

Hepatitis A in Greece 2009-2017. Time for Setting New Priorities

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ABSTRACT

Background: The aim of this study is to present the epidemiological data and describe the outbreaks of hepatitis A identified over the period 2009-2017 in Greece.
Methods: Cases recorded through the mandatory notification system were classified in accordance with the European case definition. Data were analyzed by population group (general population, Roma, refugees / migrants, travelers to endemic countries, and MSM).
Results: Between 2009 and 2017, 1083 cases were reported to the Department of Epidemiological Surveillance and Intervention of the Hellenic Center for Disease Control and Prevention. The median annual number of reported cases was 86 (41-294). Reported cases exceeded the expected number in 2013, 2016 and 2017. In 2013 165 cases were reported [3 times higher than the mean annual n reported for 2005-2012; 112 (67.8%) among Roma]. Three clusters were identified accounting for 50% of reported cases. Genotyping showed that clusters were due to hepatitis A virus subgenotype IA.
In 2016, after the closure of the northern borders of Greece in March, 177 cases were reported among refugees (subgenotype IB, the majority of affected of Syrian origin). In 2017, an outbreak among men having sex with men (MSM) was recorded as part of a European HAV outbreak. 176 male cases were recorded (median age; 38 years old, range; 21-55); 96 identified themselves as MSM. Genotyping data showed linkage to identified European clusters (subgenotype IA).
Conclusion: Hepatitis A remains a significant Public Health threat in Greece. Preventive interventions should target populations with low access to health care, as well as MSM.

INTRODUCTION

- The vaccine against Hepatitis A (HA) was first licensed in Greece in 1999. It was introduced in the routine National Childhood Immunization Program (NCIP) for all children >12 months in 2008 and since then it is fully reimbursed [1].
- The vaccine is routinely recommended for: international travelers, persons who inject drugs (PWID), men who have sex with men (MSM), persons with chronic liver disease, sewage workers & persons who anticipate close contact with an international adoptee.
- The aim of the present report is to present:
 - data on the epidemiology of HA in Greece for 2009-17
 - data on outbreaks/cases by population affected
 - priorities for future public health action in our country

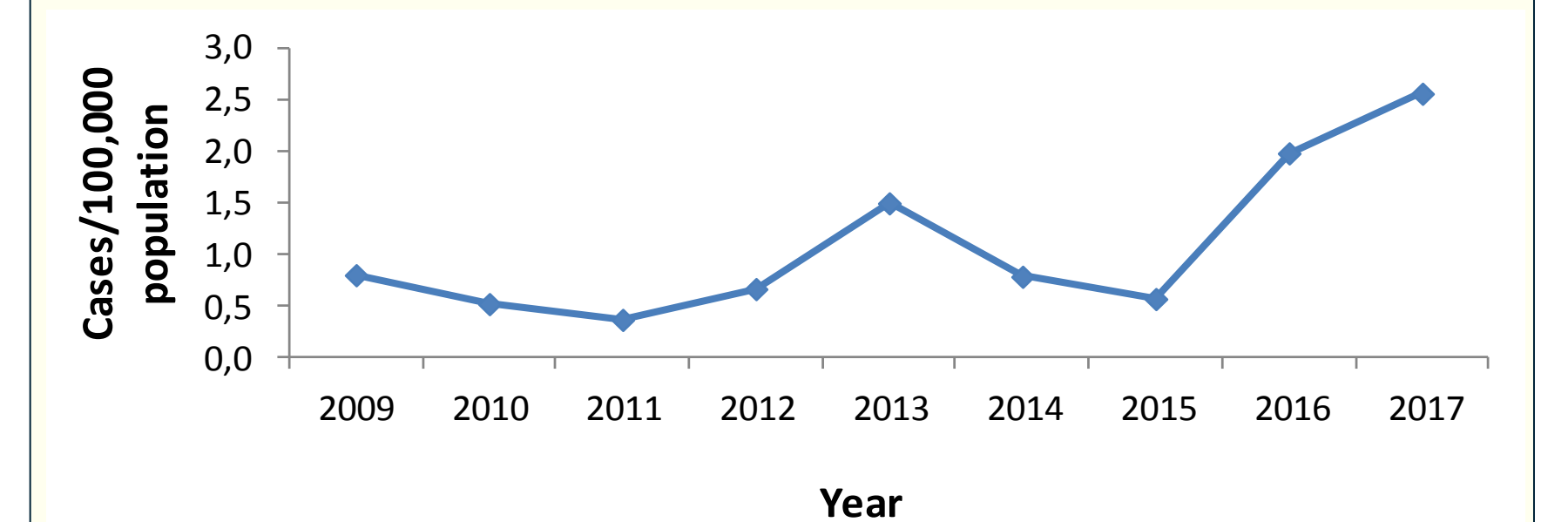
METHODS

- As HA is included in the Mandatory Notification System (MNS), all data on new cases of HA according to the European case definition [2] is recorded and sent to HCDCP by the local health care units.
- The notification form includes data on: a) demographic and clinical parameters, b) vaccination status, c) travel and ethnicity data

