



Summary of work activities

Katja Siling
The ECDC Fellowship Programme
Field Epidemiology path (EPIET), 2020 cohort

Background

The ECDC Fellowship Programme is a two-year competency-based training with two paths: the field epidemiology path (EPIET) and the public health microbiology path (EUPHEM). After the two-year training, EPIET and EUPHEM graduates are considered experts in applying epidemiological or microbiological methods to provide evidence to guide public health interventions for communicable disease prevention and control.

Both curriculum paths provide training and practical experience using the 'learning by doing' approach in acknowledged training sites across European Union (EU) and European Economic Area (EEA) Member States.

According to Articles 5 and 9 of ECDC's founding regulation (EC No 851/2004) 'the Centre shall, encourage cooperation between expert and reference laboratories, foster the development of sufficient capacity within the community for the diagnosis, detection, identification and characterisation of infectious agents which may threaten public health' and 'as appropriate, support and coordinate training programmes in order to assist Member States and the Commission to have sufficient numbers of trained specialists, in particular in epidemiological surveillance and field investigations, and to have a capability to define health measures to control disease outbreaks'.

Moreover, Article 47 of the Lisbon Treaty states that 'Member States shall, within the framework of a joint programme, encourage the exchange of young workers.' Therefore, ECDC initiated the two-year EUPHEM training programme in 2008. EUPHEM is closely linked to the European Programme for Intervention Epidemiology Training (EPIET). Both EUPHEM and EPIET are considered 'specialist pathways' of the two-year ECDC fellowship programme for applied disease prevention and control.

This report summarises the work activities undertaken by Katja Siling, cohort 2020 of the Intervention Epidemiology path (EPIET) at the Regional Centre for Health North Rhine-Westphalia (Landeszentrum Gesundheit-NRW) located in Bochum, Germany.

Pre-fellowship short biography

Driven by passion for public health and health equity, Katja Siling enjoys challenging the status quo. She has supported partners in low- and middle-income countries with research, surveillance, and policy advice on malnutrition, maternal and child health, the health of the elderly, WASH (water, sanitation, hygiene), malaria, and onchocerciasis. She supported international nongovernmental organisations, governments and UN organisations with learning and improving monitoring and evaluation systems to generate data for action and policy. Katja holds degrees in medical anthropology and public health nutrition and is pursuing a doctorate in public health.

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Methods

This report accompanies a portfolio that demonstrates the competencies acquired during the EPIET fellowship by working on various projects, activities and theoretical training modules.

Projects included epidemiological contributions to public health event detection and investigation (surveillance and outbreaks); applied epidemiology field research; teaching epidemiology; summarising and communicating scientific evidence and activities with a specific epidemiology focus.

The outcomes include publications, presentations, posters, reports and teaching materials prepared by the fellow. The portfolio presents a summary of all work activities conducted by the fellow, unless prohibited due to confidentiality regulations.

Results

The objectives of these core competency domains were achieved partly through project or activity work and partly through participation in the training modules. Results are presented in accordance with the EPIET core competencies, as set out in the ECDC Fellowship Manual¹.

1. Outbreak investigations

1.1 An outbreak of norovirus gastroenteritis after a New Year's Eve dinner at a hotel in North Rhine-Westphalia, Germany

Supervisor: Annette Jurke (LZG)

An acute gastroenteritis outbreak among guests who attended a New Year's celebration at a hotel was reported on 6 January 2020. The outbreak was suspected to be food-borne, from the food buffet served during dinner.

A structured questionnaire was emailed to hotel guests and staff to collect data on symptom onset and food exposures. Overall, 109 guests completed the questionnaire (66.5% response rate). Cases were defined as guests or staff who experienced acute onset of diarrhoea and/or vomiting within 48 hours of attending the celebration. A total of 84 cases were identified (attack rate: 77%), mainly reporting vomiting, nausea and diarrhoea. Five stool samples tested positive for norovirus. Most cases (84.5%) developed gastroenteritis on 1 January 2020. The median symptom duration was three days, fitting norovirus gastroenteritis. A staff member with acute gastrointestinal illness <48 hours before the celebration dinner was identified as a potential index case. Consumption of roast beef trencher and served during the buffet dinner was associated with cases (OR 3.2; 1.2–8.1 CI, $p < 0.05$) and could explain 77.4% of cases.

