Summary of work activities
Denisa Janta
European Programme for Intervention
Epidemiology Training (EPIET), 2011 cohort

Background

Pre-fellowship short biography

Before joining EPIET, Denisa Janta spent two years as a resident epidemiologist at the National Institute of Public Health, National Centre for Surveillance and Control of Communicable Diseases, in Bucharest, Romania. During this time she was involved in the measles and rubella surveillance programme, an immunisation campaign for HPV, and a capture–recapture study for SARI cases.

EPIET assignment

On 19 September 2011, Denisa Georgiana Janta was assigned to the National Centre for Surveillance and Control of Communicable Diseases, National Institute of Public Health, Bucharest, Romania.

Fellowship projects

Surveillance project

Hepatitis B and C surveillance

Project leader: Odette Popovici (National Centre for Surveillance and Control of Communicable Diseases)

The aim of this surveillance programme was to monitor trends in hepatitis B and C, detect and monitor the changes in their distribution in the population, increase the understanding of HBV and HCV epidemiology in Romania, identify risk factors and risk subpopulations; monitor the impact of universal vaccination in accordance with the national immunisation programme in order to recommend measures for disease control in the Romanian population and subpopulations at risk.

Background: Since 1978 it has been mandatory in Romania to report acute viral hepatitis. Data for acute hepatitis A, B, and C are collected in an aggregated format by type of hepatitis, district, age groups and type of residence (rural or urban). The primary data are reported by infectious diseases hospitals and from there to the National Health Statistics Centre.

In 2008, a register for communicable diseases and hepatitis was created. Healthcare facilities report the data to the public health authorities and then transmitted to the National Centre in an electronic form. Since 2008, the reporting system has been case based; cases are reported to the National Centre by healthcare facilities.

Methods: The healthcare providers will report the cases (hepatitis B and C) using a reporting form which will be sent to public health authorities. Data entries in the *Epi info* database are based on these reporting forms. Reports are filed monthly to the regional and national levels. For hepatitis B and C cases we use the European case definition recommended by ECDC. New cases of hepatitis will be notified in the register of communicable diseases. Blood transfusion centres will report the numbers of, and positive results for, initial donors tested for hepatitis B and C in an Excel form. Clinical laboratories will report the overall number of tests performed for hepatitis B and C (including the number of positive results) to the local level, using an Excel form. Data will be sent monthly from the local level to the regional level, and quarterly to the National Centre. At the regional level, pregnant women in their last trimester will be tested; data will be transmitted quarterly to the national level using an Excel spreadsheet.

Results: In 2012, 674 cases were reported to the surveillance system for hepatitis. Of those, 332 cases (49.3%) were acute hepatitis B, and 97 cases (14.4%) were acute hepatitis C. Thirty cases (4.5%) of chronic hepatitis B were reported, while chronic hepatitis C accounted for 32 cases (4.7%). We chose not to classify the 183 cases (27.2%) which did not conform to the EU case definition.

Conclusions: The incidence of acute and chronic hepatitis cases differed by age group and gender. The route of transmission for chronic hepatitis was through sexual contact; acute hepatitis showed both a sexual and a nosocomial (especially after dental treatments) transmission pattern.

Status: Hepatitis case analysis and 2012 annual report on communicable diseases published on official Romanian website (http://www.insp.gov.ro/cnscbt). I prepared a protocol to validate the cases from the *Epi info* database, taking into account the case definition from the surveillance methodology. The protocol was sent to the local and regional levels.

Rubella surveillance

Project leader: Aurora Stanescu (National Centre for Surveillance and Control of Communicable Diseases)

I was responsible for rubella surveillance in the surveillance programme for rubella and measles. The aim was to analyse the data and present a monthly report to the Ministry of Health during the rubella outbreak; I also prepared the rubella Excel file for the TESSy database.

Ongoing rubella outbreak among adolescents in Salaj, Romania, September 2011–January 2012

The aim of this rapid communication was to present a descriptive analysis of a rubella outbreak in the Salaj district, with more than 1 800 cases evaluated among teenagers.

Background: Rubella has been a statutorily notifiable disease in Romania since 1978 [2]. Until 2010, data were reported in an aggregated format by age group. In 2010, a case-based reporting system with mandatory laboratory confirmation was introduced. In 2004, the measles-mumps-rubella (MMR) vaccine was introduced to the national immunisation schedule for children aged 12–15 months. Since 2004, MMR vaccination has also been offered to children aged seven years.

