EPIET REPORT

Summary of work activities

Justyna Magdalena Rogalska
European Programme for Intervention Epidemiology Training (EPIET), 2011 cohort

Background

Pre-fellowship short biography

From 2007 to 2011, Justyna Rogalska worked as a research assistant at the Polish National Institute of Public Health, mainly in the area of vaccine-preventable diseases. She developed and coordinated projects aimed at strengthening the surveillance of measles, rubella and tick-borne diseases, and was involved in the technical management of programmes initiated by the WHO's Regional Office for Europe on poliomyelitis eradication and measles elimination. She holds a BSc in clinical nutrition (2005) and an MSc in public health (2007), both from the Medical University of Warsaw. She completed her postgraduate studies in Food and Nutrition Safety at the Polish National Food and Nutrition Institute in 2008.

EPIET assignment

On 19 September 2011, Justyna Rogalska was assigned to the Health Protection Surveillance Centre, Dublin, Ireland. Her site supervisor was Paul McKeown.

Fellowship projects

Surveillance project

Evaluation of VTEC surveillance system in Ireland

Background: Verotoxigenic *Escherichia coli* (VTEC) has been notifiable in Ireland since 2004. The objectives of the national VTEC surveillance are to detect VTEC outbreaks; describe disease burden and trends; and inform public health policy. To improve timeliness of reporting, physicians are encouraged to use an electronic reporting system (Computerised Infectious Disease Reporting – CIDR) that combines clinical and laboratory notifications. In addition to VTEC notification on CIDR, immediate preliminary notification should be made by telephone or fax. We aimed to measure the completeness and timeliness of reporting on CIDR between 2005 and 2012.

Stockholm, May 2014

Methods: Using CIDR data, we estimated completeness for selected variables and the median time/interquartile ranges (IQR) for intervals in the notification process between 2005 and 2012.

Results: In total, there were 1963 VTEC cases captured by the national surveillance in 2005–2012. Information on the microorganism was the most complete (99.3%), and least complete on ethnicity (18.3%). Completeness of most of analysed variables improved over time. The median time interval between specimen collection and the first notification on CIDR was six days (IQR 4–10). The median time interval between specimen collection and reporting of confirmatory results by the reference laboratory was 14 days (IQR 11–18).

Conclusions: The high degree of completeness of specific information required for VTEC surveillance reassures stakeholders about the usefulness of VTEC surveillance for monitoring disease burden and informing policy. On the other hand, the relatively low timeliness of CIDR reporting limits the system's ability to rapidly detect outbreaks. However this function is achieved by direct person-to-person communication between clinical and reference laboratories and public health practitioners, which remains a critical element of the urgent response and outbreak detection.

Status: Completed, abstract submitted to ESCAIDE 2013

Operation and evaluation of the event-based surveillance during UEFA football championship in Poland

Background: The potentially increased risk for infectious disease transmission and spread exists during mass gathering events and requires additional surveillance activities. For the European Football Championship (EURO 2012), held in Poland and Ukraine between 8 June and 1 July 2012, an event-based surveillance system was implemented in Poland. We present its results and an assessment of its usefulness.

Methods: For the purpose of the described surveillance, an 'event' was defined as a situation that may constitute a threat or may indicate the possibility of a threat to public health, including eleven scenarios provided as examples for reporting agencies. Local health departments used a simple free-text form to report any health event. No zero reporting was required. We daily monitored all incoming reports and compared them with notifications from enhanced routine surveillance, food-borne outbreaks reports, notifications sent to the Polish International Health Regulations focal point, and information from domestic and international media sources.

Results: One event was notified through event-based surveillance: a gastrointestinal tuberculosis episode in a non-Polish citizen already under treatment. Additionally, routine surveillance captured three public health events not connected to the tournament that could have had an impact on it: a measles outbreak in a Roma community in the host city of Wrocław, a gastrointestinal disease outbreak in a police camp near Warsaw, a case of meningitis in a non-Polish national whose family visited Warsaw during EURO 2012.

Conclusions: The event-based surveillance did not identify any relevant health event not reported to routine systems. It did, however, allow monitoring of health threats on a daily basis, ensuring that no relevant events would be missed. Introduction of event-based surveillance should always be considered when planning mass gathering surveillance.

