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Travel-related health problems in travellers admitted at the University Centre of Maritime and Tropical Medicine in Poland, 2023

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ABSTRACT

Background: *Meta-analyses show that 43–79% of international travellers develop a travel-related health problems during or after journey. The aim of the present research was to analyse travel-related morbidity in travellers hospitalized at the University Centre of Maritime and Tropical Medicine in Gdynia, Poland.*

Material and methods: *This retrospective study was based on the analysis of medical records of 159 Polish patients hospitalized at the Department of Tropical and Parasitic Diseases between January and December 2023. Patients' age, sex, continents and countries visited, activities undertaken during travel, and risk behaviours were analysed. The aetiology of illnesses was established for only 79 cases on the basis of reported clinical symptoms and diagnostic tests. Due to limited diagnostics, the aetiological factor could not be determined in 80 patients.*

Results: *Individuals with travel-related health problems accounted for only 14.6% of all patients treated at the Department of Tropical and Parasitic Diseases (159/1087) in the analysed period. Among the patients with travel-related conditions, most travelled to Africa (49.1%) and Asia (28.3%); the mean age of those patients was 41.7 years. Sunbathing (52.2%), scuba diving (17.6%), and safari (17.0%) were the most popular activities among the patients involved in the study; local food consumption (30.8%) was the most frequently reported risk behaviour. The most common causes for hospitalization included gastrointestinal (39.6%) and skin diseases (19.5%), fevers of unknown origin (13.2%), respiratory diseases (12.6%) and vector-borne diseases of established aetiology (10.1%). Due to limited diagnostic possibilities, the aetiological factor could not be determined in 74.6% patients with gastrointestinal diseases, 50% patients with genitourinary and 30% patients with respiratory diseases.*

Conclusions: *Despite having been granted the status of the national reference centre for tropical medicine, the University Centre for Maritime and Tropical Medicine with the Institute of Maritime and Tropical Medicine do not have the capacity for comprehensive diagnosis and treatment of ill travellers returning from tropical destinations, which is primarily associated with the dispersion of patients presenting with travel-related conditions across different infectious diseases departments in Poland.*

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Keywords: Polish travellers, travel-related illness, international travel, epidemiology

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INTRODUCTION

According to the United Nations World Tourism Organization (UNWTO) the number of international arrivals reached 1.3 billion by the end of 2023, ending at 88% of the pre-pandemic level. Africa was the world's most visited region and in 2023 it recovered 96% of 2019 visitors. In 2024, experts have observed a further increase in global international arrivals, reaching 97% of the pre-pandemic level after the first quarter (Q1) of the year, (Africa showed a 5% increase in arrivals in the first quarter of 2024 in comparison to Q1 2019 and a 13% increase compared to Q1 2023; Tanzania has become a leader in Africa in this respect, welcoming 53% more international visitors in Q1 2024 vs. Q1 2019. UNWTO estimates that by the end of 2024, the number of international tourist arrivals will return to the 2019 levels or may be even higher [1]. Poland is one of the countries where an increase in international travel is evident. An impressive economic growth over the last two decades resulting in the growing wealth of Polish citizens is one of the reasons for their increasing interest in international travel. According to the reports, the most popular destinations for Polish travellers include European countries, Turkey, Egypt, and Tunisia [2]. More recently, however, tropical destinations in Asia, Africa and the Americas have also become popular with Polish travellers (each year, tens of thousands of Poles travel to exotic destinations). Thailand (21.5%), Vietnam (8.5%), Kenya (8.3%), India (8.2%), Tanzania/Zanzibar (7.1%), Indonesia/Bali (6.5%), Sri Lanka (4.4%), and Cambodia (4.4%) were among the most popular destinations for 2,147 travellers seeking pre-travel advice at the University Centre of Maritime and Tropical Medicine in Gdynia, Poland between January and December 2023 [3].

