Research on Viral Hepatitis, Centers for Disease Control, Atlanta, Georgia, U.S.A.; and Francisco Pinheiro, Regional Advisor on Viral Diseases, PAHO, Washington, D.C.)

Editorial Note

The information presented here has been collected from published data available in the United States and personal communications from individual researchers. It includes WHO published health statistics, a review of widely available and Medline-referenced journal articles, and personal communications from researchers participating in the Latin American Society of Hepatol-)gy. A significant problem for researchers in this area s that data are usually available only from locally published journals that are not widely available throughout the Region and that may not be referenced in medical bibliographies such as Medline.

Additional information may be available from several other sources, and might be compiled as part of a larger effort to address and develop priorities for work in this Region. The epidemiology and/or statistics sections of individual country ministries of health may be able to provide more accurate statistics on acute viral hepatitis reporting and on deaths due to hepatitis, and give detailed information on age, sex, and region-specific disease incidences and on long-term trends in disease rates. Experts in blood banking practices, either at national institutes of health or specific blood banks in each country, might be able to provide information on the present status of HBsAg testing in blood banks throughout each country, on the frequency of HBsAg positivity in blood banks in different regions of the country, and on the possibility of organizing more careful studies of HBV epidemiology through blood banks. Finally, individual researchers in many countries (Colombia, Mexico, Peru, Venezuela, and others) are probably important sources of unpublished information, as such persons have provided more extensive data on Argentina and Brazil than have been published. Lists of experts to be contacted might be available through the Latin American Society of Hepatology and other similar groups.

Neisseria Gonorrhoeae: Resistance to Multiple Antibiotics

The constant use and abuse of chemotherapeutic agents in human medicine, in animal breeding, and in agriculture have led to the selection and spread of bacteria that are highly resistant to today's antibiotics. The loss of efficacy of penicillin G against staphylococci in the early 1950s was followed ten years later by the multiple antibiotic resistance of *Proteus, Pseudomonas aeruginosa,* and later of *Shigella* and *Salmonella*. Multiple antibiotic resistance is a worldwide problem that demands international attention. This paper provides general guidelines, based on WHO recommendations,[1] for the appropriate use of antibiotics in the treatment of gonococcal infections to maintain their optimal effectiveness under current conditions.

General Misuse of Antibiotics in Humans

Antibiotic resistance is widely attributed to the overuse and other misuse of antibiotics for unnecessary treatment of illness and unjustified prophylaxis. Social pressures such as the anxiety of the patient and his family and the sometimes unrealistic eagerness of the physician to do the best for his patient favor the excessive use of antibiotics, particularly in primary health

[1]World Health Organization. Document WHO/BVI/PHA/ANT/82.1.

care. Considerable overuse of tetracycline, penicillin, and chloramphenicol has led to the development and spread of resistant bacterial strains, particularly through the mechanism of transmissible plasmid-mediated resistance. Damage by antibiotics to the physiological bacterial flora may eliminate germs that biologically suppress other organisms, thereby favoring the proliferation of potentially pathogenic germs, as examples, *Candida* after application of tetracyclines or *Chlamydia* and *Mycoplasma* after the use of beta-lactam antibiotics.

As a general principle, antibiotic treatment is inappropriate under the following conditions:

- When the agent used is unsuitable or given in incorrect dosage.
- When the disease can be controlled by other, simpler, equally effective measures.
- When there is no clear evidence that serious clinical infection would occur in the absence of prophylactic use of antibiotics.

Use of Antibiotics in Treating Sexually Transmitted Diseases

The following criteria influence the choice of an antibiotic regimen for the treatment of sexually transmitted diseases (STD):

Efficacy

Efficacy is the single most important criterion in choosing among available regimens. Cure rates lower than 95% may be responsible for the development of resistant strains and thus rapidly limit the usefulness of the respective drug. Regimens with cure rates lower than 90% are unacceptable in the therapy of STD. Practitioners are cautioned not to use less that the recommended doses.

Toxicity

Patients with STD caused by resistant bacteria sometimes require higher doses than those with other infections and the schedules employed are often at the limits of human tolerance. Toxicity also has to be taken into account in reinfected patients exposed to repeated courses of antimicrobial agents. Pregnant women should be given special attention.

Cost

Although cost is a major limiting factor in developing areas, the use of cheap but inappropriate antibiotics or regimens may result in expensive consequences, such as inefficacy, drug resistance, or secondary diseases.

