

Updating core competencies in applied infectious disease epidemiology online survey_01Oct2021

Fields marked with * are mandatory.

1 Introduction

Dear Colleague

On behalf of ECDC we thank you sincerely for participating in this online survey on core competencies in applied infectious disease epidemiology. Your participation is critically important to the success of the project.

The importance of achieving consensus about the core competencies in this field is ever more evident in light of recent and current infectious disease epidemics and pandemics. Development of core competencies is essential to fostering the specific knowledge and skills required for effective practice in applied infectious disease epidemiology. This project involves the collection and collation of relevant data to update competency sets previously developed by ECDC. It is intended to support future work in training, evaluation and accreditation of professionals in applied infectious disease epidemiology.

The survey will take approximately 45 minutes to complete. Please note, you can save your responses at any time by clicking “Save as Draft” if you wish to return to it at a later time.

* Country of residence

* Occupation

* Place of employment: e.g. University; Institute or school of public health; Public health department; etc.

* Position in your organisation

* Please indicate the length of your professional experience in field epidemiology.

- ☐ None ☐
- <1 year
- ☐ 1-3 years
- ☐ 4-6 years
- ☐ 7-10 years
- ☐ 10+ years

* Educational background (please enter your primary degree and any further qualifications)

* Please select the highest level of education you have achieved.

- ☐ Bachelor Degree
- ☐ Master Degree
- ☐ Doctorate
- ☐ None

* Please select any in-service applied epidemiology training programmes you have completed. Please select all that apply.

- ☐ FETP (Field Epidemiology Training Program)
- ☐ EPIET ECDC Fellowship (European Programme for Intervention Epidemiology Training)
- ☐ EUPHEM (European Public Health Microbiology Training Programme)
- ☐ MediPIET (Mediterranean and Black Sea Programme for intervention Epidemiology Training)
- ☐ None of the above

Please indicate any other formal applied epidemiology training programme you have undertaken and specify the duration of the programme.

2 Core competencies in applied infectious disease epidemiology

Introduction:

Suggested core competencies are presented in six areas. A brief explanation of each area is given. Each area is characterised by domains which relate to that area and to which core competencies are

mapped. For each competency we request that you rate its importance for a mid-career professional in a discipline relevant to applied infectious disease epidemiology. The rating scale is from **'Very important'** to **'Not at all important'**. You may also indicate that you **'Don't know'** if you are unsure of its importance. If you have any modifications, additions or deletions to the competencies in each domain there is space after each one where you may enter that information.

Please note, you can save your responses at any time by clicking "Save as Draft" if you wish to return to it at a later time.

Area A: Essential methods for applied infectious disease epidemiology

A competent mid-career professional in applied infectious disease epidemiology should have thorough understanding of epidemiology, research methods, data management and biostatistics. They should be skilled in the application of research methods, in knowledge synthesis and interpretation of data related to disease surveillance and investigation.

Domain A1: Descriptive epidemiology

| | Very important | Important | Marginally important | Not at all important | Don't know |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * A1.1: Describe the demographic profiles of populations, including population pyramids, and the factors which impact on population structure, i.e. mortality, fertility, and migration. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A1.2: Identify the methods employed nationally and internationally to ensure comprehensive notification of infectious diseases to relevant statutory agencies. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A1.3: Identify the available sources of aggregated data on infectious diseases such as surveillance data, human health data, animal health data and data on sources of infection. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A1.4: Calculate and interpret measures of disease frequency (e. g. incidence, prevalence, age-specific rates, case fatality rates) and trends in disease rates over time. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * A1.5: Conduct analysis and comparison of disease rates between regions, between populations, and over time, using direct and indirect standardization procedures as relevant. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A1.6: Interpret disease trends from time series analyses. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A1.7: Derive and interpret graphically represented data on disease rates (data visualization). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain A1?