It is estimated that 43–79% of international travellers develop a travel-related health problem during or after visiting a harsh environmental destination (extreme climate conditions or poor sanitation) [4]. Although most of these illnesses are mild, around 8% of travellers to low-income countries will become sick enough to seek medical care during or after travel [5]. Most travel-related health problems present during travel, but there are conditions whose incubation period can last up to several weeks or even months [6]. For this reason, it is important that a patient seeking care for travel-related health problem informs their physician of their stay in tropical or subtropical countries. A post-travel consultation should address the following issues: travel details (countries visited, duration of stay, type and standard of accommodation), prophylaxis (immunoprophylaxis and chemoprophylaxis), risk factors and risk behaviours (staying in crowded places, local food consumption, insect bites, animal bites, casual sex, surgical procedures, blood transfusion, injections, tattooing), any symptoms of infection, and medications taken [7]. It is important to remember that even if a traveller returning from an endemic country does not report any disturbing symptoms, they may have acquired an infection, but the infection is either asymptomatic or has a long incubation period and will manifest after several weeks to months after the initial exposure, especially if the traveller is prone to risk behaviours or failed to comply with the basic principles of disease prevention [6].

The risk of infection depends on a number of factors, e.g. the degree of the endemicity in the country visited, a traveller's health status (the immune system, thermoregulation, comorbidities), preventive measures taken, the duration of stay and activities undertaken (sunbathing at a hotel pool vs. doing extreme sports). The risk of infection is generally higher in tropical and subtropical countries, where travellers are at a higher risk of exposure to a variety of infectious agents, including vector-borne, food/waterborne, airborne, or sexually borne pathogens. Travel to areas with difficult environmental conditions can pose a serious health risk for all groups of travellers, including adults, the elderly, small children, pregnant women, people with disabilities, patients with cancer, heart diseases, renal failure, diabetes, thyroid diseases, epilepsy, or mental disorders. With the constantly growing number of international tourist arrivals, it has become necessary to introduce standardized diagnostic procedures for ill returned patients [7]. Gastrointestinal, skin, respiratory illnesses and fevers of unknown origin are among the most common health problems affecting travellers returning from areas with extreme climate and poor sanitation [4, 8–12]. The institutions responsible for the surveillance of the locally acquired and imported cases of infectious and parasitic diseases in Poland, i.e. the National Institute of Public Health – National Institute of Hygiene (NIPH-NIH) and the Department of Infectious Diseases Epidemiology and Surveillance are required to publish open access epidemiology reports on a two-weekly basis. However, according to experts in epidemiology and infectious diseases specialists these reports may be inaccurate and cases heavily underestimated as some physicians fail to report notifiable parasitic and infectious diseases to a competent public health authority. Another reason for underreporting of parasitic and infectious diseases is the lack of diagnostic possibilities. Until 2022, influenza/ suspected influenza was the most common infectious disease reported in Poland, with a total of 4,701,874 cases diagnosed in 2022 alone [13]. However, most of those diagnoses were not laboratory confirmed, which meant that other diseases presenting with a similar clinical picture (fever, joint and muscle pain, general weakness) could have been misdiagnosed and reported as suspected influenza. Many infections which can be transmitted from a hot country

present with influenza-like signs and symptoms, e.g. malaria or common arboviral infections such as dengue, chikungunya, zika. In 2023, there were only 43 cases of imported malaria, 67 cases of dengue, 5 cases of chikungunya and no cases of zika reported in Poland. These statistics are surprising given the fact that Poland's population is 37.5 million according to the last census, and that each year tens of thousands of Polish travellers visit tropical countries [14]. In 2023, the NIPH-NIH began to report only laboratory-confirmed cases of influenza, which resulted in a sharp reduction in the number of reported cases: from 4.7 million in 2022 [13] to 11,087 cases in 2023 [14]. Another challenge of epidemiological surveillance in Poland (apart from limited diagnostic possibilities) is the fact that a lot of tropical diseases, e.g. schistosomiasis, filariasis, leishmaniasis, but also some cosmopolitan diseases which are endemic in low-income countries, such as intestinal parasitoses (ascariasis, hookworm, trichuriasis, strongyloidiasis) are not reportable to the sanitary inspectorate. In consequence, the actual number of tropical and parasitic cases transmitted by international travellers may be heavily underestimated. Patients returning from hot countries are rarely diagnosed for tropical illnesses due to limited diagnostic possibilities and limited financial resources of their health providers. As a result, there is a possibility that a considerable proportion of tropical diseases in returned international travellers are misdiagnosed as cosmopolitan illnesses, the aetiology of the condition is not established, and patients are treated symptomatically [7].