Compliance

Noncompliance usually decreases the success of treatment and contributes to the risk of resistance. Multidose regimens, such as those used for tetracyclines, may limit effectiveness, and therefore single-dose or very-short-course regimens should be used.

Hazard for Other Uses

Single-dose regimens used in STD treatment reduce the exposure of human flora to antimicrobials and thus the risk of the development of resistance among these organisms. Therefore, drugs that have no uses beyond the treatment of STD should be employed preferentially.

Comments on Individual Drugs Used for Treating Gonorrhea

Aqueous procaine penicillin G (APPG) is administered in well-tolerated doses in most instances. The increased occurrence of penicillinase-producing strains of *N. gonorrhoeae* limits the value of penicillin in some countries. However, its usefulness in aborting coincident syphilis is important and has been supported by observations from Singapore, where, when treatment for gonorrhea was shifted from penicillin to aminoglycosides, the incidence of syphilis increased.

Ceftriaxone is a third-generation cephalosporin and has the highest antigonococcal activity in vitro. It is highly effective against penicillinase-producing strains and can be administered intramuscularly in small doses. It appears to have very low toxicity and can be used in pregnancy. However, its cost reduces its applicability in many countries, and it thus remains a drug of second or third choice.

Cefotaxime and *cefoxitin* are quite similar, but neither drug reliably cures pharyngeal gonococcal infection.

Spectinomycin and the *aminoglycosides* are high

ly effective and widely used against penicillinase-producing gonococci. However, reports of the isolation of spectinomycin-resistant, penicillinase- and non-penicillinase-producing gonococcal strains have recently increased. Spectinomycin resistance may develop as a result of one single-dose treatment. Infections with resistant strains may be treated with cephalosporins as mentioned above. Spectinomycin should be reserved for treatment of patients who are infected with penicillinase-producing strains.

Kanamycin (aminoglycoside) has been used in some areas instead of spectinomycin because of its lower price. Kanamycin A is preferred to kanamycin B, but toxicity limits the application of both drugs. Neither spectinomycin nor kanamycin aborts coincident incubating syphilis.

Thiamphenicol is an effective drug. Potential bone marrow depression should be considered, particularly in patients who receive repeated courses.

Tetracycline resistance of gonococcal infections has reached unacceptably high levels in many areas, for example, in East Asia. Tetracyclines, however, are still highly active against infections by chlamydia and mycoplasmas. Nevertheless, tetracycline-resistant isolates of *Ureaplasma urealyticum* were recently identified in the United States of America. Tetracyclines are not recommended for pregnant women because of the risks of maternal hepatic toxicity and fetal (skeletal) deposition.

Rosoxacin is only 70 to 93% efficacious in infection by *N. gonorrhoeae*. Its value is further limited by bacterial resistance, which might develop during therapy, and by the fact that 30 to 40% of the patients so treated develop side reactions in the central nervous system.

In combination with *trimethoprim, sulfamethoxazole* maintains acceptable activity against gonococci. Trimethoprim/sulfamethoxazole is highly effective against *Haemophilus ducreyi* and may sometimes be useful as an alternative in chlamydial infections, such as lymphogranuloma venerum.

Rifampicin should not be used to treat gonococcal infection since it rapidly leads to development of resistance during therapy.

Strategies for Diminishing or Delaying Bacterial Drug Resistance in STD Treatment

In General

The misuse of antibiotics should be avoided.

The use of appropriate laboratory procedures such as bacterial culture, microscopic examination, and serologic methods allows correct diagnosis and specific treatment. Many new methods for rapid diagnosis of infections and for antibiotic sensitivity testing are already available. Their integration into routine practice is urgently needed. Antibiotic therapy should be based, not only on clinical assumptions, but also on applicable information from the laboratory, whenever possible.

An effective antibiotic that takes into consideration local resistance patterns should be chosen.

Chemical substances that inhibit the action of antibiotic-destroying enzymes may restore the usefulness of antibiotics and may prove to be very valuable. Beta-lactamase inhibitors, such as clavulanic acid, are now available and their therapeutic value in combination with penicillins and cephalosporins is currently under investigation. Nontoxic substances that eliminate plasmids responsible for resistance from respective bacteria might be useful in reversing resistance to susceptibility.

In Gonorrhea

Systematic surveillance of penicillinase-producing *N. gonorrhoeae* and other resistant strains should be instituted to formulate effective treatment policies.

