



EPIET REPORT

Summary of work activities

Rysard Tomialoic
European Programme for Intervention
Epidemiology Training (EPIET), 2011 cohort

Background

Pre-fellowship short biography

Rysard Tomialoic graduated from the medical faculty of Vilnius University in 2008 with master's degree in public health. From 2006 to 2011, he worked in the Vilnius Public Health Centre, Lithuania, as chief specialist in the Public Health Safety Control unit where he worked in the field of infectious disease control and the control of hygiene and sanitary conditions in healthcare units and prisons.

EPIET assignment

On 19 September 2011, Rysard Tomialoic was assigned to the epidemiological unit of the National Institute of Public Health in Warsaw, Poland.

Fellowship projects

Surveillance project

Evaluation of hepatitis C surveillance in Poland in 2011¹

Background: In 2009, Poland introduced a new case definition for hepatitis C virus infection (HCV), based on EU criteria that require a confirmatory laboratory assay (positive HCV RNA or immunoblot test). To evaluate HCV infection surveillance, the application of this definition was investigated.

Methods: We analysed cases reported in 2011, including clinical and laboratory data necessary for case classification. We classified cases according to the definition criteria. For each region, we calculated the positive and negative predictive values (PPV, NPV) of local/regional use of the classification, using the national classification as gold standard. We used logistic regression to calculate region-adjusted odds ratios (ORs) and 95% confidence intervals [95% CI] to investigate factors associated with misclassification, including circumstances of diagnoses and reporting delay (i.e. interval between notification and confirmation in days).

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Results: Of 2 609 reported cases, local epidemiologists correctly classified 2 522 (PPV: 97%, NPV: 85%). Of a total of 16 regions, PPV was $\leq 95\%$ in two regions, and NPV was $< 85\%$ (lowest value: 13%) in three. Compared with cases identified during routine outpatient screening or self-initiated testing, patients diagnosed while donating blood were more likely to be classified accurately (OR: 9.0, 5.2–15.7). Patients identified during hospitalisation (OR: 0.66, 0.5–0.8) and those investigated because of symptoms (OR: 0.82, 0.6–1.0) were more likely to be misclassified. Cases notified prior to confirmatory testing were 9.1 times more likely to be misclassified than cases reported after 95% CI: 5.0–16.7.

Conclusion: Difficulties persist with HCV infection case definition in some regions of Poland, making data less comparable. Notifying unconfirmed cases increased probability of errors. We recommended supplemental training along with follow-ups to update reports, especially for those coming from hospitals.

Status: Completed, abstract accepted at ESCAIDE 2013¹.

Outbreak

Norovirus outbreak investigation in primary and secondary schools in Warsaw, 2011²

Background: In November 2011, local public health authorities in Warsaw were notified of a suspected gastroenteritis outbreak among students and staff at a primary school. We investigated the outbreak to identify possible risk factors for pathogen transmission.

Methods: We conducted a retrospective cohort study among students and staff to assess symptoms and possible exposures. Cases were students and staff from the affected school with self-reported symptoms of diarrhea or vomiting between 15 November and 1 December 2011. We calculated attack rates (ARs), risk ratios (RR) and 95% confidence intervals (95% CI) for exposures, using binomial regression in univariable and multivariable analysis. We stratified according to the status in the school (student vs. teacher) and the time of symptom onset (early vs. late cases). Stool specimens from symptomatic persons were tested for gastroenteritis pathogens.

Results: Of a total of 427 eligible persons, 347 (81.3%) responded to the questionnaires; 172 of which (49.6%) were cases. ARs among students and staff were 58% and 9%, respectively. Risk factors for illness among students included sharing school lunches (aRR 1.2, 95% CI: 1.0–1.4) and having household contact with a symptomatic person (1.4; 1.2–1.7); having household contact resulted in a higher risk for illness among males (1.6, 95% CI: 1.2–2.1). Using school toilets was associated with a lower risk (0.78; 0.69–0.87) among students. Among early cases, household contacts (1.5; 1.1–2.2) and shared school lunches (1.6; 1.0–2.4) were risk factors for illness. Among late cases, males were more affected (1.6; 1.0–2.0). Norovirus was detected in 3/7 specimens.

Conclusions: In outbreaks involving person-to-person transmission, interventions should focus on strengthening the message of personal hygiene, particularly in households. Shared meals could have been the main factor which drove the outbreak. To reduce such transmission, special attention should be paid to hand hygiene, especially before eating.

Status: Completed. Internal report, abstract accepted at ESCAIDE 2012².

Research

Incidence and factors predicting *Bordetella parapertussis* diagnosis among patients referred to general practitioners, Poland, 2009–2011^{3,4}

Background: *Bordetella parapertussis* is the second most frequent cause of whooping cough; some countries have reported an increase in incidence over several years. Poland does not routinely diagnose nor conduct surveillance for parapertussis. We estimated parapertussis incidence and determined predictors of parapertussis diagnosis in the Polish population.