The aim of this study was to analyse travel-related health problems in Polish travellers treated at the University Centre of Maritime and Tropical Medicine (UCMTM) in 2023. UCMTM and the Institute of Maritime and Tropical Medicine in Gdynia (two separate institutions sharing the same complex) have been granted the status of a national reference centre for tropical medicine in Poland.

MATERIAL AND METHODS

STUDY POPULATION

All patients (n = 159) hospitalized for a travel-related health problems at the Department of Tropical and Parasitic Diseases of the University Centre of Maritime and Tropical Medicine (UCMTM) in Gdynia, Poland between January and December 2023 were involved in the present study. Patients' demographics (age, sex), travel details (continents and countries visited, purpose of travel, duration of stay, travel-related activities, risk behaviours) and the cause of hospitalization were recorded and analysed.

DATA COLLECTION

Patients were requested to fill a post-travel questionnaire and provide the following information: their personal details, travel details, travel-related activities, risk behaviours, past and present medical history (comorbidities, medications taken). For each patient with a travel-related health problem, the final diagnosis was established based on the medical examination, the results of diagnostic tests and the analysis of the available medical records.

STATISTICS

All statistical calculations were performed using Stat Soft Inc. (2014) STATISTICA version 12.0 (data analysis software system) and an Excel spreadsheet. Quantitative variables were characterized by the arithmetic mean, standard deviation, median, the minimum and maximum values (range) and 95% CI (confidence interval). The variables of the qualitative type were presented in terms of counts and percentages. Chi-squared tests for independence were employed to analyse qualitative variables (using Yates' correction for cell counts below 10, checking Cochran's conditions, and Fisher's exact test, where appropriate). In all calculations, the level of statistical significance was set at $p = 0.05$.

RESULTS

TRAVELLERS' AND TRAVEL CHARACTERISTICS

One hundred fifty-nine patients included in the present study accounted for only 14.6% of all patients (n = 1087) who were treated at the Department of Tropical and Parasitic Diseases in the analysed period, while the majority of patients hospitalized were elderly individuals with multiple comorbidities (mostly non-infectious internal diseases) whose hospitalization was not associated with international travel. Among the patients with travel-related health problems (n = 159), 50.9% were women and 49.1% were men. The mean age of the patients with travel-related health problems was 41.7 years (range 12–77 years). Most individuals hospitalized for a travel-related condition returned from Africa (49.1%) or Asia (28.3%); they travelled on a holiday (83.6%), for a period of less than 4 weeks (87.4%) (Table 1). The highest percentage of hospital admissions due to travel-related illnesses was observed in March (13.8%) and July (11.9%). Most patients travelled to Tanzania (12.6%), Kenya (8.8%), Thailand (6.9%), India (6.9%), Egypt (6.3%) and Mexico (5.7%).

The most popular activities among the patients involved in the study included sunbathing (52.2%), scuba diving (17.5%), safari (17.0%) and caving (6.9%); 39% of the patients did not engage in any holiday activities during their stay abroad. The most common risk behaviours among the patients included local food consumption (30.8%), non-adherence to malaria chemoprophylaxis in endemic areas (24.5%) and non-use of repellents against vector-borne diseases (16.4%) (Table 2).

Table 1. Characteristics of Polish travellers hospitalized at the UCMTM in 2023 (n = 159)

Polish travellers	Examined group (n = 159)
Sex	
Female	81 (50.9%)
Male	78 (41.1%)
Age (years)	
Mean (SD)	41.7 (13.6)
Range	12.0–77.0
Median	40.0 (21.0)
95% CI	[39.6; 43.8]
Destination (continent)	
Africa	78 (49.1%)
Asia	45 (28.3%)
North and Central America	20 (12.6%)
Europe	9 (5.7%)
South America	6 (3.8%)
Australia and Oceania	1 (0.6%)
Purpose of travel	
Tourism	133 (83.6%)
Business	26 (16.4%)
Duration of stay	
< 4 weeks	139 (87.4%)
> 4 weeks	20 (12.6%)

Table 2. Characteristics of Polish travellers hospitalized at the UCMTM in 2023 (n = 159) by activities and risk behaviours