Method: A descriptive analysis was used for rubella cases taking into account their vaccination status and the rubella vaccination history in Romania.

Results: The index case (laboratory confirmed) was reported on 6 September 2011 to the Salaj Public Health Authority: an unvaccinated 16-year-old student attending a local high school. Between 1 September 2011 and 23 January 2012, 1 840 confirmed and probable rubella cases were reported to the Salaj Public Health Authority. Vaccination coverage among the reported cases was low: 38 (2.1%) of the total number of cases were vaccinated with one dose of rubella-containing vaccine.

Conclusions: The results of the investigation revealed that of the total number of rubella cases described above, 98% had never been vaccinated against rubella infection.

Status: Rapid communication published in Eurosurveillance, volume 17, issue 7. Available from: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20089

An outbreak of rubella among adolescents in Romania, September 2011–March 2012

Background: In September 2011, an increase of rubella cases was notified in Romania. Since the last rubella epidemic in 2003, the incidence had increased to 20.6/100 000 in 2011, compared with the median 10.9/100 000 during 2005–2010. According to the childhood immunisation schedule (2005), two doses of the measles-mumps-rubella (MMR) vaccine had been routinely administered at the age of 12–15 months and 6–7 years . Additionally, girls aged 13–14 years were vaccinated with a monovalent rubella vaccine between 2003–2008. We aimed at describing the notified rubella cases in order to inform public health actions.

Methods: We described rubella cases notified to the national surveillance system between September 2011 and March 2012. Cases were identified and classified according to the EU case definition. Data collected included age, sex and vaccination status. Vaccine effectiveness (VE) was calculated using the screening method (which requires information on the mean vaccination coverage in the MMR-eligible population).

Results: The increase of rubella cases was first detected in the north-west region and spread south-west, becoming nationwide in February 2012. Overall, 21 457 cases were notified (incidence 100.5/100 000); 8726 (40.7%) cases occurred among females (incidence 96.4/100 000). Of the 5 401 cases reported in age groups eligible for vaccination, 275 (5%) were vaccinated. Of all cases, 16 056 (74.8%) occured in non-vaccinated age groups, with the highest incidence among 15–19 year olds (1218.7/100 000), followed by 10–14-year-olds (255.9/100 000). The VE among eligible age groups was over 98%.

Conclusions: Rubella cases occurred mainly in unvaccinated adolescents aged 15–19 years. To prevent further spread we recommended intervention immunisation of all persons aged 10–19 years, starting in September 2011; implementation of enhanced congenital rubella syndrome surveillance; and screening for anti-rubella antibodies in pregnant women epidemiologically linked to rubella cases.

Status: Poster communication presented at ESCAIDE, Edinburgh, October 2012. Prepared the rubella epidemic report.

Outbreaks

Suspected outbreak of trichinosis

On 19 June 2012, the National Centre was informed about a possible outbreak of *Trichinella spiralis* in the village of Condeesti, Ialomita district. The onset was 5 June 2012, with 14 possible cases among 68 consumers of pork untested for *Trichinella spiralis*. On 20 and 21 June 2012 a team, of which I was a part, investigated this outbreak (by using a questionnaire) and analysed the data. Based on the laboratory results, the results of the data analysis and the used case definition, the outbreak could be confirmed.

The importance of laboratory diagnosis in an outbreak investigation

Background: Trichinosis is a zoonosis with a major impact on public health. The diagnosis was based on epidemiological data, clinical signs and laboratory results (immunological and haematological). Following an epidemiological investigation and an analysis of the laboratory data, we wanted to discover the etiologic agent of the outbreak. We suspected the consumption of pork dishes among members of a community from the Ilfov district.

Method: On 20 and 21 June 2012, a cohort study was conducted in the village of Condeesti, among consumers of pork dishes possibly infected with *Trichinella spiralis*. Included in the study were all persons who consumed meat dishes from a pig slaughtered in the village on 20 May 2012. Data were collected using a questionnaire which was distributed to two groups: hospitalised persons and those who did not require hospitalisation.