Methods: Between July 2009 and April 2011, we conducted a prospective cohort study among patients attending 78 general practices (158 863 persons). We included patients aged ≥ 3 years, with cough lasting 2–15 weeks, ensured informed consent, interviewed patients, and collected a nasopharyngeal swab. We confirmed cases by detection of bacterial DNA in real-time PCR. We estimated parapertussis rates by dividing the number of cases by the person-time of observation. We assessed predictors of PCR-confirmed parapertussis by comparing cases with patients testing negative. Using logistic regression, we calculated odds ratios (ORs) and 95% confidence intervals (95% CI).

Results: We identified 78 cases among 1 231 patients meeting inclusion criteria. Incidence rate: 39 per 100 000 person-years, 95% CI 31–49, with highest rates 140 (95% CI 74–239) among children 3–5 years of age and the lowest 24 (95% CI 13–40) among persons aged 20–39 years of age. Factors associated with parapertussis positive diagnosis were age 3–5 years (OR 3.2, 95% CI: 1.7–6.2), being male aged 3–5 years (5.4, 2.4–12), and close contact with patients with persisting cough (2.4; 1.0–5.4) for women (not living alone) aged over 40 years.

Conclusion: Our results suggest that laboratory diagnosis could be prioritised for children of preschool age and older adults with prolonged cough, especially women. In the absence of an effective vaccine, postexposure prophylaxis for close contacts of parapertussis cases could be an adequate preventative measure.

Status: Completed, abstract accepted for ESCAIDE 2013³. Manuscript⁴.

Scientific communication

- Two posters prepared, one accepted for ESCAIDE 2013 (Stockholm)¹ and one presented at ESCAIDE 2012 (Edinburgh)².
- Oral communication submitted and accepted for ESCAIDE 2013 (Stockholm)³.
- One manuscript in preparation⁴.
- One manuscript under evaluation, submitted as co-author⁵.

Teaching experience

Facilitator for case-control study for employees of local public health authorities

Involved as facilitator in a case-control study for workers of sanitary and epidemiological stations during a gastroenteritis outbreak investigation in November 2011 (two times three hours); facilitator for staff of National Institute of Public Health in March 2012 (three hours).

Facilitator for course in epidemiology for physicians

Co-facilitator for a specialisation course in epidemiology for physicians in November 2012; gave two lectures on confounding factors and effect modification in epidemiological research (two times 45 minutes).

International mission

Surveillance and response to public health threats during EURO 2012 football championship in Ukraine⁵

Background: The UEFA football tournament EURO 2012 was held jointly by Poland and Ukraine from 8 June to 1 July 2012. The WHO Country Office (WHO CO) in Ukraine assisted the Ukrainian Ministry of Health, the Sanitary Epidemiological Services and other competent authorities on surveillance and response to health threat activities during the EURO 2012 tournament, including joint risk assessments of acute public health events.

Methods: Collaboration between national and international authorities helped to assess and build capacity in the host country, implement effective strategies for public health messaging, and ensure rapid and effective information sharing during the tournament. Specific surveillance activities for infectious diseases and other health risks that may be associated with the football event, were implemented by Ukraine, WHO and ECDC, in accordance with their respective mandates and their roles.

Results: This type of surveillance design was conducted in Ukraine for the first time. It was based on routine surveillance but notification and reporting procedures were accelerated; no new reporting forms were implemented. The integrated surveillance methodologies used by Ukrainian public health authorities and WHO CO allowed for the timely verification of information from all sources about possible threats.

Conclusions: International cooperation and preparedness for mass gathering events allows public health authorities to quickly respond to public health threats. Enhanced surveillance systems should always be considered when planning mass gathering surveillance, even though all events and threats of infectious and non-infectious diseases captured by event-based surveillance system are also notified and reported by indicator-based surveillance.

Status: Completed, internal report. Manuscript⁵.

Next steps

- Submit a manuscript on the parapertussis study to the Epidemiological Review.
- Prepare a manuscript on the hepatitis C surveillance study.
- Following his fellowship, Rysard stayed in Poland, working in the field of clinical diagnostics. In the future he plans to continue his career in public health epidemiology.

References

1. Tomialoic R., Parda N., Stępień M., Rosińska M. Hepatitis C surveillance evaluation in Poland in 2011. Poster accepted for the European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE) 2013, Stockholm, Sweden.
2. Tomialoic R, Rosińska M, Zwierzyńska K, Sadkowska-Todys M. Norovirus outbreak investigation in primary and secondary school in Warsaw, 2011. Poster at the European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE) 2012, Edinburgh, United Kingdom, 25 October 2012.
3. Tomialoic R, Paradowska-Stankiewicz I, Zasada A, Stefanoff P, Sadkowska-Todys M. Incidence and factors predicting *Bordetella parapertussis* diagnosis among patients referred to general practitioners, Poland, 2009–2011. Oral communication accepted for the European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE) 2013, Stockholm, Sweden.
4. Tomialoic R, Paradowska-Stankiewicz I, Zasada A, Stefanoff P, Sadkowska-Todys M. Incidence and factors predicting *Bordetella parapertussis* diagnosis among patients referred to general practitioners, Poland, 2009–2011.
5. Smallwood CAH, Arbuthnott KG, Banczak-Mysiak B, Borodina M, Coutinho AP, Payne-Hallström L, et al. Euro 2012 European Football Championship finals: planning for a health legacy. doi:10.1016/S0140-6736(13)62384-3 [The Lancet, early online publication, 21 May 2014]