Activities and risk behaviours	Study group (n = 159)
Type of activity	
Sunbathing	83 (52.2%)
Safari	27 (17.0%)
Scuba diving	28 (17.6%)
Climbing	5 (3.1%)
Rafting	3 (1.9%)
Bathing in a river or a lake	2 (1.3%)
Surfing	7 (4.4%)
Caving	11 (6.9%)
Number of activities	
0	62 (39.0%)
1	52 (32.7%)
2	26 (16.4%)
3–5	15 (11.9%)
Mean (SD)	1.0 (1.1)
Range	0.0–5.0
Median	1.0 (2.0)
95% CI	[0.9; 1.2]
Type of risk behaviour	
Local food consumption	49 (30.8%)
Non-adherence to malaria chemoprophylaxis	39 (24.5%)
Non-use of repellents	26 (16.4%)
Number of risk behaviours	
0	86 (54.1%)
1	41 (25.8%)
2–3	32 (20.2%)

The risk of vector-borne disease transmission was higher in individuals who had not been using insect repellents and malaria chemoprophylaxis; the risk was lower in individuals who reported no risk behaviours (Table 3).

The risk of gastrointestinal infectious diseases was higher in individuals who reported local food consumption during their travel (Table 4).

MEDICAL DIAGNOSES

Gastrointestinal diseases (39.6%), dermatoses (19.5%), fevers of unknown origin (13.2%), respiratory diseases (12.6%), and vector-borne diseases (10.1%) were the most common travel-related health problems in the hospitalized patients (Table 5).

Due to the lack of comprehensive diagnostics possibilities, the aetiology was not established in 74.6% patients with gastrointestinal, 50.0% with urogenital, 30% with respiratory, and 12.9% with skin diseases (Fig. 1).

Of 159 patients with travel-related health problems, 46 cases were diagnosed with an contagious or a parasitic disease (Table 6).

The distribution of infectious illnesses (46 cases) and infections of unknown origin (80 cases) by country visited by the hospitalized patients is shown in Table 7.

DISCUSSION

The study involved a group of 159 Polish patients presenting with travel-related health problems who were

Table 3. Odds ratio (OR) for vector-borne diseases (n = 16)

Parameter	OR (95% CI)	*p*-value
Destination (continent)		
Europe	0.00 (0.00)	0.9972
Asia	0.83 (0.25–2.72)	0.7575
North and Central America	1.71 (0.44–6.62)	0.4371
South America	0.00 (0.00)	0.9977
Africa	1.38 (0.49–3.90)	0.5452
Australia and Oceania	0.00 (0.00)	0.9978
Duration of stay		
< 4 weeks	0.59 (0.15–2.26)	0.4371
> 4 weeks	1.71 (0.44–6.62)	0.4371
Risk behaviours		
Local food consumption	0.49 (0.13–1.79)	0.2788
Non-use of repellents	27.64 (7.85–97.34)	< 0.0001
Non-adherence to malaria chemoprophylaxis	3.61 (1.26–10.40)	0.0173
Number of risk behaviours		
0	0.10 (0.02–0.46)	0.0030
1	1.85 (0.63–5.46)	0.2643
2–3	6.17 (2.02–18.85)	0.0014

Table 4. Odds ratio for gastrointestinal infectious diseases (OR) (n = 63)

Parameter	OR (95% CI)	*p*-value
Destination (continent)		
Europe	2.55 (0.28–23.35)	0.4064
Asia	0.84 (0.16–4.31)	0.8317
North and Latin America	0.99 (0.12–8.52)	0.9945
South America	4.17 (0.43–40.66)	0.2189
Africa	0.61 (0.14–2.64)	0.5060
Australia and Oceania	0.00 (0.00)	0.9979
Duration of stay		
< 4 weeks	1.01 (0.12–8.65)	0.9945
> 4 weeks	0.99 (0.12–8.52)	0.9945
Risk behaviours		
Local food consumption	10.73 (2.07–55.65)	0.0047
Non-use of repellents	5.86 (1.37–25.19)	0.0174
Non-adherence to malaria chemoprophylaxis	4.05 (0.93–17.70)	0.0627
Number of risk behaviours		
0	0.27 (0.05–1.36)	0.1117
1	0.00 (0.00)	0.9976
2–3	3.93 (0.87–17.73)	0.0750

Table 5. Travel-related health problems in Polish travellers hospitalized at the UCMTM in 2023 (n = 159)