Status: Completed, internal report, results presented at ESCAIDE 2012[1]

Outbreaks

Monophasic *S.* Typhimurium U323 outbreak

Monophasic *S.* Typhimurium U323 infections are rare in humans in Ireland. Only one human isolate was identified in 2010 and two in 2011. Two of these three cases were associated with travel to Spain. From 17 August 2012 to 5 October 2012, 25 confirmed and one probable case of monophasic *S.* Typhimurium U323 infection have been identified as being linked to this outbreak. The cases were dispersed across six Health Service Executive areas. Among the potential items investigated were salads and ready-to-eat food items. Although some foods/food groups were potential candidates, we could not finalise a hypothesis and, despite a very extensive amount of clinical and epidemiological work as well as environmental and food trace-back investigations, we were unable to unambiguously track down the source. In the case of food items like salad and other generic ready-to-eat foods, people will often not recall the exact brand of consumed food. An indistinguishable strain of *Salmonella* was identified in the United Kingdom and Germany, and colleagues in those countries encountered the same issue as in Ireland; they too were unable to identify the source of this widely disseminated outbreak.

Status: Completed, internal report

Hepatitis A genotype IA outbreak associated with products containing frozen berries, Ireland 2013

Background: In May 2013, a European alert was issued regarding a hepatitis A virus (HAV) outbreak in Italy. On 18 June 2013, three Irish HAV genotype IA cases were identified as having an identical sequence to the Italian outbreak strain (IOS); none had travelled to Italy. We investigated the outbreak to identify the vehicle of infection and recommend control measures.

Methods: We defined a case as a person with laboratory-confirmed HAV IA and identical sequence to IOS and a date of symptom onset on or after 1 January 2013. We identified cases using the notification system and actively searched for new cases by contacting laboratories and clinicians. We compared each case to at least three randomly-selected

(using random-digit dialling) controls of the same age, sex and municipality to identify risk factors. We calculated matched odds ratios (mOR) and 95% confidence intervals (CI) for different food exposures. We collected food samples for HAV testing and conducted trace-back investigations.

Results: We identified 16 cases (including one secondary) with symptom onset between 5 April 2013 and 9 August 2013 (median age 34 years, range 25–58; 56% female; in 5 of 8 regions). We recruited 12 primary cases and 45 controls. Cases were more likely than controls to have eaten fresh berries (mOR=3.4, 95% CI: 0.3–38), frozen berries (mOR 9.5, 95% CI: 1.0–89) and berry cheesecake (mOR=15.5, 95% CI: 1.8–135). Combining products containing frozen berries, i.e. smoothies, juices, cheesecakes, ice creams, yoghurts, sauces (mOR=11, 95% CI: 1.4–89) accounted for 92% of the cases. Fifteen food samples tested were negative for HAV.

Conclusions: Products containing frozen berries were associated with the outbreak. Trace-back investigations are looking for overlaps with the Italian supply chain. Frozen berries should be heat-treated prior to consumption or use in uncooked products.

Status: Completed, abstract accepted for ESCAIDE 2013[2]

Research

Campylobacter case-control study

Background: In Ireland, a rise in the incidence of the disease has been observed during the last decade. During 2011, 2 440 campylobacteriosis notifications were reported to Health Protection Surveillance Centre (HPSC), corresponding to a crude incidence rate of 57.5/100 000 population. This rate represents an increase of 46.9% compared to 2010, and is also above the 2009 European mean crude incidence rate of 53.1 per 100 000 population.

Objective: The case-control study was planned to assess risk factors underlying a national increase in sporadic cases of *Campylobacter* gastroenteritis in adults and children in the Republic of Ireland in order to achieve a clearer understanding of the aetiology of this disease.

Methods: We developed the case-control study protocol. A case-patient was defined as a person of any age (living or visiting the study area) notified through the Irish routine surveillance system with a laboratory-confirmed *Campylobacter* infection. Cases were to be compared to controls nominated by the cases. Controls were community based and matched for age group. Protocol was accepted by ethical committee.

Status: Protocol was not implemented due to low incidence in 2012

Review of VTEC in childcare facilities

A descriptive and analytical study was planned with the aim of developing a risk assessment model to predict outbreaks in childcare facilities.

The objective of the descriptive study was to document and describe the investigations that were carried out by PH/EH officers of CCFs attended by notified VTEC cases.

The objective of the analytical study was to identify any features of a CCF or incident at the time of first CCF assessment that were associated with the likelihood of there being an outbreak confirmed.

Status: Planned, protocol written, study not implemented yet

I-MOVE – case-control study aimed to estimate the 2012–2013 influenza vaccine effectiveness in Ireland

Background: Influenza vaccination campaigns are conducted every year in Ireland, targeting a high number of individuals. We aimed to estimate 2012–13 influenza vaccine effectiveness (VE) against laboratory-confirmed influenza, as part of the Influenza Monitoring Vaccine Effectiveness in Europe (I-MOVE) project.

Methods: Sentinel general practitioners swabbed ILI patients within seven days of symptom onset in accordance with a systematic sampling scheme. We compared medically attended influenza-like illness (ILI), laboratory-confirmed as influenza (cases), to patients who tested negative for influenza (controls); cases and controls both met the EU ILI case definition. We considered patients to be vaccinated if the interval between receiving a dose of vaccine and symptom onset was > 14 days. Using logistic regression, we calculated influenza VE adjusting for age, presence of chronic conditions, and month of symptom onset. We estimated overall VE, stratified by influenza type and restricted to target groups for vaccination.