This point-source norovirus outbreak most likely started with a symptomatic staff member with further person-to-person and/or food-to-person spread among guests attending the dinner. Findings emphasise the importance of excluding symptomatic staff from the workplace, particularly in the hospitality and food service industry.

Role: Katja was the principal investigator of already collected outbreak data. She reviewed lab reports and conducted descriptive epidemiology and uni- and multivariable analysis in R. She also wrote the outbreak report [5.2.1], and drafted and submitted an abstract to the European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE) 2021, where she presented the findings from this food-borne outbreak [5.3.1].

1.2 Large outbreak of Salmonella Muenchen linked to dried coconut pieces, September 2020 to April 2021, Germany

Supervisors: Anika Meinen, Sofie Gillesberg Raiser (RKI)

In September 2020, an increased number of *Salmonella* Muenchen cases was detected by the Robert Koch Institute (RKI) in seven German federal states. The RKI team led the outbreak investigation to identify the vehicle of the outbreak.

Outbreak cases were defined as German residents with laboratory-confirmed *S. Muenchen* isolates or *S. Muenchen* infections reported to the national surveillance system between 1 September 2020 and 30 April 2021. In total, 289 cases were identified (68% female; median age: 49 years), most occurring until mid-December 2020.

¹ European Centre for Disease Prevention and Control. European public health training programme. Stockholm: ECDC; 2020. Available from: <https://www.ecdc.europa.eu/en/publications-data/ecdc-fellowship-programme-manual-cohort-2021>

The public health institutes in affected states were asked for assistance with interviewing the cases over the phone using a trawling questionnaire to enquire about symptoms and food consumption three days before symptom onset. A case-control study conducted by the RKI found that the outbreak was likely linked to dried coconut pieces.

Role: Katja conducted trawling interviews with nine cases in NRW and reviewed the abstract for submission to a conference [5.3.5].

1.3 Nosocomial breakthrough outbreak caused by SARS-CoV-2 Eta (B.1.525) variant in North Rhine-Westphalia state, June 2021

Supervisor: Annette Jurke (LZG)

In June 2021, a general hospital in the North Rhine-Westphalia (NRW) state notified a nosocomial outbreak of the SARS-CoV-2 Eta (B.1.525) variant in a non-COVID-19 ward. The variant was monitored as a variant of interest (VOI) and an outbreak investigation was conducted to explore transmission dynamics and stop further transmission.

A total of 14 cases were assigned to the outbreak, including seven hospitalised patients, six healthcare workers (HCW), and one visitor to a patient case. Patient cases were 5/7 female, 36–92 years (median 89), hospitalised in single en-suite rooms in three wards on different floors, and 5/7 were fully immunised with two doses. One fully vaccinated patient in palliative care developed symptoms and died. HCW cases included non-medical personnel working across the hospital, 23–61 years (median age 43); 4/6 fully vaccinated and 4/6 symptomatic. No HCWs working in direct patient care tested positive for SARS-CoV-2. Contact tracing established an epidemiological link between all the cases, which was visualised in a social network diagram.

This Eta variant evaded vaccination but was not associated with severe disease. We hypothesised that inadequate compliance with the infection control precautions during patient transport and asymptomatic HCW–HCW transmission caused and propagated the outbreak. Our findings highlighted that non-medical personnel can play an important role in preventing and controlling nosocomial infections. Rather than a one-size-fits-all approach, targeted prevention and control strategies are needed in a hospital setting to address heterogenous nosocomial transmission dynamics.

Role: Katja was a co-investigator. She visited the hospital, collated the information (patient data, contact tracing information, laboratory results), interviewed the hospital's health staff, and analysed the data. She wrote and submitted a manuscript for publication [5.1.1]. She also involved a EUPHEM fellow, Diana Costa, who conducted a phylogenetic analysis of whole genome sequencing data.

Training modules related to assignments/projects

EPIET/EUPHEM Introductory Course introduced the principal concepts of the outbreak investigation, study designs and analysis.