Travel-related health problems	All travellers n (%)
Gastrointestinal diseases	63 (39.6%)
Skin diseases	31 (19.5%)
Fevers of unknown origin	21 (13.2%)
Respiratory diseases	20 (12.6%)
Vector-borne diseases	16 (10.1%)
Urogenital diseases	4 (2.5%)
Psychiatric disorders	2 (1.3%)
Musculoskeletal diseases	1 (0.6%)
Neurological diseases	1 (0.6%)

treated at the Department of Tropical and Parasitic Diseases of the University Centre of Maritime and Tropical Medicine in Gdynia, Poland in 2023. Patients with travel-related health conditions accounted for only 14.6% of all the patients treated at the department in the given year, while most patients hospitalized were elderly individuals with multiple comorbidities (mostly non-infectious internal diseases) whose hospitalization was not associated with international travel. A small number of patients with tropical or parasitic diseases or those diagnosed or treated for travel-related conditions is the result of a shift in the policy of the Polish Ministry of Health on the matters regarding the diagnosis and management of patients returned from the tropics. Only two decades ago, there were two leading institutions, the Department of Tropical and Parasitic Diseases of the University Centre of Maritime and Tropical Medicine in Gdynia (a national reference centre for tropical medicine) and the Department of Tropical and Parasitic Diseases at the Medical University in Poznań, dealing with the diagnostic and therapeutic challenges involved in the management of patients with tropical and parasitic diseases. Currently these patients can be treated at any infectious diseases ward in Poland. As a result, the two leading Polish institutions for tropical medicine have seen a significant reduction in the number of patients with tropical illnesses, and in consequence a drop in financial support from the state. The dispersion of patients with travel-related conditions across different infectious diseases departments

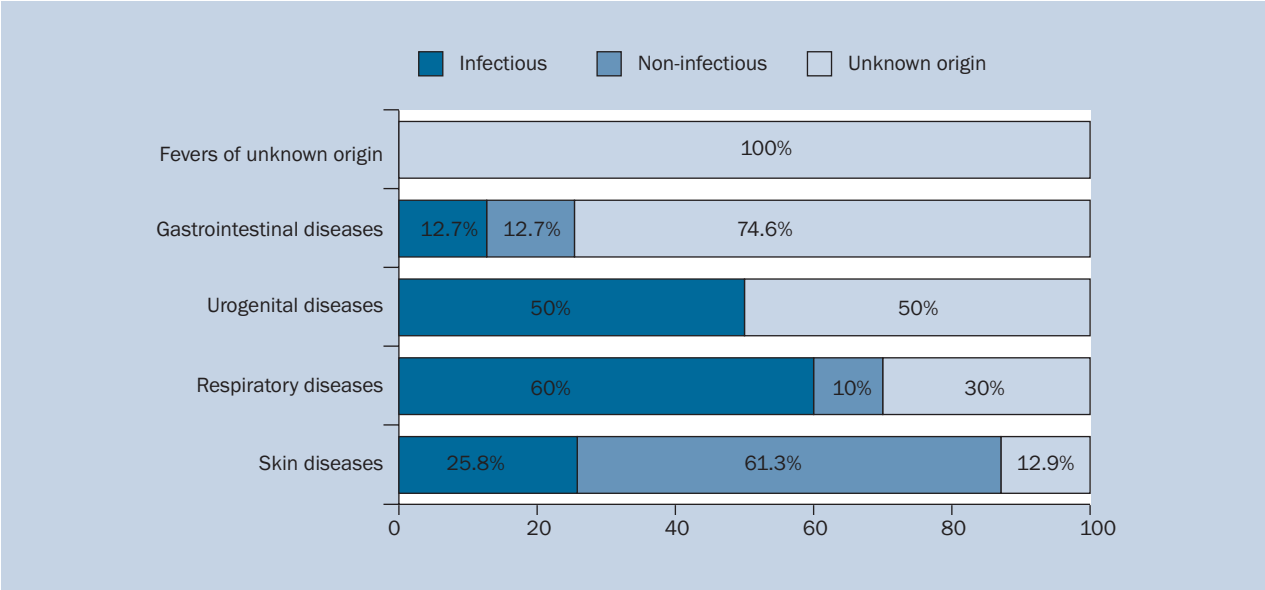

Figure 1. Distribution of infectious, non-infectious, and of unknown origin diseases

Table 6. Travel-related health problems of established aetiology (n = 46)