- Data are recorded in an EpiData database.
- The data was analyzed by the population group affected i.e.:
 - Roma population,
 - immigrants,
 - MSM and
 - travelers.
- STATA version 12 software (Stata Corporation LP, Texas, USA) was used for the descriptive statistics

RESULTS

During the period 2009-2017, 1083 cases of HA were reported. The mean annual notification rate was 1.10 cases per 100,000 population.



Graph 1. Time trend of hepatitis A notification rate (number of cases per 100,000 population), Mandatory Notification System, HCDCP, Greece, 2009-2017.

Table 1. Number of notified cases of hepatitis A by population group and year, Mandatory Notification System, HCDCP, Greece, 2009-2017.

Year	Travel-related	Migrants*	Roma	MSM**	General population	Total n of cases
2009	8	11	9		61	89
2010	2	2	27		27	58
2011	7	3	13		18	41
2012	8	3	25		38	74
2013	7	3	112		43	165
2014	4	12	48		22	86
2015	11	18	6		27	62
2016	7	188	0		19	214
2017	26	32	0	96***	140****	294
Total	80	272	240	96	395	1083

*Economic immigrants, asylum seekers and refugees are included **men having sex with men. This information was not recorded systematically in the previous years
*** 15 of the 96 MSM were travel-related **** 39 cases had unknown MSM status, 66 cases identified themselves as not being MSM, 35 were females

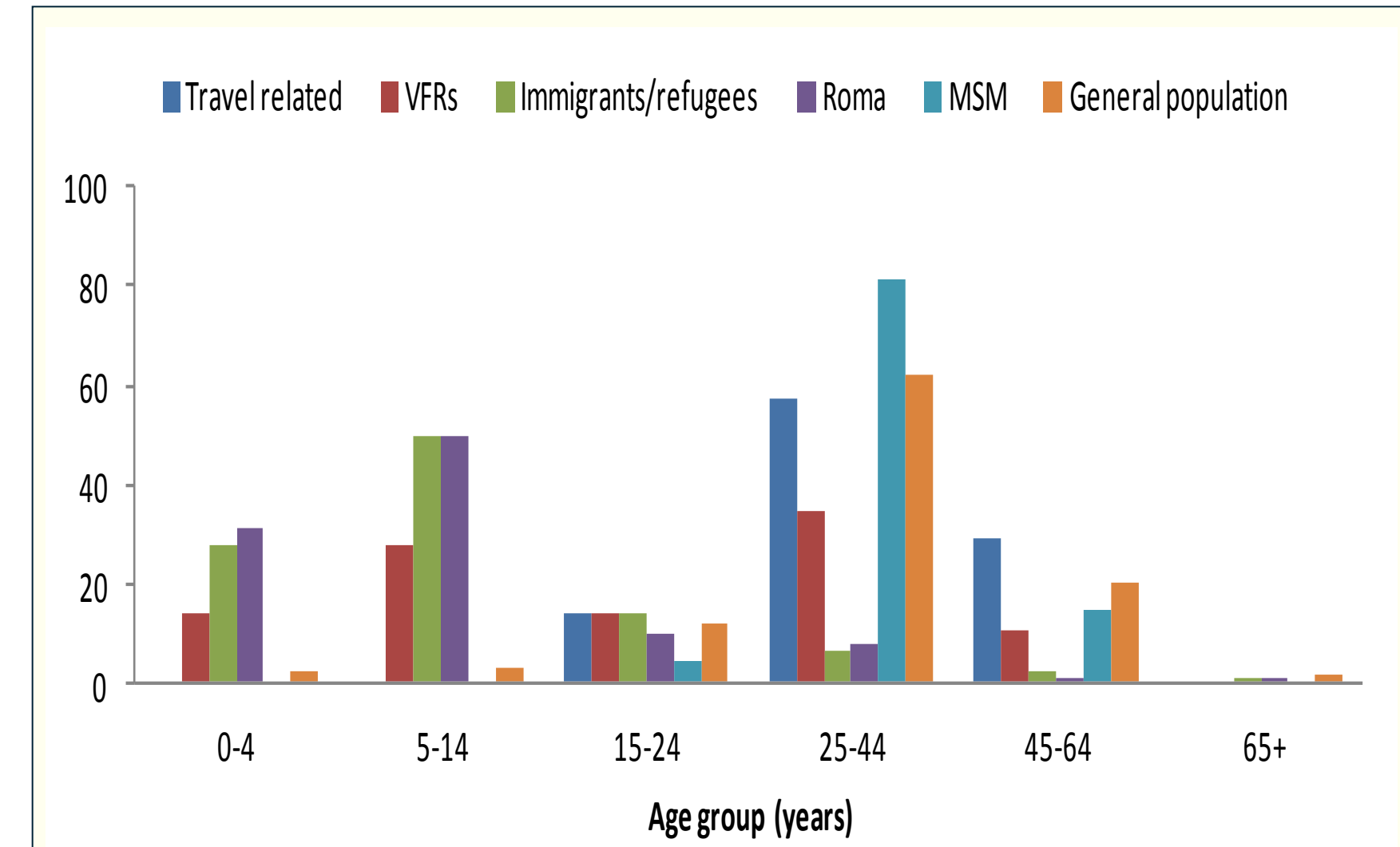
Table 2. Median age and gender of hepatitis A notified cases by population group, Mandatory Notification System, HCDCP, Greece, 2009-2017.