Outbreak Investigation Module built fellow's in-depth understanding of outbreak investigations.

Multivariable Analysis Module deepened the fellow's statistical skills through case studies where the fellow practised advanced statistical analyses.

Educational outcome

The fellow participated in all ten steps of an outbreak investigation and developed an understanding of outbreak management in Germany at the local, state, and national levels. In addition to improving the analytical skills needed in an outbreak investigation, the fellow also strengthened her management, leadership and communication skills.

2. Surveillance

2.1 Timeliness and completeness of COVID-19 Surveillance in North Rhine-Westphalia state, Germany, 2020–2021

Supervisors: Daniela Kalhöfer, Annette Jurke (LZG)

We evaluated the surveillance of COVID-19 in the NRW state, the most populous state in Germany, to assess whether existing COVID-19 surveillance meets the main objective of monitoring trends and patterns of disease in the population.

Data from 19 February 2020 to 14 October 2021 was extracted, and internal completeness and timeliness were calculated for key variables overall and stratified by pandemic phase, region and software used for notification reporting. We extracted 978 826 COVID-19 case records. The completeness of variables carrying information about virus type (27%), the location where the infection was probably acquired (70%), recent contact with a COVID-19 case (52%), and hospitalisation status (83%) varied. Variables sex and age were >99% complete. Most cases were notified to Regional Centre for Health North Rhine-Westphalia (LZG) by local health authorities (LHAs) within one day of receiving the notification, meeting the timeliness prescribed by the legislation.

We also observed differences in data completeness between the pandemic phases, districts, and between six software products used by LHAs to submit notifications to LZG.

We recommended further assessment of other COVID-19 surveillance attributes (e.g. acceptability, simplicity, flexibility) to identify actions for targeted support to improve the data quality of COVID-19 notifications in NRW.

Role: Katja wrote the study protocol [5.2.6], used R to analyse a large dataset with nearly one million records, and wrote the report [5.2.2]. She also wrote an abstract and presented the study's preliminary findings as a poster at ESCAIDE 2021 [5.3.2].

2.2 Sensitivity and representativeness of sentinel surveillance of HIV and syphilis in NRW

Supervisor: Annette Jurke (LZG)

Human immunodeficiency virus (HIV) and syphilis diagnoses in Germany are notifiable at the federal level. Without testing data, the scope of using national HIV and syphilis notifications to understand transmission patterns and prevalence in different high-risk groups is limited. The German strategy for sexually transmitted infections (STI) highlights the need for improved surveillance, data analysis and information sharing as one of the key measures to contain the spread of STIs in Germany.

The HIV and syphilis sentinel surveillance system in NRW includes a network of 53 anonymous STI consultation clinics run by local health authorities. We planned an evaluation of this sentinel surveillance to explore how the data from these clinics compare to routine case notifications in NRW, and whether it could be used to monitor HIV and/or syphilis trends in at-risk population groups in NRW.

Role: Katja identified research questions and wrote the study protocol, including the data analysis plan for the evaluation [5.2.7].

2.3 Routine infectious disease surveillance in North Rhine-Westphalia state

Supervisor: Annette Jurke (LZG)

The LZG oversees notifiable infectious disease surveillance in NRW. This includes routine monitoring of notified cases, supporting the local health authorities to assure data quality, facilitating knowledge management, and ensuring the application of consistent approaches across the NRW state. The team is also responsible for submitting notifications to the RKI at the federal level and participates in weekly calls with other state public health institutes.

Role: Katja supported the team's work by responding to ad-hoc requests on infectious disease intelligence. She developed an R script for automating the identification of duplicate notifications in COVID-19 surveillance data, wrote a summary for the Annual Epidemiological Report 2019 [5.5.6], and supported measles surveillance by following up with local health authorities on notified measles cases in NRW to ensure that for suspected cases, samples were obtained and submitted for typing.

2.4 COVID-19 surveillance at a refugee reception centre in Bochum, Germany

Supervisor: Annette Jurke (LZG)

From November 2020, all asylum seekers registering in NRW were screened for COVID-19 using rapid antigen and PCR tests. These were carried out immediately upon arrival at the reception facility and before registration. If the rapid tests were positive, the individuals were transferred to a different facility for isolation. If negative, they were allowed to proceed with the registration.

