*Małgorzata Stępień*

# MALARIA IN POLAND IN 2011

Department of Epidemiology, National Institute of Public Health
- National Institute of Hygiene in Warsaw

## ABSTRACT

**THE AIM OF THE STUDY.** To assess the epidemiological situation of malaria in Poland in 2011 as compared with previous years.
**MATERIALS AND METHODS**. evaluation of incidence of malaria registered in Poland in 2011, based on the results of the analysis of individual reports sent to the NIPH-NIH by the Sanitary-Epidemiological Stations and on aggregate data published in the annual bulletin "Infectious diseases and poisonings in Poland." Case classification in the epidemiological surveillance based on case definition for malaria approved by EC in the EU countries in 2008. Only symptomatic laboratory-confirmed cases were recorded.
**RESULTS.** In 2011 14 cases of malaria were registered in Poland. All were imported from malaria-endemic countries: 64% of the cases were brought from Africa, and 21% from Asia. In comparison with the previous year number of reported cases was smaller by 21 cases. No deaths were reported. In one person who did not leave Poland in the last year there was probably a recurrence of malaria, though *Plasmodium* species has not been established. Among the cases with species-specific diagnosis 7 (63%) were caused by *P. falciparum*, 2 (18%) by *P. vivax* and *P. malariae* in one. Also in one case the mixed invasion was found. In 50% of cases the infection occurred during work-related trips, 43% in tourist trips and in one case, the student fell ill, who was in Cameroon a year earlier. Chemoprophylaxis was applied to five people but only in one person appropriately. In 2011, in connection with an outbreak of malaria in Greece, restrictions on blood donation for returnees from certain regions of Greece were implemented.
**CONCLUSIONS.** Despite marked fluctuations in the total annual number of reported cases, incidence in Poland remains low. The main problem for the Polish imported malaria remains seriousness of illness in many patients, most often as a result of delayed diagnosis.

**Keywords:** *malaria, epidemiology, Poland, 2011*

**The aim of the study:** To assess the epidemiological situation of malaria in Poland in 2011 as compared with previous years.

## MATERIALS AND METHODS

Assessment of the epidemiological situation of malaria in Poland in 2011 was based on analysis of case-based reports sent to the NIPH-NIH by Sanitary-Epidemiological Stations and on aggregate data published in the annual bulletin "Infectious diseases and poisonings in Poland in 2011" (Czarkowski MP et al ., Warsaw, NIPH-NIH and GIS). In Poland are recorded malaria cases that occurred on Polish territory and meet the case definition criteria specified by the European Commission on 04/28/2008 amending Decision 2002/253/EC.

The revised case definition of malaria is in force in Poland since 2009. Compared with the previous one it takes into account symptoms and laboratory criteria have been extended to the detection of *Plasmodium* spp. Antigen.

## RESULTS

In 2011 the total of 14 cases of malaria (incidence 0.36 per 1 million population) were reported. It was 21 cases (60%) less than in 2010 and 6 (30%) less than the median for the years 2005-2009. Observed for several years, large fluctuations in the annual number

of reported cases are within the expected limits and do not indicate a change in the epidemiology of malaria in Poland. As in the two previous years there were no deaths due to malaria.

10 men (71%) and 4 women get ill. Mean age of the patients was 38 years, ranging from 24 to 56 years. All cases reported in 2011 had been imported from malaria-endemic countries, including one probably relapse of malaria in patient with history of malaria in previous year. Among patients were three foreign nationals temporarily residing in Poland.

In 12 patients malaria parasites were demonstrated by microscopy in blood films, 7 cases were positive in immunochromatographic rapid test, including 2 patients whose diagnosis was based solely on the rapid test. In none of the patients the molecular test (PCR) was carried out. In 50% of patients, confirmation of the diagnosis was obtained more than 8-day after onset of symptoms.

Among the cases with species-specific diagnosis: 7 (63%) were caused by *Plasmodium falciparum*, two cases were diagnosed with *P. vivax*, one with *P. malariae* and one with a mixed invasion *(P. falciparum* and *P. vivax*). In three cases identification of *Plasmodium* species was not done.

In 50% of patients, the clinical course of malaria was defined as the mild, four patients had severe form, but only one of them had severe malaria meeting WHO criteria for severe malaria. In the remaining three people the severity of illness was not assessed (refusal of hospitalization or leaving the hospital before the end of treatment).