Results: Of the 68 people who consumed meat from a slaughtered pig whose meat was not tested for trichinae, 13 (19.1%) reported symptoms (myalgia, fever, facial swelling, and abdominal pain). In 11 (16.2%) cases, the meat was eaten both cooked and raw. Of those, seven cases presented with symptoms. The relative risk of persons who ate roast meat was 18 times higher in symptomatic than asymptomatic persons (CI 2.6–120.9). In two cases (one symptomatic, the other one asymptomatic) laboratory results showed a positive IgG and a lower number of eosinophils ($0.7*103/\mu l$). In 12 cases the number of eosinophils was greater than $0.7*103/\mu l$. Seven of these 12 cases were symptomatic. The attack rate was 20.5%.

Conclusion: The results of the outbreak investigation were not able to establish a direct link between an IgG-positive test result and the consumption of pork from a pig slaughtered on 20 May 2012. Cohort study hypotheses could not be established due to the limited number of individuals included in the study and inconclusive laboratory findings.

Status: Completed, report completed. Oral communication, National Conference on Microbiology and Epidemiology, Bucharest, November 2012

Outbreak of TB amonginstitutionalised patients

On 5 August 2013, the National Centre was informed about several possible TB cases in a mental health facility in the village of Plataresti, Calarasi district, with onset of disease on 2 April 2013. Eleven possible cases were reported, of a total of 163 persons and a staff of 91. On 4 July 2012 the National Centre received a report of the outbreak investigation form the Plataresti facility which identified eight pulmonary TB cases. On 7 August 2013 a team (of which I was a part, together with Alina Zaharia, an EPIET Member State track fellow, cohort 2012) investigated the outbreak and analysed the collected data using the hospital medical forms of the suspected cases, the medical forms from the Plataresti mental health facility, and the information received from the administrator of the unit. Based on the laboratory results, the results of the data analysis, and the EU case definition, the outbreak was confirmed. According to the EU case definition, the following cases were identified: four confirmed pulmonary TB cases, five possible pulmonary TB cases, and one possible pulmonary TB case with confirmed ganglionic TB.

Status: Completed, report completed

Research

Evaluation of vaccination coverage in a Romanian district using the lot quality assurance sampling method

Project leader: Adrian Stoica (Directorate of Public Health, Romanian Ministry of Health, Arges, Romania)

We plan to use the lot quality assurance sampling method (LQAS), modified to evaluate the vaccine coverage in a Romanian district, and assess its usefulness and benefits for programme monitoring and evaluation compared to currently used methods. If beneficial, the methodology may be used at the national level to rapidly assess NIP (national immunisation programme) performance and identify the areas where corrective intervention is needed.

Background: During 2011–2012, Romania experienced measles and rubella epidemics, although the reported vaccination coverage (VC) exceeded 94%. VC is calculated annually at 12, 18 and 24 months of age, through a survey of July birth cohorts. We aimed at assessing the measles-mumps-rubella (MMR) vaccination performance in a Romanian district considering underperforming areas, valid doses, and a comparison with the 2010 VC survey.

Methods: Using lot quality assurance sampling (LQAS), we divided the district into four supervision areas (SA) and randomly sampled 19 lots per SA. A lot was a family doctor who provided care for at least 12 children born in 2010. We pooled all data in a stratified sample to estimate VC for the first MMR dose at 12 and 24 months. Unacceptable lots had over 2/12 (15%) unvaccinated children. A dose was considered valid if administered at 12 months of age or above.

Results: We selected 76 lots with 912 children. For children at 12 months, 71% (54/76) of the selected lots were unacceptable for valid and invalid doses altogether, while 84% (64/76) were unacceptable for valid doses, exceeding 50% in each SA. For children at 24 months, 11% (8/76) of the selected lots were unacceptable for valid and invalid doses altogether. The overall VC was 61% at 12 months (51% for valid dose) and 90% at 24 months. The VC for the 87 (10%) children born in July was 65% (95% CI:54–75) overall (50% for valid doses) at 12 months, and 88% (95% CI:79–94) at 24 months. The corresponding VC reported by the 2010 survey used for comparison was 74% and 96%.

Conclusions: MMR vaccination performance improved at 24 months, although the survey VC was overestimated. This is informative and may help stakeholders improve the VC.