Domain A2: Epidemiological research methods

| | <i>Very Important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * A2.1: Conduct critical appraisal of scientific literature using established tools such as checklists for systematic reviews, randomized controlled trials, cohort studies, case-control studies, economic evaluations, diagnostic studies, and qualitative studies as relevant. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A2.2: Write a study protocol detailing the public health problem to be investigated and appropriate investigation techniques consistent with the problem and context. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A2.3: Design epidemiological studies (e.g. population-based studies, cross-sectional studies) to investigate disease burden in a population using appropriate sampling strategies. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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|---|---|---|---|---|---|
| * A2.4: Design epidemiological studies to investigate the determinants of disease, to ascertain associations and/or disease causation e.g. cohort studies, case-control studies, ecological studies, qualitative studies or randomized control trials, recognizing the multifactorial nature of most diseases. |  |  |  |  |  |
| * A2.5: Design qualitative studies to explore qualitative aspects of the impact of infectious diseases on individuals, the community and health services. |  |  |  |  |  |
| * A2.6: Explain and apply the concepts of correlation, association, and causation in observational studies and apply relevant criteria for inferring causation from observational studies. |  |  |  |  |  |
| * A2.7: Assess study instruments and their measurement properties, specifically validity (internal and external), reliability, and cross-cultural applicability. |  |  |  |  |  |
| * A2.8: Recognize sources of bias, confounding, interaction and effect modification, and how to control for these in study design and analytical techniques. |  |  |  |  |  |
| * A2.9: Design data collection methods including case report forms and questionnaires. |  |  |  |  |  |
| * A2.10: Estimate and interpret measures of effect from cohort studies, case-control studies and randomized control trials. |  |  |  |  |  |

Are there modifications, additions or deletions you would recommend for Domain A2?

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Domain A3: Data management and biostatistics

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------|-----------------------|
| * A3.1: Distinguish between variables and observations and describe the attributes of variables, including types of variables and level of measurement. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A3.2: Describe the principles of data management including standardization in data collection, collation of data electronically and assurance of the validity data in the database. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A3.3: Adhere to personal data privacy and data protection legal frameworks. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A3.4: Conduct data management and statistical analysis as an independent user of at least one database software system (e.g. SPSS, R, STATA, SAS). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A3.5: Describe the basic concept of probability and apply basic statistical procedures such as descriptive statistics and basic inferential statistics. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A3.6: Derive and interpret point estimates, confidence intervals, estimates of risk, clinical and significance levels, including p values. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A3.7: Describe the principles of multivariable analysis and survival analysis and be able to interpret results. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A3.8: Develop and interpret statistical protocols. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain A3?

Domain A4: Disease modelling

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------|-----------------------|
| * A4.1: Describe the assumptions and processes of infectious disease predictive modelling. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A4.2: Describe the applications of infectious disease predictive modelling in preparedness planning, forecasting and guidance to policy makers. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * A4.3: Interpret the results of an infectious disease model considering its assumptions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain A4?

Area B: Preparedness, surveillance and response to infectious disease outbreaks

The public health response to any infectious disease outbreak, epidemic or pandemic requires a level of preparedness with swift and appropriate action on case definition, case identification (including testing and diagnoses), contact management, isolation and support.

Domain B1: Preparedness for infectious disease outbreaks

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * B1.1: Engage with preparedness planning for outbreaks, epidemics, and pandemics of infectious diseases. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B1.2: Establish basic elements of preparedness for mass gatherings. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B1.3: Characterize the current and potential human health consequences of population exposure to biological hazards. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B1.4: Design, implement and evaluate public health response strategies (i.e. case identification, contact management, quarantine, isolation, and support). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B1.5: Assess the capacity of public health teams to respond to infectious disease outbreaks. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B1.6: Consider appropriate public health responses to infectious diseases in all relevant settings, e. g. healthcare facilities, schools, workplaces, direct provision centres. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B1.7: Engage in the development and application of multi-sectoral evidence-based responses to the control of infectious diseases in all settings. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain B1?