The electronic COVID-19 surveillance database included only PCR test results, and rapid test results were not routinely recorded. Information about demographic characteristics, symptoms and exposures were recorded on paper-based questionnaires and only for individuals whose rapid test was positive.

Role: Katja visited the central reception facility for asylum seekers in NRW to familiarise herself with COVID-19 surveillance. She conducted a preliminary descriptive analysis of the available data, observing the relatively high rate of false negative rapid test results. Katja identified the support that she could provide to the facility to improve COVID-19 surveillance in this population group. She wrote a reflective note about her visit and formulated recommendations for support and further research [5.2.3].

Training modules related to assignments/projects

EPIET/EUPHEM Introductory course familiarised the fellow with the core concepts of surveillance. It covered the evaluation and interpretation of a surveillance system and key aspects of surveillance data analysis.

Time Series Analysis Module deepened the fellow's analytical skills by introducing different regression methods that can be used for surveillance data analysis.

Multivariable Analysis Module equipped the fellow with in-depth knowledge of how to examine surveillance data to detect trends.

Educational outcome

Katja designed and implemented surveillance projects on COVID-19 and STIs. She also contributed to ad-hoc requests to support epidemic intelligence at the training site. Through these projects, the fellow gained hands-on experience in infectious disease surveillance in Germany, big data, and advanced data analysis approaches using R.

3. Applied public health research

3.1 Testing patterns and the impact of COVID-19 on HIV testing in NRW, 2013–2021

Supervisors: Annette Jurke, Pia Grotegut (LZG)

During the COVID-19 pandemic, 53 anonymous sexual health consultation clinics run by local health authorities in the NRW operated at reduced capacity. We examined changes in HIV testing patterns in the period from January 2013 to December 2021, and investigated the impact of the COVID-19 pandemic on HIV testing in NRW. We assessed HIV testing volume and test positivity per 1 000 tests by three high-risk groups – men who have sex with men (MSM), sex workers, and people who inject drugs (PWID).

From 2013 to 2019, the volume of HIV tests in MSM and PWID increased by 2 846 (+153%) and 99 (+225%). Test volume increase among sex workers was minimal (86; +5%). During the same period, test positivity decreased in MSM, PWID and sex workers by -38.1 (-75%), -15.7 (-69%), and -3.7 (-68%) per 1 000 tests, respectively. During the first two pandemic years, the overall test volume in risk groups more than halved compared to 2019, whilst no significant changes were observed in test positivity.

We recommend ongoing monitoring of HIV testing patterns to inform services and scaling up the total number of tests in all high-risk groups to account for cases that were likely missed during the HIV testing disruption.

Role: Katja was the principal investigator; she designed the study and wrote the study protocol [5.2.5], and performed data analysis using R. She submitted an abstract for the global Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) Scientific Conference in Panama City in September 2022, and gave an oral presentation [5.3.3] of this project.

3.2 Testing patterns and the impact of COVID-19 on syphilis testing in NRW, 2013–2021

Supervisors: Annette Jurke, Pia Grotegut

The COVID-19 pandemic disrupted testing for STIs worldwide. We assessed the impact of the pandemic on syphilis testing in NRW by analysing annual aggregated syphilis testing data from sentinel surveillance sites at 53 local health authorities.

During pandemic, 6 274 (47%) and 5 333 (39.9%) fewer syphilis tests were conducted in 2020 and 2021, respectively, than in 2019. A similar drop in test volume was observed in men, women and MSM. Test volume in sex workers and PWID decreased by two-thirds. Test positivity for first syphilis diagnosis remained stable overall (3.7% in 2019). Test positivity in men was 2.5 higher than in women in 2019 and did not change substantially during the pandemic. A small increase in test positivity was observed in all high-risk groups.

During the first two years of the pandemic, the total syphilis test volume and the number of detected infections decreased, indicating that some infections may have been missed. Continued monitoring is needed to understand the impact of the pandemic on the epidemiology of syphilis and to inform interventions.