Results: We included 167 cases and 96 controls. Crude VE was 45.2% (95% CI: -53.4–80.3) overall, 53.9% (95% CI: -46.8–86.7) against B and -37.6% (95% CI: -429.2–71.1) against influenza A(H3). Adjusted VE was 58.1% (95% CI: -33.6–86.9) overall. Among target groups for vaccination (N=62), crude VE was -14.3% (95% CI: -322.1–68.8) overall, 5% (95% CI: -303–78) against B.

Conclusions: The 2012–2013 trivalent influenza vaccines against medically-attended ILI laboratory-confirmed influenza provided low to moderate protection in Ireland. The main limitation of the study was the small sample size

resulting in low precision around the VE estimates. Efforts to improve influenza vaccines should continue to better protect those at risk of severe illness or complications.

Status: Completed, internal report, poster presentation at ESCAIDE 2013[3], manuscript submitted to the Irish Medical Journal[4]

Scientific communication

- Oral presentation at ESCAIDE 2012[1]
- Poster presentation at ESCAIDE 2013[3]
- Co-author of two abstracts accepted for oral presentation at ESCAIDE 2013[2,5]
- Co-author of one poster, ESCAIDE 2012[6]
- Co-author of three manuscripts published in Eurosurveillance[6,7,8,9]

Teaching experience

Co-facilitating the presentation of case studies for medical school students

Five sessions on two case studies for fourth-year medical students at Trinity College Dublin: 'An international outbreak of *Salmonella* Agona' and 'An epidemic of trichinosis in France'. Each session lasted 2.5 hours

Status: Completed

Co-facilitating a case-study among veterinary students

Four sessions on two case studies for fourth-year medical students from University College Dublin: '*Salmonella* outbreak at a wedding reception in Dublin' and 'An epidemic of trichinosis in France'. Each session lasted 2.5 hours.

Status: Completed

International missions

Operation and evaluation of the event-based surveillance during UEFA football championship in Poland

(For details, see surveillance projects)

Status: Completed

Miscellaneous

Participation in a simulation exercise of VTEC outbreak

This one-day exercise was designed to rehearse the processes and procedures described in the outbreak control protocol. The main aim of the exercise was to maximise preparedness of official agencies – the Food Safety Authority of Ireland (FSAI) and other key stakeholders, on how to respond to a potential or actual outbreak of food-borne illness.

The objectives of the exercise were to:

- rehearse multi-agency interaction, in the context of the FSAI's cross agency outbreak control protocol, responding to an outbreak of foodborne gastroenteritis;
- identify and evaluate lessons learned in respect of compliance with the protocol, to assist in further procedural and process development;
- practice the required wider communication pathways to all relevant internal and external stakeholders; and
- review and evaluate the timeliness of response.

I was one of the HPSC players belonging to epidemiologists group.

Status: Completed

Supervisor's conclusions

During the two-year fellowship at the Health Protection Surveillance Centre, Justyna Rogalska expanded her repertoire of epidemiological skills and gained new insights into public health activities. She was eager to learn and to gain experience in disease areas where she had not previously worked. She worked on her projects with enthusiasm and a high degree of independence, seeking assistance and advice when required and handled challenges well. Justyna is a conscientious worker, a team player and a pleasure to work with.

Next steps

After graduation, Justyna Rogalska goes back to Poland to work in the Department of Epidemiology of the Polish National Institute of Public Health, Warsaw.

References

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3. Rogalska J, O'Donnell J, Domegan L, Collins C, Joyce M, Coughlan S, Moran J, Tuite G, O'Flanagan D. Low to moderate seasonal influenza vaccine effectiveness in Ireland: a test-negative case-control study, I-MOVE project, 2012/13. ESCAIDE, Stockholm, 2013.
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5. Kissling E, Valenciano M, Buchholz U, Larrauri A, Nunes B, Rogalska J, et al. Influenza vaccine effectiveness estimates from the I-MOVE multicentre case-control study in Europe, 2012-13: moderate vaccine effectiveness for all circulating types and subtypes. Poster presentation at: ESCAIDE 2013, European Scientific Conference on Applied Infectious Disease Epidemiology; 2013 Nov 5–7; Stockholm, Sweden.
6. Janiec J, Zielicka-Hardy A, Polkowska A, Rogalska J, Sadkowska-Todys M. Did public health travel advice successfully reach EURO2012 fans – a social network survey. Oral presentation at: ESCAIDE 2012, European Scientific Conference on Applied Infectious Disease Epidemiology; 2012 Oct 24-26; Edinburgh, UK.
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