Treatment regimens should be standardized and based on the prevalence of drug-resistant organisms.

Follow-up examinations should be performed routinely to detect treatment failures.

Early, effective treatment of sexual partners should be performed routinely to slow the spread of drug-resistant organisms.

(*Source:* Dr. A. Luger, President, International Union Against Venereal Diseases and Treponematoses, Vienna, Austria.)

Editorial Note

At present, early, effective treatment of STD patients and their sexual partners is the basic component of STD control efforts. However, in many countries proliferation of inadequate, ineffective treatment regimens utilized by physicians and allied health personnel or purchased by patients directly from pharmacies encourages the development of antibiotic-resistant organisms. At the same time, as a result of changing social and sexual mores, the incidence of gonorrhea is increasing. The frequency of finding resistant organisms is also likely to increase. In some countries the usefulness of

inexpensive, easy-to-use, simple antibiotic regimens has been lost, and the cost of STD control efforts will increase proportionately as countries resort to more expensive or complicated antibiotic treatments.

In the foregoing paper, the author discusses briefly some of the advantages and disadvantages of specific antibiotics for the treatment of *Neisseria gonorrhoeae* infections. The following points, however, deserve special emphasis: 1) Each country should take steps to ensure systematic surveillance of antibiotic susceptibility of *N. gonorrhoeae* strains. Special attention should be paid to the detection of the penicillinase-producing strain. 2) Data obtained by surveillance of antibiotic susceptibility should be used to standardize treatment schedules for gonococcal infection. In the absence of susceptibility data, antibiotic regimens that have proved to be effective in countries where this surveillance is carried out should be utilized. Standardized therapies must be readjusted from time to time in response to changes in local antibiotic-resistance patterns.

In a previous issue of the *Epidemiological Bulletin* (Vol. 3, No. 6, 1982) attention was drawn to the general problem of antibiotic misuse. As antibiotic resistance of many bacteria continues to grow, it is important to note the implication of such resistance for STD control, since it is so heavily dependent on correct, effective therapy.

Treatment of Children with Acute Respiratory Infections: Simplified Models for the Choice of Treatment for Children with Cough

Introduction

Acute respiratory infections in children still occur frequently in developing countries, and of them pneumonia is the most common cause of death in children under five years of age. There are sizable differences between the mortality rates from acute respiratory infections in developed and in developing countries. Deaths among children suffering from pneumonia are estimated at less than 2% in the former, while in the latter they vary between 10 and 20% *(1)*.

The purpose of the control program is to reduce mortality and severe morbidity and to rationalize the use of antibiotics and hospitalization for respiratory infections in children under five. The main strategy is the application of simple models for the choice of treatment in primary health care at all levels, reinforced by such preventive measures as vaccination and education on factors affecting the risk of acute respiratory infection (breast-feeding, smoking).

The preparation of training material on case treatment is one of the priority activities in WHO's Acute Respiratory Infections Program, on the basis of recommendations made by the WHO Technical Consultative Group on Acute Respiratory Infections at its meeting in March 1983 in Geneva, Switzerland *(2)*. In October of that year WHO made a study of the program's training needs, in cooperation with the Professional Training Center of the Centers for Disease Control (CDC) in the U.S.A. One of the purposes of the project was to specify the tasks to be performed at the different levels of the health system and by the personnel at the primary care and supervisory levels. WHO then worked with the CDC to prepare, on the basis of this analysis, material for the training of midlevel supervisors in:

a) Planning and conducting training of primary and auxiliary health personnel in the treatment of acute respiratory infections by a standardized method, and in the provision of information to the community (mothers and other family members) about these infections.

b) Supervising health personnel so that they accurately identify cases of severe, moderate, and mild respiratory difficulty, administer appropriate treatment, and provide health education to mothers and other members of the family.

The Working Group on the Treatment of Acute Respiratory Infections in Developing Countries met in Geneva from 3 to 6 April 1984 to evaluate clinical experience and scientific evidence related to the diagnosis and treatment of acute respiratory infections in

children; to indicate the components of the treatment appropriate for administration by health workers and members of the families of children in rural areas of developing countries; and to formulate recommendations on the technical content of the training material *(3)*.

Presented below are the models for the treatment of infections in the *lower* respiratory passages (children with cough), which will enable the health team worker to decide whether to refer or hospitalize (severe forms); treat *with* antibiotics at home (moderate forms); or treat *without* antibiotics at home (mild forms). These models are the basis for the training modules.