Role: Katja was the principal investigator. She wrote the research protocol and designed the study [5.2.5], analysed the data, and submitted the abstract for ESCAIDE 2022, which was accepted for a poster presentation [5.3.4].

3.3 COVID-19 vaccine effectiveness study in Serbia

Supervisor: Mark Katz (WHO Regional Office for Europe)

The WHO Regional Office for Europe (WHO/Europe) supports national public health institutes with the implementation of COVID-19 vaccine effectiveness studies in several countries. Katja supported the WHO/Europe and the National Institute of Public Health in Serbia during an eight-week international assignment in Belgrade, Serbia.

Role: Katja coordinated the revision of the SOPs for the study and oversaw the finalisation, translation and piloting of the questionnaires. She translated the questionnaires into electronic data collection forms on the RedCap platform and visited the training sites to support the team with training and preparations for the study. She worked as part of the team and supported strengthening capacity in data management and quality checks. Katja wrote an end-of-mission report [5.2.4], a reflective note [5.5.7], and presented her experience with the COVID-19 vaccine effectiveness study in Serbia at ECDC's Think Tank meeting [5.4.6].

Training modules related to assignment/projects

EPIET/EUPHEM Introductory Course introduced the core concepts of operational and applied research, including key foundations of study designs and setting aims and objectives relevant to PH institutions, development of study protocols, data analysis and presentation.

Multivariable Analysis Module introduced different regression models and strengthened the fellow's skills in advanced data analysis.

Time Series Analysis Module equipped the fellow with the skills necessary to assess trends in surveillance data.

Vaccinology Module provided useful understanding for the international assignment.

Educational outcome

Katja engaged in different steps of operational research, strengthening her skills in teamwork, negotiation, data management and analysis, and report writing. Her support to the National Institute of Public Health in Serbia was greatly appreciated, and she was invited to return and support the ongoing study.

4. Teaching and pedagogy

4.1 Facilitation of a module for MSc students at the London School of Hygiene and Tropical Medicine

Katja facilitated three 1.5-hour sessions for the module, 'Analysis and Design of Research Studies: Introduction to variables, Sampling variability proportions, and Comparing proportions'. This module is compulsory for all students enrolled in several MSc programmes at the London School of Hygiene and Tropical Medicine. Katja facilitated active learning based on pre-prepared exercises. She also conducted an evaluation of her facilitation, which was positive.

4.2 Introduction to R

Katja prepared an 'Introduction to R' session for colleagues at the Infectious Disease Epidemiology unit at LZG. Before the session, she contacted her colleagues to assess the needs and identify aspects of their work where using R would be relevant and beneficial. She identified topics to be taught during regular short sessions. For the first session, she prepared a presentation and a practical exercise and followed up with an evaluation of the session afterwards. The evaluation was positive, and colleagues provided suggestions on topics they would like to cover in future training sessions.

Training modules related to assignments/projects

EPIET/EUPHEM Introductory Course provided adult education training, including teaching session design and practical session facilitation.

Educational outcome

Through teaching assignments, Katja strengthened her skills in the topics she taught and applied different teaching strategies in academic and adult education. Katja's teaching sessions included presentations and facilitation of practical sessions.

5. Communication

5.1 Publications related to the EPIET fellowship

1. **Siling K**, Freudenau I, Espadinha D, Jensen W, Greeve J, Diermann R, Lange F, Kalhöfer D, Jurke A. First description of a nosocomial breakthrough outbreak caused by SARS-CoV-2 Eta (B.1.525) variant, Germany, June 2021. [submitted]
2. **Siling K**, Grotegut P, Dörre A, Jurke A. HIV trends and testing patterns at anonymous consultation clinics in North Rhine-Westphalia state, Germany, 2013–2021. [In preparation]
3. **Siling K**, Grotegut P, Dörre A, Jurke A. Syphilis trends and testing patterns at anonymous consultation clinics in North Rhine-Westphalia state, Germany, 2013–2021. [In preparation]

5.2 Reports

1. Outbreak investigation report: An outbreak of norovirus gastroenteritis after a New Year's Eve dinner at a hotel in North Rhine-Westphalia, Germany.
2. Surveillance report: Completeness and timeliness of COVID-19 surveillance in North Rhine-Westphalia state in Germany, 2020–2021.
3. Reflective note and project proposal: COVID-19 surveillance at the registration facility for asylum seekers in Bochum, NRW.
4. International Assignment report: COVID-19 vaccine effectiveness study in Serbia.
5. Study protocol: HIV and syphilis testing patterns and impact of COVID-19, 2013–2021.
6. Study protocol: Evaluation of COVID-19 surveillance in North Rhine-Westphalia.
7. Study protocol: Evaluation of STI sentinel surveillance in North Rhine-Westphalia, 2013–2021.