	Travel-related	Migrants	Roma	MSM	General population
Median age (range) in years	37.5 (16-58.9)	8.1 (1-66)	7 (0.5-70)	39 (21-55)	37 (1.2-85.6)
Gender					
Male	80.3%	61%	50.8%	100%	71.7%
Female	19.7%	39%	49.2%		28.3%

Table 3. Number of travel related notified cases of hepatitis A, by year, Mandatory Notification System, HCDCP, Greece, 2009-2017.

Year	Travel-related*	Country of infection
2009	4	Angola, Jordan, Kazakhstan, Russia
2010	1	Netherlands
2011	2	Georgia, United Kingdom
2012	5	Bulgaria, Germany, Madagascar, Pakistan, Uzbekistan
2013	3	Austria, Turkey (2)
2014	3	Seychelles, Thailand, Turkey
2015	8	Cyprus, Egypt, Romania, Spain, Sudan, Turkey (2), 1 unknown
2016	4	Jordan, Ukraine, Albania, Canada
2017	24 TRAVEL	Belgium, Bosnia, Brazil, Cyprus, Czech Republic, Egypt (2), France (2), Germany, India (2), Iran, Italy (3), S. Africa, Spain, Thailand, Turkey, United Kingdom (3), Vietnam
	15 MSM	Bulgaria (2), FYROM, Germany (3), Italy (3), Netherlands (2), Serbia, Turkey, USA (2)

*The rest of the travel-related cases compared to those are referred in Table 1, are immigrants who had Visited Friends and Relatives in their country of origin (VFRs).



Graph 2. Age distribution of hepatitis A notified cases by population group in travel related, people who visited friends and relatives in their country of origin (VFRs), migrants, Roma, men having sex with men (MSM) and the general population (after subtracting migrants, travelers, and the Roma population) in Greece, Mandatory Notification System, 2009-2017.

Table 4. Characteristics of the three outbreaks recorded between 2009 and 2017

Time	Population	Place	Number of recorded cases	Median age (IQR)	Genotyping
01,02/2013 07-09/2013	Roma	Eastern Macedonia, Thrace, Peloponnese	50 (out of 112 reported that year)	6.6 years (1-8), 6 years (1-29), 19 years (14-31)	subgenotype IA
04-12/2016	Refugees	Camps	177	7 years (1-29)	subgenotype IB [3]
2017	MSM	Various regions in Greece	96	39 years (21-55)	subgenotype IA

CONCLUSIONS

- Epidemiological data of HA affected populations offer a useful insight on the evolution of the disease epidemiology and should be used for prioritization of future public health strategies.
- Food-borne transmission did not appear to contribute significantly in the epidemiology of HA in Greece in recent years.
- The increase in HA cases was noted in specific populations (children mainly in Roma and refugees) and was mainly attributed to low hygiene and person to person transmission. Efforts should focus on improving hygienic standards and access to health care services in these populations.
- A significant number of cases were noted in travelers and MSM. Informing young people on the modes of transmission of the disease focusing at sexual transmission and travel
- Vaccination of high risk populations including travelers and MSM remains a Public Health priority

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