ISSN 0725 - 3141

Communicable Diseases Intelligence

Bulletin number 89/19
Issue date: 25 September 1989

Contents:

Editor *Dr Robert Hall*

VIRUSES, CHLAMYDIAS, COXIELLAS, RICKETTSIAS AND MYCOPLASMAS REPORTING SCHEME: A total of 1,606 reports were processed during this period.

Twenty cases of Q fever (15 males,2 females, 3 sex not stated) were reported during this period. Ages ranged from 18 to 55 years. Occupational exposure details were not provided. An additional case of Q fever in a grazier was reported by Dr T Lynch, Pathologist, of Rockhampton.

Influenza virus activity continues to increase with 87 cases of influenza A untyped, 55 of influenza A(H3N2), and 55 of influenza B reported during this period. One isolate was characterised as influenza B/Yamagata/16/88-like and another as influenza B/Victoria/2/87-like. Both these strains were reported by Fairfield Hospital, Victoria. Eighty-four per cent of influenza reports from the State Health Laboratory/ Princess Margaret Hospital, Perth, are influenza B; these reports constitute 57% of influenza B reports received so far this season. Influenza A predominates in other states reporting influenza activity. Only one influenza report (influenza B) has been received from the State Health Laboratory, Brisbane, so far this season.

Increased seasonal activity of rotavirus has been noted since July this year.

- The Bulletin is compiled and distributed by the Communicable Diseases Section, Communicable Diseases and Social Health Branch, Telephone: (062) 89 1555, Department of Community Services and Health.
- Contributions are solicited, and do not preclude later publication elsewhere.

- Figures given may be subject to revision.

PROPHYLACTIC AND THERAPEUTIC USE OF MEFLOQUINE

(Based on WER 1989;64:247-8)

Mefloquine hydrochloride (Lariam, Hoffmann-La Roche; Mephaquine, Mepha AG) is an important antimalarial drug which has now been registered in a number of countries, either as a single compound, or in fixed combination with sulfadoxine-pyrimethamine (Fansimef, Hoffmann-La Roche). Extensive clinical and field trials have demonstrated mefloquine to be an effective drug for the therapy and prophylaxis of malaria caused by *Plasmodium falciparum* and, in particular, those parasites which are resistant to commonly used drugs such as chloroquine and the pyrimethamine-sulfadoxine combination (eg Fansidar). Because of its efficacy against most multiple-resistant falciparum parasites, and in order to delay the selection of parasites resistant to it, the use of mefloquine should be reserved for settings in which chloroquine is not effective.

Mefloquine has been considered to be a safe drug; the commonly recognised side effects include dizziness, nausea, vomiting, and loose stools. However, recent reports in the literature and notices to the drug manufacturers and WHO have suggested that more severe neurological reactions may be associated with the use of mefloquine. These reactions have included severe depression, psychotic episodes and seizures. Some reported reactions have occurred as long as 2-3 weeks following mefloquine administration, and have been associated with both therapeutic and prophylactic use of the drug.

On 17 July 1989, WHO convened an informal consultation on the subject of neurological side effects associated with mefloquine use, and is collaborating with the drug manufacturers and national institutions to investigate further such reported reactions. To facilitate these investigations, WHO urges health care providers and other persons who are aware of such severe reactions occurring in individuals using mefloquine to report them promptly to the appropriate national authority and to the Malaria Action Programme of WHO.

Review of the information already available has identified certain areas of caution for the use of mefloquine.

1. The occurrence of dizziness or vertigo which may distrurb coordination and spatial perception has been documented even with prophylactic use (250mg mefloquine base weekly). As a consequence, **it is recommended that persons involved in tasks requiring fine coordination and spatial discrimination (eg air crews) do not use mefloquine for prophylaxis, and avoid such tasks for a period of time following therapeutic use.**

2. Mefloquine is known to have a long elimination half-life (estimated at 13-26 days). Caution is therefore required in using mefloquine to treat malaria in persons who have been taking mefloquine prophylaxis or who may have had a therapeutic dose of mefloquine in the previous 1-2 weeks. In addition, quinine and mefloquine are similar as regards pharmacology and cardiovascular and neurological toxicity. Therefore, **if mefloquine and quinine are used sequentially, drug administration must be carried out with extreme caution and under close clinical monitoring.**

3. Several organisations (including WHO) responsible for developing guidelines for the prevention of malaria in visitors to malaria-endemic areas have endorsed the practice of carrying a treatment dose of mefloquine; this can then be used as an interim measure while the traveller is seeking medical care. The maximum dose of mefloquine in such a situation should not exceed 15 mg/kg or a total dose of 1000mg mefloquine base, whichever is smaller. Such **standby use of mefloquine is not recommended for persons taking mefloquine for prophylaxis.**

WORLD MALARIA SITUATION, 1986-1987

(Based on WER 1989;64:241-7 and WER 1989;64:249-54)

Overview

The overall malaria situation has not changed to any considerable degree on a global scale. Indigenous malaria is still occurring in some 100 countries or areas (Map 1). The total world population of about 4,991 million people (1987) may be classified as follows, according to their malaria experience and residence in areas where:

(a) Malaria either never existed or disappeared without specific antimalarial interventions (1,361 million people or 27% of the world population).

(b) Endemic malaria disappeared after a specific control campaign was implemented and the malaria-free situation has been maintained (1,513 million people or 30%).

(c) Endemic malaria was considerably reduced or even eliminated after control measures were implemented, but transmission was reinstated and the situation is unstable or deteriorating (1,672 million people or 34%).

The areas in this category included zones where new problems have developed following major ecological or social changes, such as agricultural or other economic exploitation of jungle areas, and sociopolitical unrest. Although these zones comprise only about 1% of the world population, the most severe malaria problems are concentrated there.

(d) Endemic malaria remains basically unchanged and no national antimalarial program was ever implemented (445 million people or 9%). These areas are mainly represented by tropical Africa, but it should be noted that they are far from uniform: for example, there are areas, including forested and medium altitude zones in which pilot projects reportedly were successful in interrupting malaria transmission, while in low altitude savannah areas, particularly in the Sahel, no complete success was reported even from pilot projects.

Over the last 3 years, the number of malaria cases reported has remained stationary around 5 million (Table 1), but this figure does not include the WHO African Region due to the insufficiency and irregularity of reporting. In terms of numbers of cases reported, some countries have maintained a downward trend, and in others the trend has been oscillating

(Table 2). If both China and India are excluded, the rest of the world shows a general stagnation followed by a slow but noticeable deterioration in recent years (Figure 1). The global incidence of clinical malaria cases is estimated at some 103 million cases annually, and the prevalence of infection may be in the order of 264 million parasite carriers.

Table 1: Number of malaria cases reported, by WHO region (in thousands), 1980-1987[a]

WHO Region	1980	1981	1982	1983	1984	1985	1986	1987
Africa[b, c]	7 884	6 754	6 042	2 726	4 150	2 896	2 342	814
Americas	603	638	718	831	932	893	951	1 010
South-East Asia	3 784	3 566	2 964	2 731	3 003	2 521	2 581	2 766
Europe	38	60	66	71	60	32	45	27
Eastern Mediterranean née orientale	138	207	308	305	335	391	610	564
Western Pacific	3 658	3 464	2 487	1 839	1 361	1 065	786	758
Total (excluding Africa — à l'exclusion de l'Afrique)	**8 221**	**7 935**	**6 543**	**5 777**	**5 691**	**4 902**	**4 973**	**5 125**

[a] The information provided does not cover the total population at risk in some instances.