5.3 Conference presentations

1. **Siling K**, Ganser C, Eberbach R, Freudenu I, Lange F, Grabe C, Jurke A. An outbreak of norovirus gastroenteritis after a New Year's Eve dinner at a hotel in North Rhine-Westphalia, Germany. Poster presentation. ESCAIDE 2021.
2. **Siling K**, Kalhöfer D, Lange F, Jurke A. Completeness, timeliness and acceptability of COVID-19 surveillance in the German state of North Rhine-Westphalia, 19 February 2020 to 11 May 2021. Poster presentation. ESCAIDE 2021.
3. **Siling K**, Grotegut P, Dörre A, Jurke A. The COVID-19 pandemic impacted human immunodeficiency virus testing at anonymous consultation clinics in North Rhine-Westphalia state - Germany, 2013–2021. Oral presentation. TEPHINET Global Scientific Conference.
4. **Siling K**, Grotegut P, Jurke A. The COVID-19 pandemic impacted syphilis testing at anonymous consultation clinics in North Rhine-Westphalia state, Germany, 2019–2021. Poster presentation. ESCAIDE 2022.
5. Staat, D, Simon, S, Lamparter M, Schewe T, Rosner B, Meinen A, Wagner T, **Siling K**, Overhoff J, Flieger A, Stark K, Gillesberg Lassen S. Large outbreak of Salmonella Muenchen linked to coconut pieces, September 2020 to April 2021, Germany: An effective interaction between epidemiology and microbiology. Oral presentation. Salmonella and Salmonellosis Symposium 2022. [presented by Anika Meinen]
6. Staat D, Simon S, Lamparter M, Fischer J, Schewe T, Rosner B, Wagner T, **Siling K**, Overhoff J, Flieger A, Stark K, Gillesberg Lassen S, Meinen A. Large outbreak of Salmonella Muenchen linked to coconut pieces, September 2020 to April 2021, Germany: An effective interaction between epidemiology and microbiology. [abstract submitted] Zoonoses Research Symposium Berlin 2022.

5.4 Other presentations

1. Nodding disease. Presentation at the Outbreak Investigation Module, 10/12/2020.
2. COVID-19 surveillance evaluation. Presentation at PAE meeting, 22/10/2020.
3. Sentinel surveillance of sexually transmitted infections in North Rhine-Westphalia state. Presentation at PAE meeting, 30/06/2022.
4. An outbreak of norovirus gastroenteritis after a New Year's Eve dinner at a hotel in North Rhine-Westphalia, Germany. Presentation at LZG team meeting.
5. COVID-19 surveillance evaluation. Presentation at LZG team meeting.
6. COVID-19 vaccine effectiveness study in Serbia. Presentation at ECDC Think Tank, 07/02/2022.

5.5 Other Communication

1. **Siling K**, Doran J, Baruch J. Networking during a pandemic: Career sessions for current fellows. EAN News, September 2021.
2. Igloi, Z, Baruch J, **Siling K**. Reflections on Career Compass at ESCAIDE 2021. EAN News, February 2022.
3. Abstract reviewer in the Abstract Mentor Programme for AIDS 2022. 24th International AIDS conference.
4. Chair: Oral presentations session Non-Communicable Diseases. TEPHINET Global Scientific Conference, 6/9/2022.
5. Chair: Poster presentations session Non-Communicable Diseases. TEPHINET Global Scientific conference, 8/9/2022.
6. Summary for the LZG Annual Epidemiological Report 2019, available at: https://www.lzg.nrw.de/jb2019/texte/Zusammenfassung_Infektionsgeschehen_JB.pdf
7. Reflective note on IA.
8. Reflective note on teaching.