Domain B2: Surveillance for infectious disease outbreaks

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
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|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * B2.1: Identify surveillance data needed for risk assessment of public health threats. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B2.2: Recognize the need to set up a new surveillance system if one does not exist. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B2.3: Engage with the design of infectious disease surveillance systems. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B2.4: Conduct surveillance data management, including the assessment of infectious disease surveillance systems for completeness and accuracy. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B2.5: Analyse surveillance data for action and use event-based and indicator-based surveillance systems to identify cases or clusters of infectious disease needing further investigation. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B2.6: Integrate epidemic intelligence activities for early detection and validation of public health signals, alerts, and events. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B2.7: Quote laws on surveillance and reporting at national, EU and international level (International Health Regulations) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain B2?

Domain B3: Response for infectious disease outbreaks

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * B3.1: Establish case definitions, and be prepared to revise them based on emerging evidence. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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| * B3.2: Conduct public health risk assessment to include rapid risk assessment and long-term risk assessment for the infectious disease outbreak in context. |  |  |  |  |  |
| * B3.3: Investigate likely infectious disease transmission patterns and vectors. |  |  |  |  |  |
| * B3.4: Identify vulnerable groups early and implement appropriate protective measures, e.g. infections prevention and control (IPC), and use of personal protective equipment (PPE). |  |  |  |  |  |
| * B3.5: Identify existing and required diagnostic tests and testing capacity for infectious diseases outbreaks. |  |  |  |  |  |
| * B3.6: Implement quarantine and isolation requirements for infectious diseases outbreaks. |  |  |  |  |  |
| * B3.7: Describe and employ methods to interrupt transmission of infectious diseases based on knowledge of disease dynamics, including case identification, contact tracing, quarantine, isolation and other mitigating strategies. |  |  |  |  |  |
| * B3.8: Assist in setting up contact tracing systems and training a contact tracing workforce. |  |  |  |  |  |
| * B3.9: Derive the epidemic curve for the infectious disease outbreak and interpret its meaning. |  |  |  |  |  |
| * B3.10: Evaluate and display the geographic location and possible clustering of cases using geographic information software (GIS). |  |  |  |  |  |
| * B3.11: Explain the contribution of whole genome sequencing (WGS) to outbreak investigation and control. |  |  |  |  |  |

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| * B3.12: Establish interdisciplinary, cross-sectoral, and multi-sectoral approaches to outbreak investigation and control. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * B3.13: Actively engage in risk communication during outbreak investigation targeting relevant audiences, e.g. the population affected, risk managers and the general public. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions deletions you would recommend for Domain B3?

Area C: Communication and advocacy

The public health response to infectious disease outbreaks requires clear communication policies and strategies, strong communication and advocacy skills and use of a variety of communication and advocacy methods designed to reach relevant groups in organizations and communities.

Domain C1: Public health communication

| | Very important | Important | Marginally important | Not at all important | Don't know |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * C1.1: Participate in developing clear communication strategies targeted to groups, communities, settings, and organisations (e.g. workplaces, schools, healthcare facilities). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C1.2: Select available means and channels to communicate required information to targeted audiences, including policymakers and the general public. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * C1.3: Develop an interdisciplinary approach to communication, engaging with professionals in relevant disciplines and media, using knowledge transfer and exchange methodologies. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C1.4: Communicate with traditional media, including preparation of press releases and participation in interviews. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C1.5: Engage with social media to reach targeted groups. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C1.6: Participate in identifying key public health messages for the particular infectious disease aimed at optimizing individual and population protection. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C1.7: Explain basic concepts of infectious disease transmission to the general public as the basis for public health protective measures at individual and population levels. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C1.8: Explain the key concepts of validity, reliability, absolute and relative risk to the stakeholders. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain C1?

Domain C2: Infodemiology and infodemic management

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * C2.1: Collaborate with specialists in infodemiology to provide credibility to the dissemination of public health information on social media platforms. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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| * C2.2: Promote the use of evidence-based and evidence-informed decision making for successful infodemic management. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C2.3: Identify the origin and spread of misinformation on social media platforms. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C2.4: Identify misinformation patterns within different platforms which may increase risk of infection for certain areas, populations, and settings (e.g. testing hesitancy, vaccine hesitancy, resistance to public health advice within an outbreak). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C2.5: Measure and quantify the penetration of infodemics within a population and evaluate approaches for infodemic interventions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there any modifications, additions or deletions you would recommend for Domain C2?