[b] Mainly clinically diagnosed cases.

[c] Incomplete figures.

The level of mortality due to malaria is virtually unknown in most endemic areas; special studies in Africa have shown great variability and a study in the Gambia in 1987 indicated that about 25% of childhood mortality (1-4 years) may be attributable to malaria. There are indications that, at least in some areas of Africa, general infant and malaria-specific mortality may be declining.

One of the important problems, the resistance of *Plasmodium falciparum* to drugs, has been spreading further and there are only a few malarious countries that have not been affected yet. However, this phenomenon has mostly a focal distribution, especially in West Africa. Therefore, in large areas of the world chloroquine remains an effective drug for clinical cure. The distribution of areas where chloroquine-resistant *P. falciparum* has been reported is shown in Map 2.

Africa

North of the Sahara: The total number of reported cases rose from 453 in 1983 to 1,467 in 1987:

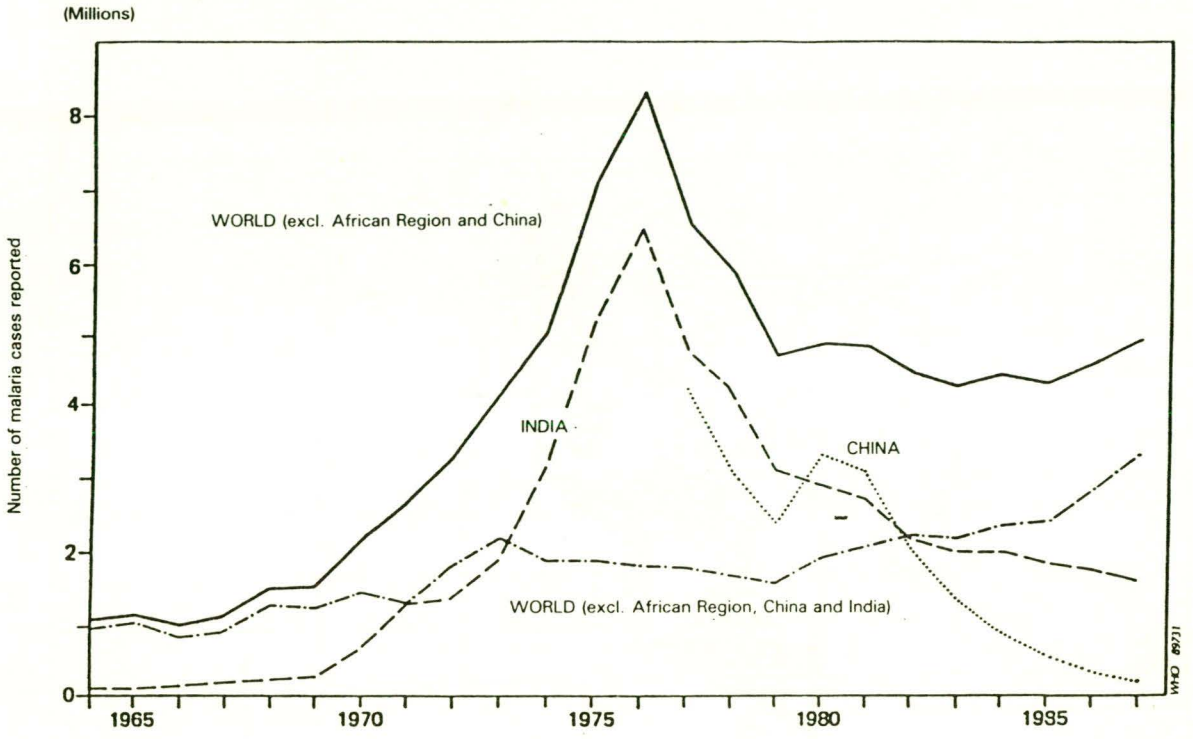
- Libyan Arab Republic and Tunisia: Considered free of malaria, with only imported cases being reported.

- Egypt: Thirty-three cases were recorded in 1987 including 16 falciparum infections originating from the El Faiyoum Governorate.

- Algeria: Locally acquired cases are rare.

- Morocco: The number of cases detected in 1987 was 1,287 compared with 597 in 1986 and 75 in 1983. All 675 locally acquired cases were *P. vivax*, the majority of which were detected in Fez Province (228), Chefchaouen (169), Meknes (115), Khouribga (72), and Larache (50).

Figure 1: Number of malaria cases reported, 1964-1987



South of the Sahara: Extrapolating from fever and parasite surveys one can estimate that about 88 million clinical malaria cases may occur every year, and that the prevalence of infection may be in the order of 249 million parasite carriers. Endemicity reaches the highest levels in the world, with very large areas classified as holoendemic (forest or savannah, altitude up to 1,000 m, rainfall over 2,000 mm/year). With altitudes over 1,500 m and rainfall below 1,000 mm/year, endemicity decreases and the potential for epidemic outbreaks increases. Marked seasonality and quasi-cyclic occurrence of heavy rains lead occasionally to epidemics or serious exacerbations of endemicity (as recently in Botswana, Madagascar, Rwanda, Swaziland and Zambia).

The Americas

Since 1983, the rate of morbidity from malaria had almost tripled that of 1974, with 831,000 cases recorded, and the malaria situation continues to deteriorate. Morbidity and mortality from malaria are increasing, and some countries have experienced epidemics, even in areas that were previously freed from the disease. A total of 1,010,000 malaria cases were notified in 1987 compared with 951,000 in 1986 and 893,000 in 1985.

Vivax malaria represented 63% of all infections in the Americas. On the other hand *P. falciparum* predominates in Brazil, the Dominican Republic, French Guiana, Guyana, Haiti and Suriname, with 310,000 falciparum cases reported, accounting for 84% of all falciparum infections in the Americas.