6. Other activities

6.1 Cohort representative

As a cohort 2020 representative for EPIET, Katja's role was to raise fellows' issues and concerns to the ECDC Fellowship team. Jointly with the other representatives of her cohort and those of the parallel cohorts (cohorts 2019 and 2021), Katja co-organised quarterly teleconferences with the ECDC Fellowship office and scientific head of the fellowship, as well as with the EAN.

Katja also instigated the following activities:

- Setting up a buddy system to support the onboarding of C2021 fellows.
- Design, set up and analysis of 'C2020 Fellowship satisfaction survey' and presentation of key findings to the Training Site Forum.
- Organisation of the Careers Compass session at ESCAIDE 2021.
- Active participation in two ECDC working groups: *International assignments* and *Underrepresented countries*.
- Presentation to MEDiPiet fellows on 'Being a cohort rep'.

6.2 Activities of the PAE (German FETP) and Master of Science in Applied Epidemiology

Katja participated in weekly meetings of the PAE (German FETP) and contributed by giving presentations and engaging in discussions. She completed laboratory training, which included practical sessions at RKI in Berlin, as well as the Master of Science in Applied Epidemiology at the Charité – Universitätsmedizin in Berlin.

6.3 Other activities

Other activities with which Katja proactively contributed to the broader fellowship community include:

- Masterclasses and collaboration with UK FETP: Katja established an informal collaboration with the UK FETP fellows and jointly organised two masterclasses to complement the fellowship modules. The modules were 'An Introduction to Communications in Public Health/Epidemiology' and 'An Introduction to the Behavioural Science of Public Health Emergency Response'.
- Career sessions: Katja, jointly with an EPIET and UK FETP fellow, organised five career sessions to help current fellows network and explore different careers available after graduation. Katja co-authored two articles describing the career sessions, both of which were published in EAN quarterly newsletters [5.5.1, 5.5.2].
- Support for fellows with children: Katja started a WhatsApp group for fellows with children and organised virtual meetings.
- Piloting of electronic Incremental Progress Report (IPR): Katja piloted the ECDC's electronic IPR for the fellowship, and her feedback resulted in minor changes to the design of the form.
- Peer-to-peer teaching: To make the most of the diverse pool of expertise available among the fellows, Katja identified topics that could be taught to complement the existing curriculum and promote knowledge exchange. Following/subsequent cohorts are expected to follow up on this.

7. EPIET/EUPHEM modules attended

1. Introductory Course part 1, 28/9 –16/10/2020, virtual
2. Introductory Course part 2: Operational Research, 09–10/11/2020, virtual
3. Outbreak Investigation, 07–11/12/2020, virtual
4. Multivariable Analysis, 15–19/02/2021, virtual
5. Multivariable Analysis – Cox Regression, 18/03/2021, virtual
5. Introductory Course part 3, 26/04–07/05/2021, virtual
6. Rapid Assessment and Survey Methods, 05–06/05/2021, virtual
7. Project Review 2021, 23–27/08/2021, virtual
8. Biorisk and Quality management, 17–18/01/2022, virtual
9. Vaccinology, 14–18/02/2022, virtual
10. Time Series Analysis, 4–8/4/2022, ISS, Rome, Italy
11. Management, Leadership and Communication in Public Health, 13–17/06/2022, ECDC, Stockholm, Sweden
12. Project Review 2022, 29/08–02/09/2022, CIDNUR, Lisbon, Portugal

8. Other training

1. Laboratory module, 27–29/06/2022 and 28/9/2022, RKI
2. Master of Applied Epidemiology (MSAE), Charité University and Berlin School of Public Health
3. Research integrity (Train-the-trainer summer intensive), 4–5/08 and 18/10/2021, VIRT2UE
4. Tier 1.5 Training: Orientation to international outbreak response with GOARN and WHO, 1–2/7/2021, GOARN

Discussion

Coordinator's conclusions

One of the main goals of the EPIET programme is for fellows to develop core competencies in field epidemiology mainly through project or activity work, but also partly through participation in training modules and applying epidemiological methods to provide evidence to guide public health interventions for communicable disease prevention and control. This report summarises all the activities and projects conducted by Katja Siling during her two-year EPIET fellowship (cohort 2020) as an EU-track fellow at the Regional Centre for Health North Rhine-Westphalia based in Bochum, Germany.