Domain C3: Communication and community engagement

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-------------------------|-----------------------|
| * C3.1: Participate in the investigation of knowledge, attitudes, practices, and behaviours of infectious disease within specific population groups. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C3.2: Adapt to different levels of health literacy in different groups. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C3.3: Apply and evaluate the principles of risk communication during emergencies or non-emergencies. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * C3.4: Interact with sensitivity with persons of diverse background, health status and lifestyle preferences. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C3.5: Share information effectively at different organizational levels to gain political commitment, policy support and social acceptance for a specific objective or intervention. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C3.6: Advocate effectively with community-based organisations and community levels to enhance commitment to public health interventions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain C3?

Domain C4: Scientific communication

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * C4.1: Write a report of an epidemiological investigation for decision makers. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C4.2: Write and submit a scientific abstract and make a presentation to a scientific meeting. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C4.3: Analyse and synthesize the main points from a presentation and provide objective feedback. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C4.4: Write a scientific article for publication in a peer-reviewed scientific journal. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * C4.5: Engage appropriate mechanisms to impact on public health policy based on scientific evidence e.g. professional body position papers, synthesis of evidence for policy change. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * C4.6: Write a press release, engage with health journalists and media to promote public health policy. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

Are there modifications, additions or deletions you would recommend for Domain C4?

Area D: Practice of infectious disease epidemiology

As the principle subject area of applied infectious disease epidemiology, competencies in infectious diseases are fundamental. This includes competencies in generic and specific infectious disease topics.

Domain D1: Overview of infectious diseases

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * D1.1: Analyse the global burden and regional distribution of infectious diseases. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D1.2: Explain the various roles of key organizations (e.g. ECDC, CDC, WHO) that monitor infectious diseases internationally and the relevant agencies responsible regionally and nationally. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D1.3: Use the relevant infectious diseases legislation (international/ country-specific). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D1.4: Explain potential sources of infection (e.g. food-borne, water-borne; air-borne; blood-borne; vector-borne and zoonotic infections). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D1.5: List the applicable legal and statutory obligations in relation to monitoring and notifying infectious diseases, including the country-specific notifiable diseases. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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| * D1.6: Analyse new and emerging infectious diseases and threats, including threats of epidemics and pandemics. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
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Are there modifications, additions or deletions you would recommend for Domain D1?

Domain D2: Infection prevention, control and treatment

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * D2.1: Recognise the role of living conditions, i.e. hygiene, sanitation, waste disposal, burial practices, on the occurrence of infectious diseases. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D2.2: Recognise the role of lifestyle and behaviour in infection dissemination and prevention. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D2.3: Describe the disease control measures relating to food, air, water, and vectors in infection prevention and control (IPC). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D2.4: Describe the development and role of antimicrobial agents in IPC and treatment. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D2.5: Recognise the role of personal behaviour in IPC, including the adherence to guidelines and use of personal protective equipment (PPE). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D2.6: Explain the evolution and implications of antimicrobial resistance (AMR). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D2.7: Engage with programmes to monitor the use of antibiotics and antimicrobial agents. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * D2.8: Explain the evolution of healthcare associated infections, including their risk factors and management. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

Are there modifications, additions or deletions you would recommend for Domain D2?

Domain D3: Disease-specific knowledge and skills

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * D3.1: Define disease-specific critical time periods (e.g., incubation period, infectious period, contagious period). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D3.2: Explain infectious agent transmissibility and dynamics, including reproductive number. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D3.3: Describe available diagnostic tests (antibody, antigen, etc.) and their properties (i.e., diagnostic accuracy/validity, reliability, and predictive values). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D3.4: Describe the scope of public health microbiology. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D3.5: Interpret results from laboratory methods for infectious disease detection and diagnosis. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D3.6: Explain how genomic analysis and disease-specific molecular epidemiology can be applied and interpreted in communicable disease prevention and control. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain D3?