Map 1: Epidemiological assessment of the status of malaria, 1987

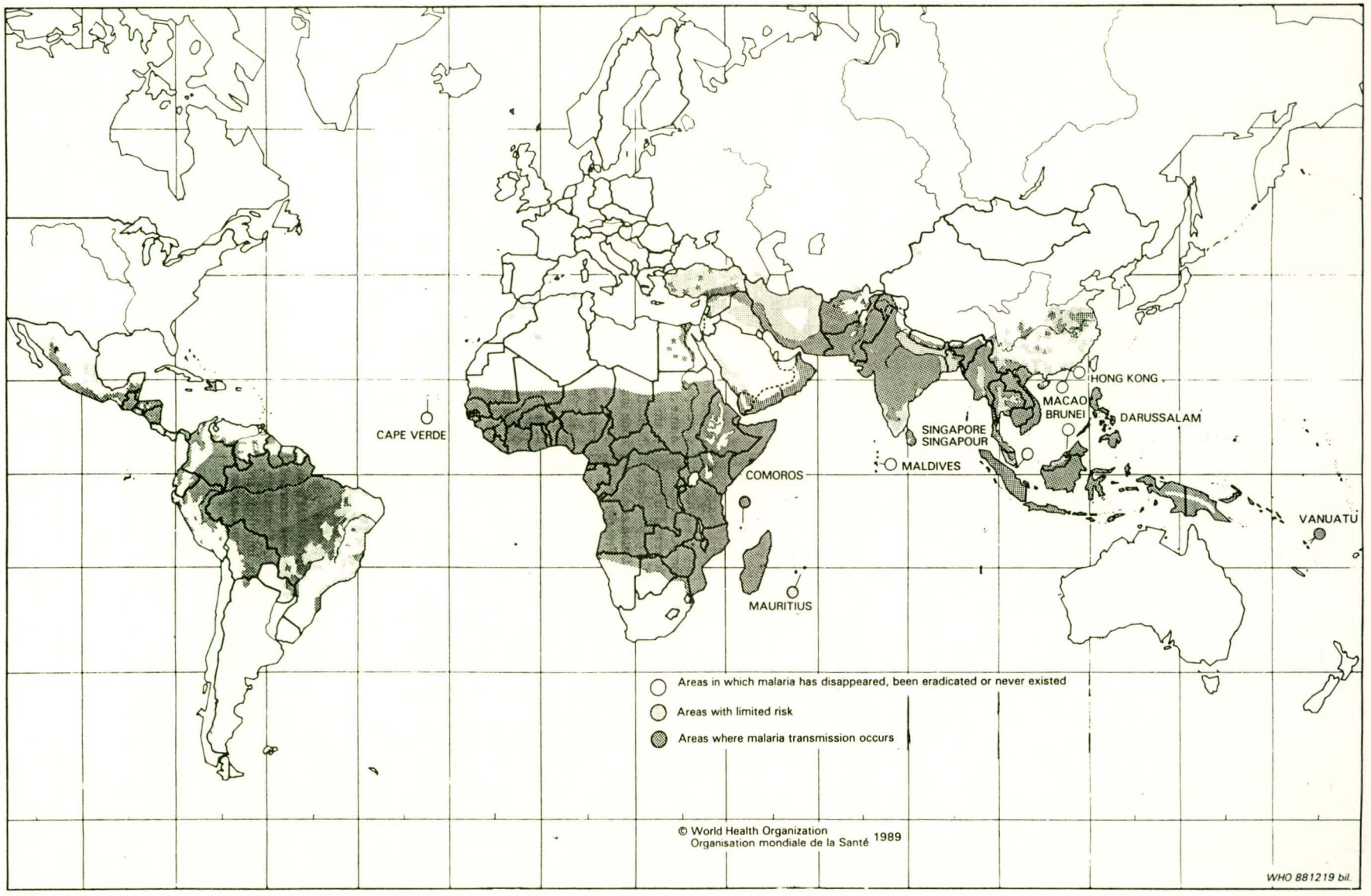
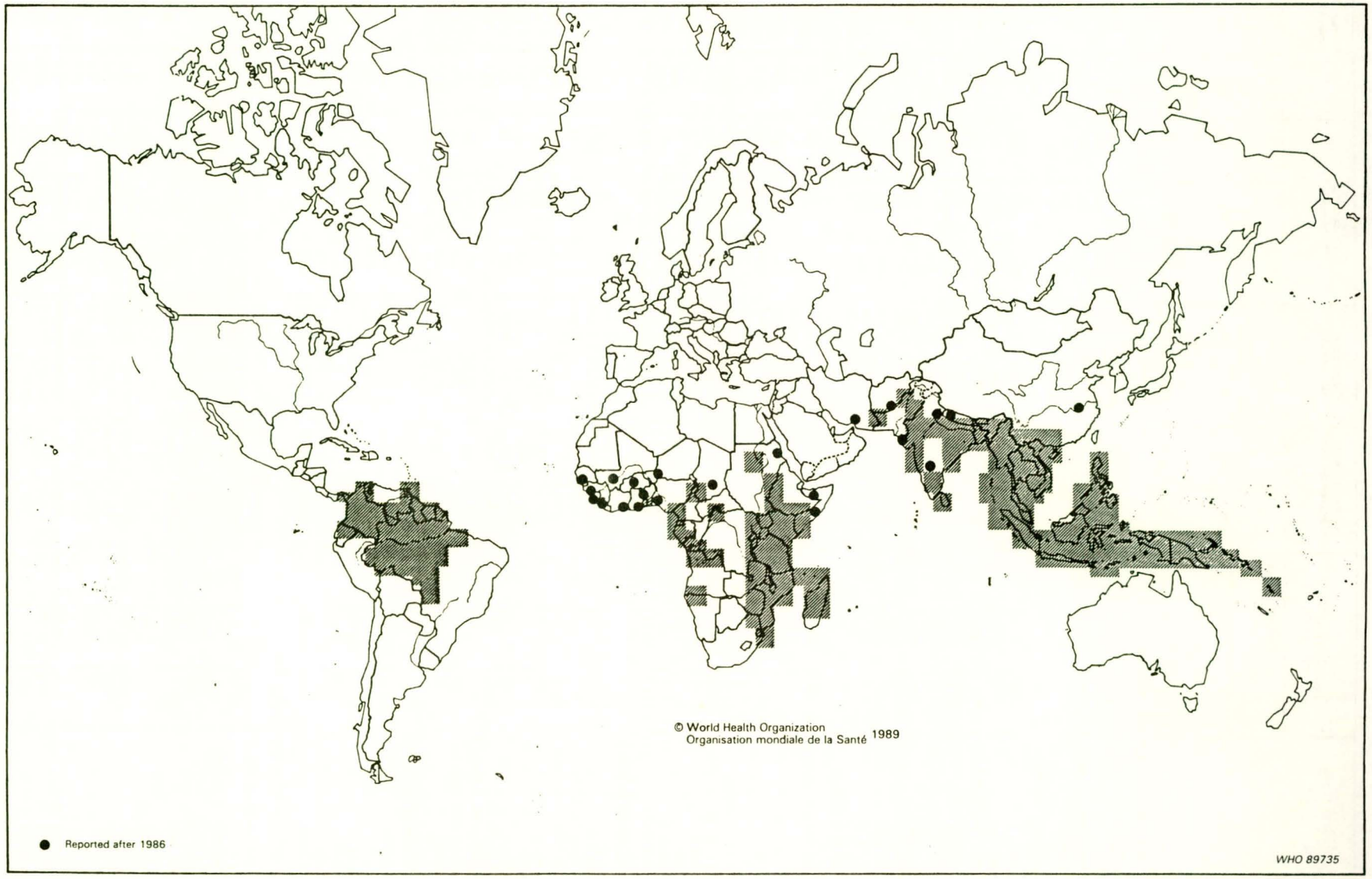