Most cases were infected during travels to Africa (64%). Table I contains a summary of the countries in which patients probably got infected. Among cases imported from the African continent, as in previous years, most were caused by *P. falciparum* (78%). All severe cases came from Africa, and most of them were caused by *P. falciparum* (in one case *Plasmodium* species was not specified). The purpose of travel was mostly professional (7 people, including one person from the ship's crew and one missionary) or tourism (6 persons), one student who became ill also probably comes from Africa (documentation incomplete).

Information on the use of anti-malarial chemoprophylaxis was obtained from 10 patients (71%), 5 of them applied some chemoprophylaxis, but only one person applied appropriate medicines and in compliance with the recommended drug regimen. The most common mistake in taking prophylaxis was irregularity in intake or interruption of it immediately after leaving the area of exposure. Among the errors in the choice of drug is still using chloroquine when traveling to countries where there is widespread resistance of plasmodia to this drug.

## DISCUSSION

Number of cases of malaria registered in Poland for many years remained at a low level. Cases occur mainly among persons visiting for leisure or for work, which is in contrast to Western Europe, where the majority of cases (up to 86%) occur among immigrants visiting the country of origin (VFR - visiting friends and relatives). The observed differences are likely to remain, as in Poland the number of immigrants from malaria-endemic countries is small and not growing. Subject of concern are reports from Greece of confirmed cases of indigenous vivax malaria present in this country, probably introduced by temporary workers who came to Greece from

Table I. Number of imported malaria cases in Poland in 2011 by country of exposure and species of *Plasmodium*

| Continent and country of exposure | | Number of cases | Species of *Plasmodium* | | | | |
|---|---|---|---|---|---|---|---|
| | | | falciparum | vivax | malariae | mixed | spp |
| **Africa** | **TOTAL** | 9 | 7 | - | - | - | 2 |
| | Cameroon | 1 | - | - | - | - | 1 |
| | Ethiopia | 1 | 1 | - | - | - | - |
| | Ghana | 1 | 1 | - | - | - | - |
| | Rep.of the Congo | 2 | 2 | - | - | - | - |
| | Sierra Leone | 1 | 1 | - | - | - | - |
| | Uganda | 2 | 2 | - | - | - | - |
| | Unknown (West Africa) | 1 | - | - | - | - | 1 |
| **Asia** | **TOTAL** | 3 | - | - | 1 | 1 | 1 |
| | India | 1 | | - | - | - | 1 |
| | Indonesia,Vietnam,Cambodia | 1 | - | - | - | 1 | - |
| | Sri Lanka, Malaysia,China | 1 | - | - | 1 | - | - |
| **America Central** | **TOTAL** | 1 | - | 1 | - | - | - |
| | Mexico | 1 | - | 1 | - | - | - |
| **Australia & Oceania** | **TOTAL** | 1 | - | 1 | - | - | - |
| | Papua New Guinea | 1 | - | 1 | - | - | - |
| **TOTAL** | | 14 | 7 | 2 | 1 | 1 | 3 |

malaria endemic countries (Pakistan). Presence of the indigenous cases in two consecutive years in the same area of Greece poses the risk of the introduction of malaria in the country in which it was previously eliminated. Threat of malaria for visitors to Greece is estimated as low since indigenous cases occurred mainly in the agricultural area (south-eastern part of the Peloponnese - Laconia), rarely visited by tourists, and the situation was under control. Despite the low risk stay at least 24 hours in Greece in areas where were indigenous cases of malaria (Laconia - Evrotas and East Attica - Marathon) it has been recognized in Poland as a reason for disqualification of visitors to those areas as blood donors for 12 months after return.

## CONCLUSIONS

Malaria remains a major health problem for people traveling to endemic countries, so it is necessary to further promote anti-malarial prophylaxis available for people planning to travel. Frequent delays in diagnosis and treatment indicate a low awareness of malaria risk among both patients and practitioners.

Received: 09.01.2013
Accepted for publication: 30.01.2013

**Address for correspondence**:
Małgorzata Stępień
Department of Epidemiology
National Institute of Public Health
-National Institute of Hygiene
24 Chocimska Street, 00-791 Warsaw, Poland
tel. (022) 5421-248
email: mstepien@pzh.gov.pl