Travel-related health problems	n	Diseases (number of cases)
Vector-borne diseases	16	Dengue (9), malaria (5), chikungunya (2)
Respiratory diseases	12	COVID-19 (7), mononucleosis (3), influenza (2)
Gastrointestinal diseases	8	Amoebiasis (2), yersiniosis (2), rotavirus infection (2), schistosomiasis, enterobiasis
Skin diseases	8	Myasis (3), cutaneous larva migrans (2), erysipelas (2), cutaneous leishmaniasis, herpes zoster
Urogenital diseases	2	Schistosomiasis (2)

in Poland may have contributed to recent cases of death in Polish travellers returned from East Africa due to misdiagnosis of malaria at an early stage. But it also results in the underestimation of the actual number of imported cases of tropical and parasitic diseases. Taking into account a surge in the number of travellers to tropical destinations and a prospective increase in the number of imported travel-related infections, it seems absolutely necessary to provide more financial support to the national reference centre for tropical medicine, whose role is to supervise all other institutions which offer diagnostics and treatment of patients with tropical and parasitic diseases.

Analyses of morbidity among patients with travel-related health problems conducted by Bykowska-Tumasz et al. [15] at the Department of Tropical and Parasitic Diseases in Gdynia, Poland (the same department where the present analysis was carried out) showed that a total of 2391 returned travellers were hospitalized at the department between 2006 and 2016, which, on average, gives 217 patients per year until 2016 vs. 159 patients in 2023 (the reduction is caused by the dispersion of patients across multiple infectious diseases wards in Poland). After considering the exclusion criteria, Bykowska-Tumasz et al. analysed a group of 1098 patients: 345 short-term travellers (34.1%) and 753 long-term travellers (65.9%). In the group of short-term travellers (mainly tourists, duration of stay < 4 weeks) the most common confirmed diagnoses included febrile illnesses (28.1%, including 29 cases of malaria and 26 cases of dengue fever), gastrointestinal diseases (20.6%, including 35 cases of blastocystosis and 15 cases of *Clostridioides* difficile infections), and dermatoses (2.9%). In the group of long-term travellers (mostly catholic missionaries, travel and duration of stay > 4 weeks), the most common health conditions included gastrointestinal diseases (46.2%, including 256 cases of blastocystosis and 33 cases of *Giardia intestinalis* infections), febrile diseases (6.0%, including 14 cases of malaria and 14 cases of dengue fever), and dermatoses (1.3%). In the study by Bykowska-Tumasz et al. aetiology was established in 48.7% short-term travellers and 48.1% long-term travellers treated at the department. The proportion of cases without established aetiology is comparable to that observed by the authors of the present study. In this study, aetiology was established in only 49.7% patients hospitalized at the department. The most common travel-related health problems among patients treated in 2023 included gastrointestinal diseases (39.6%), dermatoses (19.5%), fevers of unknown

Table 7. Distribution of infectious diseases and infections of unknown aetiology by visited country (n = 126)

Diseases	n	Countries of origin (number of cases)
Dengue	9	Thailand (2), Mexico (2), Cabo Verde, Republic of South Africa, Tanzania, Kenya, Maldives
Malaria	5	Uganda (2), Angola (2), Nigeria
Chikungunya	2	India, Saint Lucia
Schistosomiasis	3	Rwanda, Uganda, Madagascar
Cutaneous leishmaniasis	1	Costa Rica
Cutaneous larva migrans	1	Tanzania/Zanzibar
Mononucleosis	3	India, Egypt, Greece
Erysipelas	2	Thailand, Pakistan
Herpes zoster	1	Seychelles
Myasis	3	Kenya (3)
Amoebiasis	2	Bangladesh (2)
Yersiniosis	2	Brazil, Guatemala
Rotavirus infection	2	Madagascar, Spain
Enterobiasis	1	Kenya
COVID-19	7	Cambodia (2), Madagascar (2), Liberia, China, Vietnam
Influenza	2	Kenya, Costa Rica
Respiratory diseases of unknown origin	6	Tanzania/Zanzibar (2), Thailand (2), Indonesia/Bali, India
Fever of unknown origin	21	Tanzania/Zanzibar (4), Dominican Republic (4), Thailand (3), Vietnam (2), Mexico (2), Columbia, Indonesia, Cabo Verde, Ghana, Angola, Egypt
Gastrointestinal diseases of unknown origin	47	Tanzania/Zanzibar (10), Kenya (7), India (5), Mexico (4), Egypt (3), RSA (2), Thailand (2), Dominican Republic (2), Brazil (2), other (10)
Skin diseases of unknown origin	4	Spain (2), India, Columbia
Urogenital diseases of unknown origin	2	Tanzania/Zanzibar, Greece

origin (13.2%), respiratory (12.6%), vector-borne (10.1%), and urogenital (2.5%) diseases.