Table 2: Malaria: Epidemiological data, 1985-1987

Country/area	Population (millions) 1987			Total number of blood specimens examined (1000)		Total number of cases reported		Malaria cases per 1000 population [a]			Percentage of *P. falciparum* cases		
	Total of country/area	Originally malarious area		1986	1987	1986	1987	1985	1986	1987	1985	1986	1987
		Total	No or very limited risk										
AFRICA NORTH OF THE SAHARA													
Algeria	23.10	11.62	11.62	320.3	263.1	32	64	0.0	0.0	0.0	61.4[b]	68.8[b]	65.6[b]
Egypt	50.74	50.74	50.74	1 223.1	1 190.4	63	33	0.0	0.0	0.0	26.4	50.8	48.5
Libyan Arab Jamahiriya	4.08	0.63	0.63	7.8	4.7	57	75	0.1	0.1	0.1	2.8[b]	5.3[b]	14.7[b]
Morocco	23.31	13.16	8.85	1 070.5	893.8	597	1 287	0.1	0.0	0.1	0.3[b]	11.6[b]	44.8[b]
CENTRAL AMERICA													
Belize	0.17	0.17	0.03	20.9	22.1	2 779	3 258	16.5	16.3	19.2	3.5	4.9	7.5
Costa Rica	2.78	0.79	0.68	113.7	103.5	790	883	1.0	1.0	1.1	0.4	2.7	3.6
Dominican Republic	6.72	6.68	6.58	427.7	391.3	1 360	1 206	0.1	0.2	0.2	99.9	99.9	99.8
El Salvador	5.01	4.51	—	182.6	200.7	23 953	12 834	10.2	5.4	2.8	9.8	10.0	4.7
Guatemala	8.44	3.44	—	473.4	511.4	42 609	57 662	16.7	12.8	16.8	5.7	3.3	4.9
Haiti	5.44	4.89	—	262.6	213.0	14 363	12 134	3.3	3.0	2.5	100.0	100.0	99.9
Honduras	4.66	4.51	—	411.2	388.5	29 130	19 095	8.5	7.0	4.2	4.8	4.2	3.9
Mexico	81.16	43.10	—	1 217.8	1 232.0	130 915	99 578	2.9	3.1	2.3	0.9	0.8	0.3
Nicaragua	3.50	3.50	—	510.3	448.3	20 308	17 011	4.6	6.0	4.9	2.0	5.4	11.3
Panama	2.27	2.19	1.99	388.5	403.3	1 060	1 195	0.1	0.5	0.5	38.1	5.6	15.8
SOUTH AMERICA													
Argentina	31.50	3.92	3.83	31.0	31.5	2 000	1 641[d]	0.2	0.5	0.4	0.4	0.1	0
Bolivia	6.80	2.62	—	101.9	115.5	20 993	24 891	5.7	8.2	9.5	6.2	8.0	6.1
Brazil	141.45	60.91	15.94	3 364.0	3 034.5	443 627	508 864	7.0	7.5	8.4	53.3	54.9	53.1
Colombia	29.73	19.40	14.10	477.5	434.6	89 251	90 014	3.0	4.7	4.6	39.3	34.2	30.8
Ecuador	9.92	5.71	—	275.9	327.7	51 430	63 503	12.0	8.8	11.1	17.4	23.3	28.1
French Guiana	0.09	0.09	0.08	6.4	17.2	979	2 221	8.6	12.2	24.7	78.1	75.4	81.0
Guyana	0.99	0.99	0.89	84.8	165.2	16 388	34 142	10.0	16.9	34.5	29.6	57.0	66.3
Paraguay	3.92	3.33	2.52	102.9	89.7	4 329	3 578[d]	1.5	1.3	1.1	0.4	0.2	2.0
Peru	20.73	6.85	—	184.6	151.3	36 866	39 136	5.4	5.5	5.7	0.0	0.2	0.0
Suriname	0.39	0.29	0.26	51.0	29.4	1 316	2 044	6.0	4.7	7.1	84.4	76.1	82.1
Venezuela	18.27	14.34	13.56	289.5	234.8	14 361	13 006	1.1	1.0	0.9	24.1	21.9	41.2
ASIA WEST OF INDIA													
Afghanistan	14.71	8.42	—	1 052.6	1 155.9	377 808	428 128[d]	21.9	35.5	50.8	0.1	0.1	0.8
Democratic Yemen	2.44	2.44	—	42.2	45.9	3 564	5 540	1.4	1.5	2.3	100.0	99.7	98.6
Iran (Islamic Republic	51.25	40.60	26.51	2 575.8	...	32 284	...	0.8	0.8	...	14.1	24.4	...
Iraq	17.05	17.05	12.78	983.9	887.7	2 953	3 742	0.3	0.2	0.2	0.7	0.5	0.2
Oman	1.33	1.33	—	276.5	248.0	16 710	15 514	13.3	8.4	11.7	74.3	73.7	85.7
Pakistan	102.24	102.24	—	2 897.9	2 943.2	90 312	64 342	0.8	0.9	0.6	37.8	32.7	35.2
Saudi Arabia	13.61	5.31	2.22	538.0	594.3	12 975	17 650	3.6	2.8	3.3	88.3	87.1	94.2
Syrian Arab Republic	10.97	6.79	3.76	279.5	231.3	273	150	0.1	0.0	0.0	0.5	1.1	3.3
United Arab Emirates	1.45	1.45	—	70.8	...	3 070	...	2.0	2.2	...	22.4	19.8	...
Yemen	7.31	3.21	—	56.0	60.0	1 862	2 551	0.4	0.6	0.8	97.2	99.1	99.4
MIDDLE SOUTH ASIA													
Bangladesh	102.56	102.56	—	2 654.6	2 771.6	41 408	35 848	0.3	0.4	0.3	49.3	53.7	57.1
Bhutan	1.42	0.18	—	82.6	69.0	19 916	13 134	87.4[d]	106.6	71.9	55.5[d]	52.5	47.0
India	781.37	754.86	—	66 380.0	69 820.0	1 765 631	1 611 189	2.6	2.4	2.1	29.2	35.2	36.8
Maldives	0.19	0.19	—	61.0	32.1	8	11	0.1	0.0	0.1	25.0[b]	25.0[b]	100.0[b]
Nepal	17.79	11.41	—	1 455.6	1 454.7	36 463	26 690	3.9	3.3	2.3	17.9	9.8	14.8
Sri Lanka	16.36	12.20	—	1 469.7	1 952.7	412 521	676 569	10.2	35.0	55.4	11.1	20.4	26.9
EASTERN ASIA AND OCEANIA													
Burma *see* Myanmar	—												
China	1 088.57	1 002.57	806.37	20 693.5	20 865.9	363 651	210 614	0.6	0.4	0.2	1.1	1.6	3.8
Democratic Kampuchea	7.68	2.49	—	...	...	...	...	...	...	...	...	...	...
East Timor	0.69	0.59	—	...	...	...	...	...	...	...	...	...	...
Indonesia	170.18	161.82	—	8 294.4[c]	6 950.7[c]	20 113[c]	19 309[c]	0.3[c]	0.1[c]	0.1[c]	38.4[c]	38.9[c]	41.4[c]
Lao People's Democratic Republic	3.78	3.02	—	0.0	274.7	21 744	34 960	6.4	6.4	11.6	78.7	0.0	92.7
Malaysia	16.56	16.56	13.09	2 157.4	2 162.6	44 145	36 657	3.2	2.8	2.2	70.4	67.1	67.0
Myanmar	39.14	35.77	—	620.3	865.6	33 389[d]	61 650	2.0	0.9[d]	1.7	85.6	85.0[d]	87.8
Papua New Guinea	3.48	3.48	—	333.4	362.3	143 316	164 228	54.8	42.2	47.2	78.4	77.5	73.5
Philippines	57.36	17.21	5.42	618.4	1 113.8	102 573	154 091	6.2	6.0	9.0	64.0	0.0	60.2
Solomon Islands	0.29	0.29	—	223.3	...	58 776	>72 000[d]	151.0	209.9	>248.0[d]	61.4	71.3	...
Thailand	53.60	46.46	8.56	6 624.2	7 531.4	252 070	321 510	6.0	5.4	6.9	65.6	54.2	52.2
Vanuatu	0.14	0.14	—	73.5	0.0	22 449	26 631	177.7	160.4	190.2	71.9	74.7	0.0
Viet Nam	62.81	45.36	14.87	2 983.7	3 019.6	87 351	130 690	1.8	1.9	2.9	60.0	45.9	53.6
EUROPE, INCLUDING TURKEY AND THE USSR													
Turkey — Turquie	51.35	51.35	41.08	2 103.5	2 772.0	3 789.9	20 134	0.50[d]	0.75	0.39	0	0	0

[a] Population in originally malarious areas.
[b] Imported cases.
[c] Java, Bali.
[d] Incomplete figure.
— = Not applicable.
0 or 0.0 = Magnitude not zero but less than half of unit employed.