Domain D4: Vaccinology

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * D4.1: Outline the processes of vaccine development, including the role of randomized controlled trials. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D4.2: Describe the regulation, safety, and efficacy of vaccines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D4.3: Describe the implementation of regional and national vaccination programmes. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D4.4: Describe vaccine monitoring (vaccination registry) and evaluation. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D4.5: Estimate vaccine effectiveness and vaccine efficacy. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D4.6: Outline context-specific vaccination schedules and legislations. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * D4.7: Describe aspects of behavioural science relevant to vaccine uptake and hesitancy within different populations and subgroups. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain D4?

Domain D5: One health and climate change

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|--|-----------------------|------------------|-----------------------------|-----------------------------|-------------------|
| | | | | | |

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|---|--|--|--|--|--|
| * D5.1: Outline the concept and scope of one health using surveillance and risk assessment strategies from the animal and human areas. | | | | | |
| * D5.2: Assess one health factors (e. g. animal health, food safety /security etc.) and their role in zoonotic infections. | | | | | |
| * D5.3: Recognise the risks and threats at the interfaces of human-animal interaction at local and international levels. | | | | | |
| * D5.4: Critically analyse the key factors and resources that shape the one health approach in order to influence actions (emergency preparedness planning and response) at the local and international level. | | | | | |
| * D5.5: Collaborate effectively with animal health and environmental health sectors during zoonotic outbreak preparedness and response. | | | | | |
| * D5.6: Describe the components and importance of food safety and the food chain. | | | | | |
| * D5.7: Recognise the impact of climate change on the occurrence of infectious diseases with particular reference to vulnerable populations (e.g. vector-borne diseases). | | | | | |

Are there modifications, additions or deletions you would recommend for Domain D5?

Area E: Contextual influences on infectious disease management

This area addresses the contextual and system influences on the management of infectious disease. it includes the political system in place, the organisation and structure of healthcare services and delivery, and the socioeconomic and sociocultural contexts with exist, all of which impact on the delivery of services relevant to infectious diseases and the capacity to adjust to the local need.

Domain E1: Political system

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * E1.1: Be aware of the political system, electoral processes, advocacy and lobbying and political decision-making processes of the region or state. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E1.2: Learn the legal basis and legislation for the operation of public health. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E1.3: Engage in appropriate lobbying and advocacy in the interest of public health. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain E1?

Domain E2: Organisation of healthcare

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * E2.1: Be aware of the government agency tasked with organising the health system in the country or region. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E2.2: Review the code of governance of the health service agency in the country or region, including how it directs and controls its functions and manages its business. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | | | | | |

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|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * E2.3: Outline the structure of the health service agency at national and regional level. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| E2.4: Learn the relevant statutory structures and agencies of the region or state, e.g. census data collation, disease registries and surveillance systems. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E2.5: Access and use national or regional census data, vital statistics, and sources of health data to determine services needed. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E2.6: Act on statutory obligations to notify infectious diseases that have been deemed notifiable in the public interest. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E2.7: Be fully conversant with the relevant EU and international legislation on infectious diseases. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain E2?

Domain E3: Healthcare delivery

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * E3.1: Explain the framework within which healthcare services are delivered to the public i.e. primary, secondary, tertiary, long-term care, community, mental health and social care services. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E3.2: Explain the role of key stakeholders in the health system. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E3.3: Be aware of the scope of practice specific to the healthcare setting or service with the country or region. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * | | | | | |

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|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| E3.4: Learn the policies, procedures, protocols, and guidelines of the healthcare delivery agency or system, in particular as they relate to infectious disease e.g. infection prevention and control guidelines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E3.5: Know the relevant accountability, quality assurance guidelines and medico-legal context specific to the healthcare setting or service in the country or region. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E3.6: Be a member of relevant professional body/bodies in which scope of practice and continuous professional education is developed, available and accredited. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain E3?

