

ABSTRACT

Background: In 2016 and 2017, 535,000 refugees/migrants crossed the Mediterranean Sea to reach Europe, with 203,000 arriving in Greece. To address enhanced epidemiological surveillance needs, in May 2016 Greece established an ad hoc surveillance system in points of care for refugees/migrants in hosting centers, complementary to routine surveillance.

Methods: Data on number of cases per age group for 14 syndromes of public health (PH) interest were collected daily from primary health care units of refugee/migrant hosting centers in the country, along with the number of consultations from any cause. Additional information enabling case-finding was collected for syndromes representing diseases that require PH measures at an individual level. Observed daily proportional morbidity (PM) was compared with expected PM using a quasi-Poisson regression model. PM ≥ 2 standard deviations from expected was defined as a "warning signal". "Warning signals" appearing for ≥ 2 consecutive days were considered "alert signals". Signals were evaluated daily and public health measures were implemented as necessary.

Results: The number of centers participating in the system ranged between 27 and 51. Mean weekly reporting rate reached 96%. From 16 May 2016 to 31 December 2017, 500,166 consultations from any cause were reported, with 28,300 cases of the syndromes under surveillance (5.6%). Syndromes with the higher PM were respiratory infections with fever (3.3%), gastroenteritis (1.3%), suspected scabies (0.6%) and rash with fever (0.3%, of whom 95.1% were varicella cases, with no measles or rubella identified). 215 cases of suspected tuberculosis were referred to hospitals for further diagnostic testing and treatment. Of 92 cases of jaundice with acute onset, 85% were verified as hepatitis A, triggering interventions such as vaccination. None of the produced signals corresponded to a major PH incident, all being of low severity and duration.

Conclusions: Infections represented a small proportion of refugees' health problems. Syndromic surveillance in hosting centers guided PH action and confirmed no major PH event.

INTRODUCTION

In 2016 and 2017, 535,000 refugees/migrants crossed the Mediterranean Sea to reach Europe, with 203,000 arriving in Greece.

ECDC and WHO recommend for reception countries to establish ad hoc syndromic surveillance. HCDCP established a surveillance system in points of care for refugees/migrants, in May 2016.

OBJECTIVE

The aim of the present report is to present the ad hoc surveillance system established in refugees/migrants hosting facilities and describe the morbidity of the monitored population.

METHODS

Fourteen syndromes of public health interest were selected for monitoring (Table 1). The design of the surveillance system included:

A standardized surveillance form for daily data collection from the hosting facilities' clinics (number of cases and total number of consultations from any cause by age category (0-4, 5-17, 18+)). Additional information for case-finding was collected for syndromes [6] to [14] (Table 1).

Calculation of proportional morbidity indices for all participating centers, and for each one separately.

Comparison of the observed proportional morbidity with the expected one (quasi-Poisson regression model by Farrington et al, 1996).

Monitoring of produced statistical signals:

- Warning signals: observed proportional morbidity higher than the expected by more than 2 standard deviations (Z-score > 2).
- Alert signals: "Warning signals" for ≥ 2 consecutive days

Daily evaluation of signals and implementation of public health measures as necessary.

RESULTS

The number of refugees/migrants participating hosting facilities ranged between 19 and 51.

The weekly mean facilities participation rate was 96%.

A total of 501166 consultations from any cause were recorded, resulting in 28075 cases of syndromes reported (Table 1)

Table 1. Number of notified cases for monitored syndromes/disease conditions and proportional morbidity, all hosting facilities, 16/5/2016 - 31/12/2017

Syndrome/disease condition	N	PM
1. Respiratory infection with fever	16658	3,31
2. Gastroenteritis without blood in the stool	6341	1,26
3. Bloody diarrhea	74	0,01
4. Rash with fever	1629	0,32
5. Suspected scabies	3275	0,65
6. Suspected TB	215	0,04
7. Malaria (with positive rapid test)	3	0,00
8. Suspected diphtheria	0	0,00
9. Jaundice of acute onset	92	0,02
10. Neurological manifestations, acute onset	3	0,00
11. Meningitis and/or encephalitis	9	0,00
12. Haemorrhagic manifestations with fever	0	0,00
13. Sepsis/shock	1	0,00
14. Death of unknown aetiology	4	0,00
Total	28075	5,61

* N: number of reported cases, PM: Proportional morbidity (%)

Graph 1 shows the time trend of proportional morbidity for respiratory infections with fever and gastroenteritis without blood in the stool. The trend appears to follow normal seasonality, sharp spikes representing single hosting facility outbreaks of short duration and low severity.