Map 2: Locations where chloroquine-resistant *Plasmodium falciparum* has been reported



North America:

. Mexico: Malaria is endemic in Mexico where cases increased from 18,000 in 1976 to 131,000 in 1986. The number of cases was reduced to 100,000 in 1987 by giving priority to malaria control in the most affected areas. The number of cases of falciparum malaria decreased from 1,100 in 1986 to 320 in 1987.

. United States and Canada: Only imported cases were recorded except for occasional episodes of a few introduced cases in the United States.

Caribbean: In this subregion the malaria problem is limited to the Dominican Republic, with 1,400 and 1,200 cases reported in 1986 and 1987 respectively, and to Haiti where the number of cases recorded decreased from 17,000 in 1985 to 12,000 in 1987. In Cuba, some introduced malaria cases have been registered in recent years. The other countries reported only imported malaria cases.

Central America: Overall, the number of cases decreased from 189,000 in 1984 to 112,000 in 1987. Of these 112,000, 52% originated in Guatemala, 17% in Honduras, 15% in Nicaragua, 12% in El Salvador. Some 6,500 falciparum cases were recorded in 1987, 43% of them from Guatemala, 17% from Honduras, 15% from Nicaragua, and 11% from El Salvador. Costa Rica and Panama had the lowest incidence; however, as a result of the introduction of cases from bordering countries, epidemic outbreaks occurred in areas previously malaria free.

South America:

. Andean subregion (Bolivia, Colombia, Ecuador, Peru, Venezuela): In 1987, this region reported 23% (231,000) of the total malaria cases for the Americas - a slight increase over previous years. All cases in Peru and 94% of cases in Bolivia were vivax malaria. The relative prevalence of falciparum malaria reaches 41% in Venezuela, 31% in Colombia and 28% in Ecuador. Falciparum malaria resistant to antimalarial drugs exists in Bolivia, Colombia, Ecuador, and Venezuela. There are accounts of mortality from malaria, but the only countries reporting on this are Ecuador and Venezuela.

. French Guiana, Guyana, Suriname: During past decades, the coastal plains had been freed from malaria, but in recent years migration to the tropical jungle areas of the interior and border traffic have exacerbated transmission in the interior and caused epidemics in the coastal lands. The number of malaria cases multiplied from year to year between 1983 (5,100 cases) and 1987 (38,000 cases). Guyana is the most affected country with 34,000 cases recorded in 1987 and an annual incidence of 35 per 1,000.

. Brazil: With a population of 142 million of whom 61 million live in originally malarious areas, Brazil reported 509,000 cases in 1987 (one-half of all cases in the Americas). The number of cases has been increasing steadily since 1975 (89,000 cases) despite the control measures applied. Fifty-three per cent of the cases are

falciparum infections. The problem is aggravated in the Amazonian region in areas attracting large populations which are very much exposed to the vector. Most of the cases (96%) originated from the Amazonian states.

. Southern cone (Argentina, Chile, Paraguay, Uraguay): In this subregion malaria is a problem only in Paraguay and in a small area in the north of Argentina. Fewer than 1,000 cases have been recorded annually in Argentina during the past decade. In 1986, an exacerbation of transmission (*P. vivax* only) resulted in 2,000 cases, and incomplete information for 1987 shows 1,600 cases. In Paraguay, the number of cases increased from 550 in 1984 to 4,600 in 1985 and 4,300 in 1986. There were 3,600 cases in 1987 (incomplete data).

Asia west of India

As in previous years, no indigenous malaria was detected in Bahrain, Cyprus, Israel, Jordan, Kuwait, Lebanon and Qatar.

. Pakistan: The number of cases increased from 78,000 in 1985 to 90,000 in 1986. In 1987, only 64,000 cases were reported. The relative prevalence of falciparum infections was about 52% in Baluchistan and Sind Provinces, 28% in Punjab and 17% in North-West Frontier Provinces.

. Oman: The number of cases is declining with 15,000 cases reported in 1987 compared with 33,000 in 1983. However a rise in the relative prevalence of falciparum malaria was observed in 1987; it is attributed to increased transmission due to heavy rains in areas not covered by antimalarial measures.

. Syrian Arab Republic: The number of cases has been decreasing since 1984; 150 cases were reported in 1987. All indigenous cases were vivax malaria mainly orginating from foci in Aleppo-Hassan Kabir, Lattakia and Malkiya.

Increasing numbers of malaria cases were reported from Afghanistan, Democratic Yemen, the Islamic Republic of Iran, Iraq, Saudi Arabia, the United Arab Emirates and Yemen.

. Afghanistan: 428,000 cases were detected in 1987 (data incomplete). Falciparum infections are increasing in eastern, southern and south eastern parts of the country. High morbidity rates were recorded in Laghman, Kunar, Jalalabad, Ghaziabad, Kunduz, Imamsahib, Taloquan and Faizabad districts.

. Democratic Yemen: 2,551 cases were reported. Aden city and the high mountainous and desert areas are malaria free.

. Iraq: 3,742 cases of malaria were reported. Only a small percentage of cases were falciparum malaria.

. Saudi Arabia: 18,000 cases were reported in 1987, compared with 16,000 in 1985 and 13,000 in 1986. The most affected areas were the foothills and the lowlands of the Tihama region. Some local outbreaks occurred in the Western and Southern (Asir) Provinces during 1986.

. United Arab Emirates: There is no malaria in the major urban areas. Transmission continues in the north-eastern mountainous areas along the border with Oman.

Middle South Asia

The overall malaria situation improved except in Sri Lanka, where incidence continued to rise.

. Bangladesh: The number of cases decreased in 1987 (36,000) in contrast to the increase in cases between 1985 (30,000) and 1986 (41,000). However, the relative prevalence of falciparum malaria increased to 57%. In the past few years, the majority of cases has been reported from a few districts in the north-eastern and eastern parts of the country, and several localised epidemics have occurred along the border with India.

. Bhutan: In 1986 certain localities bordering Assam State (India) experienced a high increase in malaria incidence attaining epidemic proportions, with *P.falciparum* being the predominant species. In 1987, only 13,000 cases were reported compared with 20,000 in 1986.

. India: The number of laboratory-confirmed cases continued to show a downward trend with 1.6 million cases reported in 1987, but the proportion of falciparum cases increased slightly from 33% in 1986 to 37% in 1987. Two-thirds of the cases reported in 1987 originated in Madhya Pradesh, Gujarat, Orissa, Uttar Pradesh, Karnataka and Punjab. The highest numbers of falciparum infections were recorded in Orissa, Madhya Pradesh, Gujarat, Assam and Karnataka. The highest rates of malaria cases per 1,000 inhabitants were observed in the Union Territories of Dadra and Nagar Haveli, Chandigarh and in the development project areas; in the Union Territories of Mizoram and Arunachal Pradesh; and in the States of Orissa, Gujarat, Meghalaya, Himachal Pradesh and Madhya Pradesh.

. Maldives: Only imported malaria cases have been found.

. Nepal: The number of malaria cases has decreased from 42,000 cases in 1985 to 36,000 in 1986 and 27,000 in 1987. However the proportion of falciparum cases has increased from 10% in 1986 to 15% in 1987.