The only materials and equipment required are a timepiece with a second hand, equipment for injections (if the intramuscular route is chosen), and drugs.

The same models can also be useful to the physician in clinical practice, but simple language has been used to facilitate training of all health personnel and educating mothers and the community.

Models for the treatment of children with ear, nose, and throat infections, and practical recommendations for the treatment of acute respiratory infections by physicians in small hospitals are being developed.

Decision-making Model

In areas or countries where wheezing (asthma) is rare, the choice of treatment for children with cough should be based on the following criteria:

a) If the child *is unable to drink*, or exhibits *chest-indrawing* (the sucking in of the subcostal, intercostal, and subclavicular soft parts during inspiration), the case should be regarded as severe.

Severely ill children should be given antimicrobial drugs and be admitted for care at a referral hospital. The facility should have a physician, and be supplied with supplemental drugs and equipped to provide oxygen therapy.

Children suffering from convulsions, bouts of apnea, difficulties in waking up, or severe malnutrition, should also be referred or admitted.

b) If the child is able to drink and does not exhibit chest-indrawing, but its *respiratory rate* is 50 times a minute or more, the case should be regarded as moderate. The frequency should be measured with the child at rest (calm and not crying). These children are to be given antimicrobial drugs and supporting treatment at home.

c) If the child does not show the aforementioned signs, it should be given no antimicrobial drugs and be treated at home with supporting therapy only.

In areas and countries where wheezing is common, chest-indrawing is frequently seen and not very useful for determining the severity of a case. On the basis of respiratory rate, cases with more than 70 respirations per minute should be regarded as severe and those with 50 to 70 as moderate.

Stridor is an uncommon sign. If it appears in children in areas where diphtheria is common, they must be regarded as gravely ill and hospitalized. If diphtheria is not locally common, cases should be regarded as severe only if they exhibit stridor at rest; those showing stridor and rapid respiration, 50 times a minute or more, should be regarded as moderate.

Plans of Action

There are plans of action for mild, moderate, and severe cases of cough in children, and for cough lasting more than 30 days.

If the case is mild and antimicrobial drugs are not being administered, the mother should be told that she must continue feeding the child normally, give it plenty of liquids when it is thirsty, and take it to the health service if signs of worsening appear (rapid breathing). Supporting treatment should also be discussed with the mother. This treatment can include homemade remedies such as herbal infusions; a "cough potion" that has no side effects, such as 20 ml of concentrated solution of spearmint with 5 ml of solution of amaranth in 2 l of 1% ammonium chloride; paracetamol, if the child has a high fever (axillary temperature above 39^0C) and salbutamol, for children more than one year old with wheezing.

In the moderate cases, the supporting treatment should be the same, with the addition of an antimicrobial drug, which may be intramuscular procaine penicillin, 50,000 units per kg of weight daily, or oral cotrimoxazole twice a day, for 5 days. Each cotrimoxazole dose is a quarter tablet for children weighing less than 10 kg (infants that cannot yet walk), half a tablet for those weighing 10 to 19 kg (preschool children), and one tablet for those weighing 20 kg or more. Other drugs that could be prescribed are amoxicillin or ampicillin, administered orally. Because of its operational advantages, several American countries have chosen benzathine penicillin in a single injection of 600,000 units as the initial drug. The low blood levels of penicillin produced by this drug are insuffi-

cient for *Haematobium influenzae* and some pneumococci, and the child must be observed after 48 or 72 hours. If there is no improvement or the condition worsens, cotrimoxazole is added.

The average cost of treatment of a 10-kg child for five days is US$0.25 for the penicillin and US$0.10 for the cotrimoxazole.

Severe cases should be treated with a dose of antibiotics and admitted or referred to a hospital. If the child is wheezing and is more than one year old, salbutamol should be given as well. The chief responsibilities of local primary care personnel are to indicate to the mother that she should take her child to a hospital as quickly as possible, to help her solve any problems incidental to doing so, and to give her a referral note stating why the child is being referred and the treatment it has received. If the child cannot be sent to the hospital, it should be treated as a moderate case.

A child whose cough persists for more than one month but who does not exhibit rapid respiration should be examined for signs of tuberculosis, whooping cough, and asthma. Family contacts with tuberculosis, enlarged lymph nodes in the neck or axilla, and fever are suggestive of tuberculosis, and the child should be referred for medical examination which should include radiography and tuberculin testing.