Graph 1. Time trend of proportional morbidity for respiratory infection with fever and gastroenteritis without blood in the stool, all hosting facilities, 16/5/2016-31/12/2017

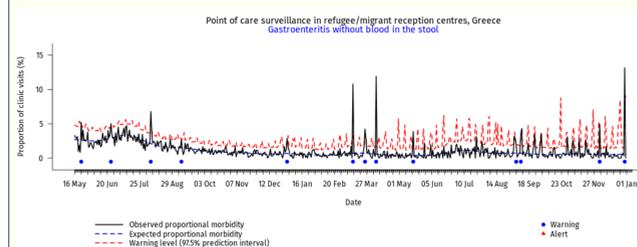
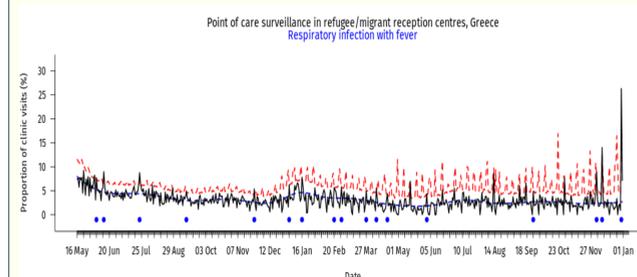


Table 2. Syndromes [1]-[5]: Number of signals at camp and national level, 16/05/2016 - 31/12/2017

Syndromes	Signals (national level)	Signals (camp level)
[1]	15	296
[2]	23	280
[3]	12	67
[4]	9	239
[5]	22	230

Table 2 depicts the number of produced warning signals, national and camp level. None of the national level signals represented a public health threat with a nation-wide character, whereas at the camp-level:

- gastroenteritis signals represented small clusters of low severity and duration, with self-limited character.

No signal for bloody diarrhea was deemed public health relevant or further investigated.

Rash with fever signals referred to clusters of chicken pox for which recommendations for management were made available from the HCDCP. A total of 1547 chickenpox cases were identified (Table 3). The majority were children, mostly from Syria and Afghanistan (Table 4 and 5).

Suspected scabies signals represented sporadic clusters (guidance was given and medicines were supplied where necessary).

Table 3. Number of notified rash with fever cases by final diagnosis, all hosting facilities, 16/5/2016-31/12/2017

Final diagnosis	Number of cases
Chicken pox	1547
Other rash with fever infection of viral aetiology (non measles)	59
Rash with fever infection of bacterial aetiology	23
TOTAL	1629

Table 4. Age distribution of chickenpox cases, all hosting facilities, 16/5/2016-31/12/2017

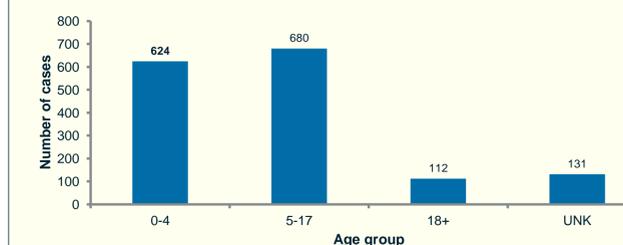
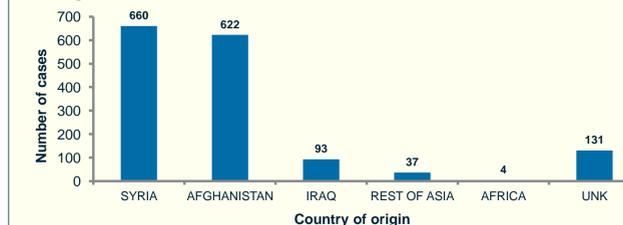


Table 5. Distribution of chickenpox cases by country of origin, all hosting facilities, 16/5/2016-31/12/2017



No major public health threats were identified among syndromes/diseases 6 to 14:

- No cases of "acute paralytic manifestations", "sepsis/shock" or "death" due to infection were detected.

The reported "meningitis and/or encephalitis" cases were not verified as such.

85% of cases of the syndrome "jaundice of acute onset" were identified as hepatitis A cases, for which appropriate public health measures, including vaccination of close contacts were implemented.

"Malaria" cases were imported cases in newly arrived refugees that were admitted to hospital.

"Suspected TB" cases were routinely referred to tertiary hospitals for further evaluation and treatment.

CONCLUSIONS

Infectious diseases represented only a small proportion of the total consultations from any cause at hosting facilities.

No major health event or serious diseases of public health concern were identified.

Respiratory infections and gastroenteritis represented the most common syndromes.

Specific disease entities identified included varicella, hepatitis A, scabies and tuberculosis.

The ad hoc surveillance system proved overall to be a useful tool that:

- contributed in monitoring the morbidity of the refugees/migrants vulnerable population, helping in implementing targeted PH measures;
- offered the ability to confirm that there were no major problems, reassuring public opinion;
- helped in raising awareness of practicing physicians/health personnel to potential problems from infectious diseases, and;
- established a communication line/trust between local physicians /health personnel and HCDCP

REFERENCES

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- Expert Opinion on the public health needs of irregular migrants, refugees or asylum seekers across the EU's southern and south-eastern borders (Scientific Advice), September 2015. Available at: <http://ecdc.europa.eu/en/publications/Publications/Expert-opinion-irregular-migrants-public-health-needs-Sept-2015.pdf>