. Sri Lanka: Malaria incidence has risen sharply since an increase was observed in 1983. During 1987, 676,000 cases (493,000 *P. vivax*, 183,000 *P. falciparum* including mixed infections) were reported. The following regions were the most affected: Anuradhapura, Kurunegala, Puttalam, Matale, followed by Maho, Monaragala and Hambantota. Most of the falciparum infections were reported from Kurunegala, Anuradhapura, Hambantota and Puttalam.

Eastern Asia and Oceania

Australia, Brunei Darussalam, the Democratic People's Republic of Korea, Hong Kong, Japan, Macao, Mongolia, the Republic of Korea, Singapore, large areas of China and most of Oceania continued to be free from malaria.

. China: Malaria incidence is decreasing. In 1987, 211,000 cases were reported. Morbidity from malaria decreased by 39-64% compared with 1986 in the major endemic areas including Anhui, Hubei, Jiangsu, and Henan Provinces in the east-central part of the country, where 112,000 cases (53% of the total) were recorded. In the south, incidence was fluctuating and some local outbreaks occurred. The distribution of falciparum malaria continued to be confined to 7 provinces/autonomous regions. In Anhui, Jiangsu and Henan Provinces the number of falciparum cases decreased considerably while an increase of indigenous falciparum cases was noted in 48 counties of Hainan Island, Yunnan and Guizhou Provinces, and in Guangxi Autonomous Region. Some 452 million people are covered by surveillance activities. The percentage of positives among the 20.2 million blood specimens collected within this population was 0.5%. Of the total number of cases registered in 1987, 48% were confirmed; these included 7,438 falciparum and mixed infections (7.3%). Among 620,000 people examined during surveys in areas with comparatively higher malaria incidence, 5,300 were found positive for malaria (0.85%); falciparum and mixed infections were reported in 15% of the cases.

. Indonesia: The situation continued to improve in Java and Bali, although at a slower pace: 19,000 malaria cases were reported in 1987 compared to 20,000 in 1986 and 48,000 in 1985. In other other islands malaria control operations are limited to areas of socioeconomic importance.

. Malaysia:
- Malay peninsula: Nine-tenths of the population live in areas freed from malaria. The disease is only endemic in the hilly and less developed areas of the central, northern and north-eastern parts of the peninsula.
- Sarawak: Transmission is limited to the border areas.
- Sabah: In 1987 26,000 cases were reported (over half the 36,000 cases reported for Malaysia) compared to 31,000 in 1986 and 38,000 in 1985.

. Lao People's Democratic Republic, Myanmar (previously Burma), Papua New Guinea and Vanuatu: The malaria situation has not shown any significant improvement over the past few years.

. Thailand: The incidence of malaria decreased from 275,000 in 1985 to 252,000 in 1986, but rose to 322,000 cases in 1987. However the relative prevalence of falciparum malaria fell from 66% in 1985 to 52% in 1987. One of the major problems remains the increasing frequency of falciparum strains highly resistant to chloroquine and sulfadoxine-pyrimethamine. A new combination of drugs has been introduced for radical treatment.

. Philippines: The malaria incidence rose by nearly 50% from 1986 to 1987.

. Viet Nam: The situation continued to deteriorate, with the number of falciparum cases doubling in the northern part of the country.

. Solomon Islands: More than 72,000 cases were reported in 1987. This high number is probably a consequence of the passage of the 1986 cyclone.

Europe, including Turkey and the USSR

. Europe: The number of imported malaria cases recorded in Europe continued to rise with 7,300 cases reported in 1987 compared with 6,900 in 1986 and 6,400 in 1985. This is largely due to the phenomenal growth of international air traffic in recent years. As a substantial proportion of imported malaria cases is not being declared and thus is not included in the health statistics, the actual number should be considerably higher.

. Turkey: Endemic malaria occurs only in the south-eastern part of Turkey, where local cases were also reported from Ankara, Antalya, Aydin, Corum, Erzurum, Kirsehir, Konya, Manisa, Sakarya and Samsun Provinces.

. USSR: In the USSR, indigenous malaria exists in some limited foci in border areas of the south.

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES
BASED ON DATE OF REPORTING

PERIOD 31/8/89 TO 13/9/89

1. CODE 019 - FAIRFIELD(VIC)
2. CODE 065 - STATE LAB(WA) PMH(WA)
3. CODE 110 - IMVS(SA)
4. CODE 111 - RCH(VIC)
5. CODE 112 - ICPMR(NSW) WVH(ACT)
6. CODE 113 - PHH POW(NSW)
7. CODE 114 - RAHC(NSW)
8. CODE 115 - STATE LAB(QLD)