Status: Oral communication accepted to National Conference of Microbiology and Epidemiology, Bucharest, November 2013. Report completed. Manuscript in preparation.

Scientific communication

One rapid communication:

- Ongoing rubella outbreak among adolescents in Salaj, Romania, September 2011–January 2012, published in Eurosurveillance [1].

One poster

- An outbreak of rubella among adolescents in Romania, September 2011–March 2012, ESCAIDE, Edinburgh, October 2012.

Two oral presentations

- The importance of laboratory diagnosis in an outbreak investigation, National Conference of Microbiology and Epidemiology, Bucharest, November 2012.
- Estimation of the vaccination performance for the 2010 birth cohort in a Romanian district using lot quality assurance sampling, National Conference of Microbiology and Epidemiology, Bucharest, November 2013.

Teaching experience

2 November 2011. Together with my supervisors, it was decided to make a monthly case study presentation to my colleagues from CNSCBT starting 2 November 2011 of the cases presented at the EPIET introductory course in Menorca. In my first presentation (Gastroenteritis following a barbecue in Northern Ireland) I was assisted by my supervisor, Dr Adriana Pistol.

12 January 2012. Presentation of a case study on asthma in Barcelona for my colleagues at CNSCBT.

28 March 2013. Graphs, an introductory course for epidemiologists in their first year of training.

10–11 April 2013. Case study for epidemiologists in their first year of training: 'HIV surveillance in Spain'. I presented this case study together with Dr Teleman from the Epidemiology Department. We divided the case study in two parts, but otherwise used the same format that was used in the EPIET introductory course in Menorca.

17 April 2013. 'Evaluation of a surveillance system': course for epidemiologists in their first year of training.

21 May 2013. 'Evaluation of a web based reporting tool for the Norwegian outbreak notification system': a case study for epidemiologists in their first year of training. I presented this case study together with Dr Daniela Pitigoi from the Epidemiology Department.

Miscellaneous

- Training activity: 15–20 October 2012. Certificate of attendance: measles and rubella training workshop organised by WHO, Headquarters and Regional Office for Europe.
- 10 March 2013. Mini project review module, Bucharest: presented the first results obtained on vaccination coverage (LQAS method).
- Prepared a presentation for the EPIET sampling module, Athens 2013.

Supervisor's conclusions

During her two-year fellowship at the National Institute of Public Heath (NIPH) as Member-State-track fellow, Denisa Janta was involved – in addition to her routine duties as an employee of NIPH – in all EPIET-required curriculum activities. Denisa was the first Romanian Member-State-track fellow and the first EPIET fellow I supervised, and would like to emphasise that we both benefitted from the challenges of the many training activities and that Denisa's results were excellent. The training site also benefited from Denisa's EPIET fellowship, especially in the field of research. Her research project was very challenging, both with regard to its results and as a vehicle to explore and understand new methods. Denisa considerably developed her skills during these two years, particularly in surveillance and research, and has benefitted from the team experiences provided by EPIET. I would like to congratulate Denisa on her tremendous efforts to make the big step from a trainee to a capable field epidemiologist.

Next steps

- Denisa will prepare an article about my project research to be submitted to a medical journal.
- After completion of her fellowship Denisa will continue working at the National Centre for Surveillance and Control of Communicable Diseases, Bucharest

References – list of publications and communications

1. Janta D, Stanescu A, Lupulescu E, G Molnar G, Pistol A. Ongoing rubella outbreak among adolescents in Salaj, Romania, September 2011–January 2012. Euro Surveill. 2012 Feb 16;17(7).

2. Janta D, Rosca M, Popovici F, Pistol A. The importance of laboratory diagnosis in an outbreak investigation. Oral presentation at: National Conference of Microbiology and Epidemiology, 2012 November 8–12, Bucharest, Romania

3. Janta DG, Lupulescu E, Stanescu A, Pistol A. An outbreak of rubella among adolescents in Romania, September 2011–March 2012. Poster presentation at: European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE), 2012 October 24–26, Edinburgh, United Kingdom

4. Janta D, F Popovici F, A Stoica A. Estimation of the vaccination performance for the 2010 birth cohort in a Romanian district using lot quality assurance sampling technique. Oral presentation at: National Conference of Microbiology and Epidemiology, 2013 November 14–16, Bucharest, Romania