Attacks of convulsive coughing, in spasms and followed by vomiting, suggest whooping cough. It should be explained to the mother that the coughing will continue for several weeks and that the child will get better gradually. She should be told to feed the child after it has vomited to avoid malnutrition. Antimicrobial drugs should not be administered because they would be of no use.

The most common cause of prolonged coughing is asthma. Signs pointing to asthma are wheezing, a worsening of the cough at night, and difficulty in breathing. It should be explained to the mother that the child will continue to cough and that the treatment will help but not cure it, and that the problem will probably disappear when the child grows up. Salbutamol should be administered and the mother told that she may have to repeat this treatment many times. Antibiotics should not be administered. If the child has a severe attack with very rapid respiration (more than 70 times a minute), it should be admitted or referred to a hospital for treatment.

The model described for the treatment of children with cough at the primary health care level has been successfully tested in several countries and, with minor variations, has been adopted in the Americas under national programs for the control of respiratory infections in children *(4)*. Its use, particularly by local health services that have no permanent physician, will contribute to the reduction of mortality from acute respiratory infections of children in countries with high rates, and the reduction of the indiscriminate use of antimicrobial drugs, which are often very expensive, in those health services where they are available.

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(*Source:* Maternal and Child Health Program, PAHO.)

Editorial Comment

The effort to control certain infectious diseases depends on such factors as the recognition of their public health importance, the available human and technological resources, and the feasibility of their use where resources are scarce in developing countries. It is clear that respiratory infections remain a major cause of hospitalization and death despite the antimicrobial drugs available. Epidemiological analysis reveals wide differences between developing and developed countries, related to nutrition, etiologic agents, and accessibility of health services.

Another important factor is the availability of an easily applied technology that can be quickly deployed for infectious disease control. For example, the development of the inexpensive oral rehydration therapy was a major step toward the quick and economical reduction of diarrheal disease mortality in children.

Within the acute respiratory illness program, inexpensive, easy-to-use antibiotics constitute an appropriate technology for rapid deployment to reduce excess mortality among children. In fact, triage and treatment are the cornerstones of the mortality prevention component of the acute respiratory infections program. Two problems, however, must be solved. Frequently,

the lack of availability of antibiotics for a significant proportion of the population exists side by side with excess use of antibiotics which are available to a different portion of the population. The best strategy for solving the problems associated with overutilization of antibiotics is the standardization of the management of children with acute respiratory infections on the basis of simple models that can also be applied by suitably trained nonmedical personnel. Extension of health care services coverage to underserved or unserved population groups must be the final strategy for making the technology now existing in the acute respiratory infections program available to the entire population.

Diseases Subject to the International Health Regulations

Cholera, yellow fever, and plague cases and deaths reported in the Region of the Americas up to 31 October 1985.

Country and administrative subdivision	Cholera Cases	Yellow fever		Plague Cases
		Cases	Deaths	
BOLIVIA	–	*49*	*33*	–
Cochabamba	–	2	2	–
La Paz	–	47	31	–
BRAZIL	–	*7*	*5*	*33*
Bahia	–	–	–	11
Ceará	–	–	–	22
Mato Grosso	–	5	3	–
Rondônia	–	1	1	–
Pará	–	1	1	–
COLOMBIA	–	*4*	*4*	–
Antioquia	–	1	1	–
Guaviare	–	2	2	–
Meta	–	1	1	–
ECUADOR	–	–	–	*3*
Loja	–	–	–	3
PERU	–	*26*	*15*	*21*
Cajamarca	–	–	–	10
Cuzco	–	7	5	–
Huánuco	–	6	2	–
Junín	–	7	5	–
Madre de Dios	–	2	1	–
Piura	–	–	–	11
San Martín	–	4	2	–
UNITED STATES OF AMERICA	*3*	–	–	*14*
Guam	2	–	–	–
Missouri	1[a]	–	–	–
New Mexico	–	–	–	13
Colorado	–	–	–	1

[a]Laboratory case.

YELLOW FEVER EPIDEMIC IN BOLIVIA

In May 1985 the Health Department of La Paz, Bolivia, reported that a yellow fever epidemic had occurred in Nor Yungas, Sud Yungas, and Larecaja, provinces located to the northeast of that capital. The area has a subtropical climate and its economy is dependent primarily on agriculture and gold mining. The population is highly mobile, due to the mining activities.