		019	065	110	111	112	114	115	TOTAL
0100	ADENOVIRUS NOT TYPED	0	0	4	0	4	0	10	18
0101	ADENOVIRUS TYPE 1	0	0	0	1	1	0	0	2
0102	ADENOVIRUS TYPE 2	1	0	3	4	0	0	0	8
0103	ADENOVIRUS TYPE 3	6	1	10	4	11	0	0	32
0104	ADENOVIRUS TYPE 4	2	0	2	0	0	0	0	4
0105	ADENOVIRUS TYPE 5	2	1	4	0	0	1	0	8
0106	ADENOVIRUS TYPE 6	1	0	5	0	0	0	0	6
0108	ADENOVIRUS TYPE 8	1	0	2	0	0	0	0	3
0109	ADENOVIRUS TYPE 9	0	0	0	0	1	0	0	1
0111	ADENOVIRUS TYPE 11	0	0	0	0	2	0	0	2
0112	ADENOVIRUS TYPE 12	0	0	0	0	1	0	0	1
0137	ADENOVIRUS TYPE 37	1	0	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	0	0	8	0	1	0	9
0201	INFLUENZA A VIRUS	5	14	11	35	18	4	0	87
0202	INFLUENZA A VIRUS SUBTYPE H3N2	10	0	27	8	10	0	0	55
0203	INFLUENZA B VIRUS	9	10	14	14	5	3	0	55
0299	INFLUENZA VIRUS - TYPING PENDI	0	0	0	8	0	0	0	8
0301	PARAINFLUENZA VIRUS TYPE 1	0	0	0	0	2	0	0	2
0302	PARAINFLUENZA VIRUS TYPE 2	2	0	0	0	1	0	0	3
0303	PARAINFLUENZA VIRUS TYPE 3	1	5	20	0	0	0	1	27
0400	RESPIRATORY SYNCYTIAL VIRUS (R	30	8	13	34	170	6	9	270
0500	RHINOVIRUS (ALL TYPES)	7	2	7	12	2	0	3	33
0600	MYCOPLASMA PNEUMONIAE	2	1	6	4	25	0	0	38
0700	ORNITHOSIS-PSITTACOSIS	1	0	0	0	0	0	0	1
0809	COXSACKIEVIRUS A9	0	0	0	0	2	0	0	2
0903	COXSACKIEVIRUS B3	1	0	0	0	0	0	0	1
0904	COXSACKIEVIRUS B4	0	1	3	0	0	0	0	4
0906	COXSACKIEVIRUS B6	1	0	0	0	0	0	0	1
1002	ECHOVIRUS TYPE 2	1	0	0	0	0	0	0	1
1003	ECHOVIRUS TYPE 3	0	0	0	0	0	1	0	1
1004	ECHOVIRUS TYPE 4	1	0	0	6	0	0	0	7
1006	ECHOVIRUS TYPE 6	0	0	0	0	1	0	0	1
1009	ECHOVIRUS TYPE 9	2	0	0	1	1	0	0	4
1011	ECHOVIRUS TYPE 11	1	0	0	0	0	0	0	1
1014	ECHOVIRUS TYPE 14	0	0	0	1	4	0	0	5
1018	ECHOVIRUS TYPE 18	1	0	0	0	0	0	0	1
1025	ECHOVIRUS TYPE 25	0	0	0	0	2	0	0	2
1028	ECHOVIRUS TYPE 28 = RHINO VIRU	0	0	0	0	0	3	0	3
1030	ECHOVIRUS TYPE 30	0	1	0	0	1	0	0	2
1100	POLIOVIRUS NOT TYPED	0	0	0	3	0	0	0	3
1101	POLIOVIRUS TYPE 1	0	0	2	0	1	0	0	3
1102	POLIOVIRUS TYPE 2	0	0	1	0	1	1	0	3
1103	POLIOVIRUS TYPE 3	1	0	0	0	1	0	0	2
1104	POLIOVIRUS - MIXED VACCINAL ST	0	1	0	0	0	0	0	1
1200	MUMPS VIRUS	1	0	0	1	7	0	0	9
1300	HERPES VIRUS GROUP - NOT TYPED	0	1	0	0	10	0	0	11
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	0	0	0	46	0	38	84
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	2	3	12	3	2	6	0	28
1303	VARICELLA-ZOSTER VIRUS	3	2	1	1	18	0	1	26
1306	HERPES SIMPLEX TYPE 1	36	28	15	0	5	0	0	84
1307	HERPES SIMPLEX TYPE 2	51	54	24	0	22	0	3	154
1399	HERPES VIRUS TYPING PENDING	0	0	0	3	0	0	0	3
1401	COXIELLA BURNETII	0	0	0	0	20	0	0	20
1502	PICORNIA VIRUS - NOT TYPED = E	0	0	0	0	0	0	4	4
1521	MEASLES VIRUS	0	0	0	0	1	0	0	1
1522	RUBELLA VIRUS	5	3	2	0	1	0	0	11
1532	HEPATITIS B ANTIGEN	16	6	12	0	39	3	28	104
1535	HEPATITIS A ANTIBODY	3	8	6	0	1	0	0	18
1541	CHLAMYDIA A - C. TRACHOMATIS	19	27	24	0	20	1	35	126
1556	CMV - CYTOMEGALOVIRUS	19	8	3	8	6	1	9	54
1562	REOVIRUS (ALL TYPES)	0	0	0	0	1	0	0	1
1564	ROTAVIRUS	3	19	21	20	17	6	35	121
1565	CALICI VIRUS	0	0	0	0	2	0	0	2
1566	NORWALK AGENT	0	0	0	0	4	0	0	4
1599	ENTEROVIRUS TYPING PENDING	0	0	0	3	0	1	0	4
9902	POXVIRUS GROUP NOT TYPED	2	0	0	0	0	0	0	2
9992	ROSS RIVER VIRUS	1	9	0	0	0	0	0	10
9994	SMALL VIRUS (LIKE) PARTICLE	0	1	0	0	1	1	0	3
TOTAL		251	214	254	182	490	39	176	1606

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 2

PERIOD 31/8/89 TO 13/9/89

12. CODE 10 - EYE
13. CODE 59 - GENITAL
14. CODE 39 - ENDOCRINE/SALIVARY GL.
15. CODE 38 - RETICULO-ENDOTHELIAL
16. CODE 29 - MUSCLE/JOINT
17. CODE 69 - CONGENTIAL
18. CODE P8 - PUO
19. CODE G8 - FEVER/MALAISE
20. CODE 09 - OTHER
21. CODE A1 - SIDS

		12	13	14	15	16	17	18	19	20	21	TOTAL
0100	ADENOVIRUS NOT TYPED	0	0	0	0	0	0	0	0	2	0	2
0103	ADENOVIRUS TYPE 3	14	0	0	0	0	0	1	2	0	0	17
0104	ADENOVIRUS TYPE 4	3	0	0	0	0	0	0	0	0	0	3
0106	ADENOVIRUS TYPE 6	1	0	0	0	0	0	0	0	0	0	1
0108	ADENOVIRUS TYPE 8	3	0	0	0	0	0	0	0	0	0	3
0109	ADENOVIRUS TYPE 9	0	0	0	0	0	0	0	0	1	0	1
0111	ADENOVIRUS TYPE 11	0	0	0	0	0	0	1	0	1	0	2
0137	ADENOVIRUS TYPE 37	1	0	0	0	0	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	1	0	0	0	0	0	0	0	0	0	1
0201	INFLUENZA A VIRUS	0	0	0	0	0	0	3	7	3	0	13
0202	INFLUENZA A VIRUS SUBTYPE H3N2	0	0	0	0	0	0	1	5	0	1	7
0203	INFLUENZA B VIRUS	0	0	0	0	2	0	0	5	0	0	7
0299	INFLUENZA VIRUS - TYPING PENDI	0	0	0	0	0	0	0	3	0	0	3
0303	PARAINFLUENZA VIRUS TYPE 3	0	0	0	0	0	0	1	0	0	0	1
0400	RESPIRATORY SYNCYTIAL VIRUS (R	0	0	1	0	1	0	0	0	0	0	2
0500	RHINOVIRUS (ALL TYPES)	1	0	0	0	0	0	0	0	0	0	1
0600	MYCOPLASMA PNEUMONIAE	0	0	0	0	0	0	0	0	1	0	1
0903	COXSACKIEVIRUS B3	0	0	0	0	0	0	0	1	0	0	1
0904	COXSACKIEVIRUS B4	0	0	0	0	0	1	0	0	0	0	1
0906	COXSACKIEVIRUS B6	0	0	0	0	0	0	0	1	0	0	1
1004	ECHOVIRUS TYPE 4	0	0	0	0	0	0	0	1	0	1	2
1009	ECHOVIRUS TYPE 9	0	0	0	0	0	0	1	0	0	0	1
1014	ECHOVIRUS TYPE 14	0	0	0	0	0	0	0	0	0	1	1
1030	ECHOVIRUS TYPE 30	0	0	0	0	0	0	0	1	0	0	1
1100	POLIOVIRUS NOT TYPED	0	0	0	0	0	0	0	0	0	2	2
1101	POLIOVIRUS TYPE 1	0	0	0	0	0	0	0	1	0	0	1
1200	MUMPS VIRUS	0	0	5	0	0	0	0	0	0	0	5
1300	HERPES VIRUS GROUP - NOT TYPED	0	6	0	0	0	0	0	0	1	0	7
1301	HERPES SIMPLEX VIRUS - NOT TYP	3	28	0	0	0	0	0	0	1	0	32
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	0	0	12	1	0	0	1	5	5	0	24
1303	VARICELLA-ZOSTER VIRUS	0	1	0	0	0	0	0	2	0	0	3
1306	HERPES SIMPLEX TYPE 1	6	22	0	0	0	0	0	2	3	0	33
1307	HERPES SIMPLEX TYPE 2	0	91	0	0	0	0	0	0	0	0	91
1401	COXIELLA BURNETII	0	0	0	0	0	0	3	5	3	0	11
1522	RUBELLA VIRUS	0	0	0	1	0	0	0	0	0	0	1
1532	HEPATITIS B ANTIGEN	0	0	0	0	1	0	0	1	19	0	21
1541	CHLAMYDIA A - C. TRACHOMATIS	0	105	0	0	0	0	0	0	0	0	105
1556	CMV - CYTOMEGALOVIRUS	0	4	1	0	0	3	0	2	18	0	28
9992	ROSS RIVER VIRUS	0	0	0	0	8	0	0	0	1	0	9
TOTAL		33	257	19	2	12	4	12	44	59	5	447