Travel medicine clinics around the world, of which a majority are associated with the GeoSentinel Surveillance Network (GSN), publish the data on travel-related health problems on a routine basis. Comparative analysis of the data provided by travel medicine clinics from around the world make it possible to determine current trends in morbidity among international travellers. The morbidity analysis on a sample of 103,739 ill travellers which was carried out between 1998 and 2018 by 25 EuroTravNet clinics from 13 countries, associated with the European surveillance sub-network of GSN demonstrated that malaria was the most frequently diagnosed tropical illness (5,254 cases; 5.1% of all patients) and the most frequent cause of death (*Plasmodium falciparum*) among international travellers [16]. A total of 36% of febrile returned travellers are diagnosed with a tropical illness (mostly malaria, 22% cases), while another 36% of febrile travellers are diagnosed with a cosmopolitan disease (mainly gastrointestinal and respiratory infections) [17]. Fever is the second most common complaint (after diarrhoea) in returned travellers seeking medical advice in travel medicine clinics [18]. Morbidity analyses made on a cohort of 42,173 ill returned travellers which were conducted in 53 tropical and travel disease clinics functioning in 24 countries, associated with the GSN, demonstrated that three quarters of travel-related illnesses was due to gastrointestinal (34%), febrile (23.3%), and dermatologic (19.5%) diseases [19]. A similar morbidity profile was observed among returned American travellers consulted at 22 US GeoSentinel clinics. In the group of 9,624 US travellers seeking care in travel medicine clinics, the most reported travel-related conditions included gastrointestinal (58%), febrile (18%), and dermatologic (17%) diseases [20].

A global increase in international tourist arrivals, and a growing number of tourists from high-income to lower-income countries in Africa, Asia, Latin and South Americas, has contributed to an increase in the prevalence of tropical and parasitic diseases in non-endemic countries [21]. Therefore, it is essential to conduct epidemiological surveillance of imported cases of infectious diseases in all high-income countries through comprehensive diagnostics and treatment of ill returned travellers in clinics specializing in tropical medicine. This, however, is complicated by the following factors: a lot of travel-related conditions may have asymptomatic clinical course (asymptomatic carriers can also be a source of transmission), they have long incubation periods (with clinical signs presenting several weeks or even months after primary exposure), or they give non-specific symptoms (e.g. an arboviral infection may be misdiagnosed as influenza) [4]. For this reason, it is extremely important to provide more financial support to the national reference centre for tropical medicine, as its role is not only to diagnose and treat imported cases of tropical and parasitic diseases but also to supervise all other institutions in Poland which offer such medical services.

CONCLUSIONS

Despite having been granted the status of the national reference centre for travel medicine, the University Centre for Maritime and Tropical Medicine and the Institute of Maritime and Tropical Medicine, two institutions sharing

the same complex, do not have the capacity for comprehensive diagnosis and treatment of travel-related health problems in patients returning from tropical destinations. This is primarily associated with the dispersion of patients with travel-related conditions across multiple infectious diseases departments in Poland. Taking into account an increasing number of travellers to tropical destinations and a prospective increase in the number of imported travel-related infections, it is absolutely necessary to provide more financial support to the national reference centre for tropical medicine as its role is not only to diagnose and treat imported cases of tropical and parasitic diseases but also to supervise all other institutions in Poland which offer such medical services.

ARTICLE INFORMATION AND DECLARATIONS

Data availability statement: The authors confirm that the data supporting the findings of this study are available within the article.

Ethics statement: For this non-interventional cross-sectional study, a decision of Bioethics Committee was not required. The authors were granted permission by the Head of the University Centre for Maritime and Tropical Medicine to conduct this epidemiology study using information from medical records of hospitalized patients with the proviso that no personal data of the patients shall be used in the analyses.

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