The first case of yellow fever appeared on 16 January 1985 and by the time the last case was reported on 14 May, 44 persons had fallen ill and 28 of them had died. The cause of death was confirmed by the histopathology laboratory, and the case fatality rate was 63.6%. None of the patients had been vaccinated against yellow fever.

Update of AIDS Surveillance in the Americas

As of 30 June 1985 a total of 26 countries in the Americas have reported confirmed cases of acquired immune deficiency syndrome (AIDS) to PAHO. The criteria for definition of a case, formulated by the United States Centers for Disease Control, have been utilized in reporting confirmed cases. From 11 countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Guatemala, Honduras, Mexico, Panama, Uruguay, and Venezuela) have come reports of a total of 364 cases. From South America, 2 non-Spanish speaking countries (Suriname and French Guiana) have reported an additional 12 cases. By far, the largest number of cases, 11,745, has been reported from the United States of America and Canada. From the Caribbean, 11 countries (Bahamas, Barbados, Bermuda, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago) have reported a total of 426 cases. Since the first cases were reported by the United States in June 1979, a total of 12,547 cases have been registered in the Region. These data are summarized in Table 1.

At the present time, definition of a case of AIDS is based solely on clinical criteria, making it difficult to estimate the amount of over- or underreporting represented in these data. It is impossible to distinguish those patients who acquire their disease in another country but are diagnosed and reported only upon return to their native country, from those patients who,

Table 1. Total number of confirmed and suspected cases and deaths due to AIDS in the Americas,[a] 1979 through June 1985.

Country or territory	Cases		Deaths
	Confirmed	Suspected	
Argentina	26	...	13
Bahamas	2	...	...
Barbados	4	4	1
Bermuda	10	...	10
Brazil[b]	262	54	109
Canada	248	–	124
Chile	5	...	3
Colombia	4	...	2
Costa Rica	6	...	3
French Guiana	9	2	4
Grenada	2	...	...
Guadeloupe	9	...	...
Guatemala	1	4	1
Haiti	377	239	88
Honduras	1	...	1
Jamaica	2	...	1
Martinique	2	...	–
Mexico	24	...	8
Panama	3	1	1
Peru	...	1	...
Saint Lucia	1	2	1
Saint Vincent and the Grenadines	1	...	1
Suriname	3	4	1
Trinidad and Tobago	16	...	...
United States of America	11,497	–	5,710
Uruguay	8	17	4
Venezuela	24	...	17
Total	12,547	328	6,103

... Data not available.

– None.

[a]Note: As of 30 June 1985, the following countries have reported no cases of AIDS: Antigua, Belize, Bolivia, the British Virgin Islands, the Cayman Islands, Cuba, Dominica, Ecuador, El Salvador, Guyana, Montserrat, Nicaragua, Paraguay, Saint Christopher and Nevis, and the Turks and Caicos Islands. Information was not available from the Dominican Republic, Saint Martin, and Saint Bartholomew.

[b]Data through 22 April 1985.

after being diagnosed and reported in another country, eturn to their native country where they might be reported again. It is also unclear how many suspected cases ultimately go on to become confirmed cases. Based on epidemiological information, indigenous transmission is occurring in Brazil, Canada, Haiti, Trinidad and Tobago, and the United States, and perhaps in Venezuela as well.

It is clear that the problem of AIDS is growing. Since PAHO first began tabulating AIDS cases toward the end of 1983, new countries have been added to the list during every six month interval, at an increasing rate. In the period 1 January through 30 June 1985, 8 additional countries reported the occurrence of AIDS.

(*Source:* Epidemiology Unit, PAHO.)

Reports on Meetings

Epidemic Intelligence Service Conference

The Epidemic Intelligence Service held its XXXIV Annual Conference from 22 to 26 April 1985, at the Centers for Disease Control, Atlanta, Georgia, U.S.A. The main session, "Epidemiology and Public Health Policy," included presentations on such diverse topics as epidemiology of infectious diseases, occupational health, behavioral risk factors, cardiovascular disease, alcohol-related disease, and infant morbidity and mortality.

The topics discussed at the scientific sessions included: international health, acquired immunodeficiency syndrome, occupational health, viral diseases, immunization, epidemiology/pharmacology, sexually transmitted diseases, infant/child health, enterics, violence and injury, special pathogens, vaccine-preventable diseases overseas, hospital infections, chronic diseases, reproductive health, hepatitis, and cancer.