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 1

PERIOD 31/8/89 TO 13/9/89

1. CODE 00, 99 ..... - NO ILL OR DATA
2. CODE 01, 02, 11, 12 - RESPIRATORY
3. CODE E3 ..... - ENCEPHALITIS
4. CODE M3 ..... - MENINGITIS
5. CODE 04 ..... - PARALYSIS
6. CODE 05, 13 ..... - CNS OTHER UNSPEC
7. CODE 07, 49 - GASTRO INTESTINAL
8. CODE 17, 47 - HEPATIC
9. CODE 19 ... - CVS
10. CODE 89 ... - URINARY TRACCT
11. CODE 06 ... - SKIN MUCOUS

		1	2	3	4	5	6	7	8	10	11	TOTAL
0100	ADENOVIRUS NOT TYPED	0	9	0	0	0	0	6	0	1	0	16
0101	ADENOVIRUS TYPE 1	0	1	0	0	0	0	1	0	0	0	2
0102	ADENOVIRUS TYPE 2	0	8	0	0	0	0	0	0	0	0	8
0103	ADENOVIRUS TYPE 3	1	11	0	0	0	1	2	0	0	0	15
0104	ADENOVIRUS TYPE 4	0	1	0	0	0	0	0	0	0	0	1
0105	ADENOVIRUS TYPE 5	1	7	0	0	0	0	0	0	0	0	8
0106	ADENOVIRUS TYPE 6	0	5	0	0	0	0	0	0	0	0	5
0112	ADENOVIRUS TYPE 12	1	0	0	0	0	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	7	0	0	0	0	0	0	0	1	8
0201	INFLUENZA A VIRUS	9	65	0	0	0	0	0	0	0	0	74
0202	INFLUENZA A VIRUS SUBTYPE H3N2	1	46	0	0	0	0	1	0	0	0	48
0203	INFLUENZA B VIRUS	2	45	0	0	0	0	1	0	0	0	48
0299	INFLUENZA VIRUS - TYPING PENDI	0	5	0	0	0	0	0	0	0	0	5
0301	PARAINFLUENZA VIRUS TYPE 1	0	2	0	0	0	0	0	0	0	0	2
0302	PARAINFLUENZA VIRUS TYPE 2	0	3	0	0	0	0	0	0	0	0	3
0303	PARAINFLUENZA VIRUS TYPE 3	1	24	0	0	0	0	1	0	0	0	26
0400	RESPIRATORY SYNCYTIAL VIRUS (R	20	248	0	0	0	0	0	0	0	0	268
0500	RHINOVIRUS (ALL TYPES)	2	29	0	0	0	0	1	0	0	0	32
0600	MYCOPLASMA PNEUMONIAE	9	26	0	0	0	1	1	0	0	0	37
0700	ORNITHOSIS-PSITTACOSIS	0	1	0	0	0	0	0	0	0	0	1
0809	COXSACKIEVIRUS A9	0	1	0	1	0	0	0	0	0	0	2
0904	COXSACKIEVIRUS B4	1	1	0	0	0	0	1	0	0	0	3
1002	ECHOVIRUS TYPE 2	0	1	0	0	0	0	0	0	0	0	1
1003	ECHOVIRUS TYPE 3	0	1	0	0	0	0	0	0	0	0	1
1004	ECHOVIRUS TYPE 4	0	3	0	1	0	0	0	0	0	1	5
1006	ECHOVIRUS TYPE 6	1	0	0	0	0	0	0	0	0	0	1
1009	ECHOVIRUS TYPE 9	0	0	0	2	0	0	0	0	0	1	3
1011	ECHOVIRUS TYPE 11	0	1	0	0	0	0	0	0	0	0	1
1014	ECHOVIRUS TYPE 14	2	0	0	0	0	0	2	0	0	0	4
1018	ECHOVIRUS TYPE 18	0	0	0	1	0	0	0	0	0	0	1
1025	ECHOVIRUS TYPE 25	0	1	0	0	0	0	1	0	0	0	2
1028	ECHOVIRUS TYPE 28 = RHINO VIRU	0	3	0	0	0	0	0	0	0	0	3
1030	ECHOVIRUS TYPE 30	0	0	0	1	0	0	0	0	0	0	1
1100	POLIOVIRUS NOT TYPED	0	0	0	1	0	0	0	0	0	0	1
1101	POLIOVIRUS TYPE 1	2	0	0	0	0	0	0	0	0	0	2
1102	POLIOVIRUS TYPE 2	0	1	0	0	0	0	2	0	0	0	3
1103	POLIOVIRUS TYPE 3	0	1	0	0	0	0	1	0	0	0	2
1104	POLIOVIRUS - MIXED VACCINAL ST	1	0	0	0	0	0	0	0	0	0	1
1200	MUMPS VIRUS	2	1	0	0	0	1	0	0	0	0	4
1300	HERPES VIRUS GROUP - NOT TYPED	0	2	0	0	0	0	0	0	0	2	4
1301	HERPES SIMPLEX VIRUS - NOT TYP	21	1	0	0	0	1	0	0	0	29	52
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	2	1	0	0	0	0	0	1	0	0	4
1303	VARICELLA-ZOSTER VIRUS	6	1	0	1	0	3	0	0	0	12	23
1306	HERPES SIMPLEX TYPE 1	7	5	0	0	0	0	0	0	0	39	51
1307	HERPES SIMPLEX TYPE 2	5	0	1	0	0	0	0	0	0	57	63
1399	HERPES VIRUS TYPING PENDING	1	1	0	0	0	0	0	0	0	1	3
1401	COXIELLA BURNETII	7	0	0	0	0	0	0	2	0	0	9
1502	PICORNIA VIRUS - NOT TYPED = E	0	3	0	0	0	0	1	0	0	0	4
1521	MEASLES VIRUS	1	0	0	0	0	0	0	0	0	0	1
1522	RUBELLA VIRUS	0	0	0	0	0	0	0	0	0	10	10
1532	HEPATITIS B ANTIGEN	38	0	0	0	1	0	1	43	0	0	83
1535	HEPATITIS A ANTIBODY	3	0	0	0	0	0	0	15	0	0	18
1541	CHLAMYDIA A - C. TRACHOMATIS	20	1	0	0	0	0	0	0	0	0	21
1556	CMV - CYTOMEGALOVIRUS	7	16	0	0	0	0	0	2	1	0	26
1562	REOVIRUS (ALL TYPES)	0	0	0	1	0	0	0	0	0	0	1
1564	ROTAVIRUS	5	0	0	0	0	0	116	0	0	0	121
1565	CALICI VIRUS	0	0	0	0	0	0	2	0	0	0	2
1566	NORWALK AGENT	0	0	0	0	0	0	4	0	0	0	4
1599	ENTEROVIRUS TYPING PENDING	0	3	0	0	0	0	1	0	0	0	4
9902	POXVIRUS GROUP NOT TYPED	0	0	0	0	0	0	0	0	0	2	2
9992	ROSS RIVER VIRUS	1	0	0	0	0	0	0	0	0	0	1
9994	SMALL VIRUS (LIKE) PARTICLE	1	0	0	0	0	0	2	0	0	0	3
TOTAL		181	592	1	9	1	7	148	63	2	155	1159