Katja investigated transmission patterns in a nosocomial SARS-CoV-2 Eta variant outbreak and contributed to outbreak investigations at local and national levels. She researched HIV and syphilis testing patterns and the impact of the COVID-19 pandemic on testing in high-risk exposure groups in NRW. She used R to manage large datasets, for example, when she evaluated the timeliness and completeness of the NRW COVID-19 surveillance during different pandemic phases, and was also involved in routine surveillance activities.

Katja likes to approach public health problems from the 'meta-population level' which fits her background as a medical anthropologist. In her busy schedule, Katja managed to do an international assignment, supporting WHO/Europe and the Serbian Institute of Public Health with the implementation of COVID-19 vaccine effectiveness study. She explored her interests within the training site through field visits, for example, to an asylum seeker reception centre and meetings with external partners.

Besides being a politely vocal and thoughtful fellow, Katja raises relevant questions at the right time that make you think. She has clearly improved in bringing her key messages to different audiences. She is very active in her participation in group work and willing to share her work experiences and collaborate with others. She did great as the Cohort 2020 representative, using her leadership skills and actively participating in various training site forums (TSF) working groups. She enlarged her network in the world of infectious disease epidemiology in Europe and outside by presenting her research project during the global TEPHINET conference in Panama.

I wish her all the best in her future career and am confident she will find her path that will most likely bring her closer to the field.

Supervisor's conclusions

Katja's former work has regularly included applied epidemiology. During the EPIET fellowship, she has continued to be a hardworking, dedicated and helpful colleague at the Regional Centre for Health North Rhine-Westphalia. Katja strengthened her competencies in infectious disease epidemiology to improve and protect the health of communities with a focus on vulnerable groups. Despite the challenges of the pandemic, Katja has managed to complete a variety of projects.

As a member of the COVID-19 epidemiology team, she evaluated the state-level COVID-19 surveillance by writing the study protocol, analysing data and reporting the results. She has further developed her R skills by developing scripts to improve the daily routine COVID-19 surveillance tasks. Katja was involved in different outbreak investigations, including a food-borne norovirus outbreak and a COVID-19 Eta variant outbreak in a hospital setting. She contributed to a nationwide outbreak investigation of *Salmonella* Muenchen. She also made a valuable contribution to research on sexually transmitted infections. Starting with the development of study protocols, Katja analysed trends and patterns in HIV and syphilis diagnoses among people visiting anonymous STI clinics in NRW. Furthermore, she assessed the impact of the COVID-19 pandemic on these testing patterns.

She presented the results of her work to national and international audiences at conferences and submitted it to peer-reviewed journals. Katja has developed teaching materials that have been used in online workshops on epidemic intelligence. Katja has become very skilled in scientific networking. She has developed her leadership and time management skills, for example, as a very active cohort representative and in the international assignment in Serbia. Her work was of a very high standard. I believe the EPIET fellowship allowed her to modify her career path in a way that has given her many opportunities. She will be an asset to any organisation that she joins.

Personal conclusions of fellow

The EPIET fellowship was an exciting opportunity for me to gain first-hand experience in infectious disease epidemiology, microbiology, and surveillance in Europe. Although doing the fellowship alone with two small children during the pandemic was very challenging, I nevertheless seized many opportunities to learn, actively contributed to the fellowship community, and completed an international assignment. I observed the need for better leadership and management practices in this sector and the fellowship encouraged me to reflect on my role in supporting this change.

My fellowship ended with an oral presentation at the global TEPHINET conference in Panama. I am grateful that I was able to meet fellow epidemiologists from all over the world, build relationships and share knowledge and experiences. It was a beautiful end to an intense two years that affirmed my thirst for adventure and commitment to service in public health.

Acknowledgements of fellow

My successful completion of the fellowship is a result of collective efforts, support, and mentorship that I was privileged to have access to during these two years. I am grateful to many people who generously shared their time and wisdom in support of my fellowship experience.

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