Meeting of the Advisory Committee on Health Research

The XXIV Meeting of the Advisory Committee on Health Research (ACHR) of PAHO was held from 16 to 20 July 1985 in Havana, Cuba. It was attended by 10 of the 15 members of the Committee and by 30 observers. Different aspects of the following issues were addressed at the meeting:

1) *The administration of research,* including PAHO funding for research activities, the report of the Subcommittee for Restructuring the Advisory Committee on Health Research, and the report of the Study Group on Logistic Support for Research Activities at the Country Level.

2) *Technical subjects* such as:

- Current status, trends, and perspectives of biotechnology research in Latin America. This is an area of increasing importance from a scientific as well as from an economic point of view.
- Environmental health problems, such as the setting of priorities for ongoing research on air pollution. This subject constitutes an increasingly critical issue within the Region.
- Applied research and development priorities in the Expanded Program on Immunization. This theme is of great interest, since the Organization has targeted the goal of eradication of poliomyelitis in the Americas by the year 1990.

3) *Strategies* necessary to attain the goal of health for all by the year 2000, including the role of the universities in the Americas.

4) *Administrative matters* dealing with the report of the XXVI Meeting of the Global Advisory Committee on Medical Research, the report of the actions carried out based on the recommendations of the XXIII Meeting of the Advisory Committee on Health Research, and review and approval of the final report.

The Committee strongly endorsed bilateral and multilateral technical cooperation activities among national research councils and institutions, including universities. It also recommended that the countries be encouraged to increase their funding for scientific research in general, and for health research in particular. The latter should be recognized as vital to the solution of some salient health and services problems that affect the well-being of the peoples of the Region of the Americas, and as an effective contributor to attaining the goal of health for all by the year 2000.

Calendar of Courses and Meetings

Management for Child Survival

The Boston University School of Public Health is offering a six-week short course beginning 1 March 1986 in Boston, Massachusetts, United States of America.

The course is aimed at providing an intensive exposure to the fundamentals of maternal and child health and management methods for health services. These two topics are complemented by applied health economics and an introduction to microcomputer applications. Effective design of small health facilities has also been included. The importance of community participation will be emphasized in the academic portion of the course and during a two-week field study in Haiti that will include observation of selected public and private provider sites.

Applicants should have completed the equivalent of a bachelor's degree or other comparable technical or professional training after high school. Good knowledge of English is required.

Further information is available from: Management for Child Survival Course, Office of Special Projects, Room A-310, Boston University School of Public Health, 80 East Concord Street, Boston, Massachusetts 02118, U.S.A.

Second World Congress on Sexually Transmitted Diseases

This congress will be held from 25 to 29 June 1986 in Paris, France, under the auspices of the World Health Organization and the International Union Against Venereal Diseases and the Treponematoses. The general theme will be sexually transmitted diseases and their social and economic consequences.

For further information contact: Commissariat Général, 4 Villa d'Orléans, 75014 Paris, France.

Publications

Certificados de vacunación requeridos para los viajes internacionales y advertencias a los viajeros. PAHO Scientific Publication No. 485. 1985. 80 pages. ISBN 92 75 31485 3. US$6.00.

This is a translation of the original, in English, published yearly by WHO. It provides updated information on preventive measures travelers should take against many communicable diseases not included in the International Health Regulations, including malaria, certain infections transmitted by insects, numerous forms of diarrheal disease, and a series of disorders associated with the consumption of food and water.

The publication is organized into five chapters with the following titles: International Vaccination Certificate Requirements and Malaria Information; List of Countries Requiring Vaccination Certificate and Information on the Malaria Situation; Some Health Risks to which Travelers are Exposed; Precautions Against Certain Diseases and Injuries; Geographical Distribution of Potential Health Hazards to Travelers. It contains three annexes, the first containing a model of the International Certificate of Vaccination or Revaccination Against Yellow Fever; the second listing certain diseases transmitted by food and water, their mode of transmission, and their geographical distribution; and the last indicating pertinent WHO and PAHO publications. Included are maps of the endemic yellow fever zones in Africa and the Americas, of epidemiological assessment of the status of malaria, and of the zones in which reports have been made of *Plasmodium falciparum* resistant to chloroquine. Complete indexes are also included by country and by subject matter, with cross-referencing. The publication is very useful for national and local public health officials, professionals, travel agencies, and travelers.

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