Domain E4: Socio-economic and socio-cultural contexts

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * E4.1: Explain basic concepts of sociology and health economics as they relate to healthcare. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E4.2: Identify the main socioeconomic determinants and indicators of health in the population. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E4.3: Estimate the impact of health and social inequality on infectious disease spread and severity in order to propose strategies to reduce it. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * | | | | | |

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|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| E4.4: Identify vulnerable populations in society (e.g. ethnic minorities, migrant populations, people with disabilities). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * E4.5: Identify services needed by, and available to, vulnerable groups (e.g. residential care facilities, direct provision centres, congregated settings, social health services). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain E4?

Area F: Leadership and management

Competencies in leadership and management are required to develop and implement policy in relation to management of infectious disease outbreaks, epidemics, and pandemics.

Domain F1: Policy development

| | <i>Very Important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|---|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * F1.1: Understand the planning, development, implementation, and evaluation of public health policies, programmes, and their impact on health. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F1.2: Actively engage in influencing policy in relation to public health responses to infectious disease control, e.g. contact tracing. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F1.3: Work with stakeholders in relation to public health policy, e.g. professional bodies and others, with regard to their influence and interests. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain F1?

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Domain F2: Organizational leadership

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * F2.1: Delegate responsibilities and tasks based on skills and expertise of team members. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F2.2: Encourage and maintain inter-professional, interdisciplinary, and inter-sectoral collaboration and communication. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F2.3: Provide and support an environment of trust and learning within an organisation. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F2.4: Ensure adherence to established practices and guidelines and upskilling as required. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F2.5: Establish effective teamwork and collaboration within the organisation. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain F2?

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Domain F3: Strategic planning and change management

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * F3.1: Establish strategic priorities, while being aware of already identified strategies. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F3.2: Recognise need for change when it arises, and develop and apply methods and approaches to support change. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * F3.3: Recognise disruptive events and introduce change in a timely manner. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| F3.4: Work with governance structures on different levels. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F3.5: Explain epidemiological and public health issues and implications to management teams and collaborators. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain F3?

Domain F4: Financial management

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * F4.1: Formulate, implement, and support budgetary plans for programmes and audit functions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F4.2: Estimate budget resources consistent with strategies and adjust activities within budget. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| * F4.3: Seek additional resources / prepare proposals for funding. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Are there modifications, additions or deletions you would recommend for Domain F4?

Domain F5: Implement ethical standards and practices

| | <i>Very important</i> | <i>Important</i> | <i>Marginally important</i> | <i>Not at all important</i> | <i>Don't know</i> |
|--|-----------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| * F5.1: Act according to ethical standards and norms with integrity, promoting professional | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | |
|--|--|--|--|--|--|
| accountability and social responsibility for the public good. | | | | | |
| * F5.2: Critically review and evaluate own practices in relation to public health principles, including critical self-reflection. | | | | | |
| * F5.3: Act on, and promote, evidence-based best professional practice. | | | | | |
| * F5.4: Understand and manage conflict-of-interest situations, as defined by organisational regulations, policies, and procedures. | | | | | |
| * F5.5: Apply data protection and confidentiality standards to all data and products of the organisation and activities undertaken. | | | | | |

Are there modifications, additions or deletions you would recommend for Domain F5?

3 Potential uses of the core competency set

Please note, you can save your responses at any time by clicking “Save as Draft” if you wish to return to it at a later time.

*** Please indicate the purpose(s) for which you will use this competency set when it is published** (select all options that apply)

- ☐ Development of a competent applied infectious diseases epidemiology workforce
- ☐ Assessment (including self-assessment) of the skills of mid-career applied epidemiologists
- ☐ Workforce planning and development
- ☐ Development of job descriptions
- ☐ Underpinning recruitment strategies
- ☐ Development of training programmes
- ☐ Continuous professional development
- ☐ Accreditation of training programmes

☐ I will not use this competency set

If you are not likely to use this competency set, please give reasons why not

We thank you sincerely for your patience in completing this questionnaire. Your contribution is much appreciated.

ECDC and the UCCAIDE Project Steering Group