

Assessment of workforce capacity and training needs for the prevention and control of communicable diseases in the EU/EEA

Report on 2021 survey

3 August 2022

Executive summary

This report summarises the results and data of an ECDC survey assessing the workforce capacity, perceived training needs and the relevance of ECDC training in the field of communicable disease prevention and control. collected through ECDC's capacity and training needs assessment survey, 2021. The assessments are repeated every three years and target the European Union (EU) Member States and the European Economic Area (EEA) countries.

Out of 30 countries invited to participate, ten responded to the Workforce Capacity Assessment Survey and twenty responded to the Training Needs Assessment Survey.

Only a few countries have a mechanism or legal instrument for workforce planning and development in the area of public health and only one of the countries without such a mechanism or legal instrument has a plan to develop one by 2023.

Almost all countries report that they are unable to recruit sufficient staff to work in communicable disease prevention and control, mainly due to lack of qualified applicants, and inadequate salary scales. The major problems identified for retention of staff were an aging workforce leading to retirements, inadequate professional status/job title, inexistent job promotion, lack of job benefits, and inadequate salary scale.

Almost all countries provided an outline of the organisation/structure/staffing of the communicable disease prevention and control service, while data on the enumeration of the workforce were difficult to collect: they are not available as there is no central registry of staff by profession; the responsibilities of staff do not match the professions indicated in the questions, other priorities due to the COVID-19 pandemic did not allow data collection, numbers are not available to the survey recipients as staff working in communicable disease are under the remit of the Ministry of Health.

Almost all countries affirmed that the national public health institute/authority publishes articles on communicable disease prevention and control. Many countries offer training programmes leading to specialisation and training activities for professional development. Some countries also have a set of competencies used for professional development in communicable disease prevention and control, but not always to measure acquisition of individual competency. The ECDC competency frameworks used are the field epidemiologists core competencies, the public health microbiology core competencies and the core competencies for infection control and hospital hygiene professionals. Half of the respondent countries have a regular census/registry of public health workforce.

The countries reported highest training needs in public health emergency preparedness, surveillance, and emergency response. They also indicated that training organised by ECDC is considered as being of added value for all the domains. Topics identified as particularly in need of training were vaccination and vaccine acceptance, and antimicrobial resistance and healthcare associate infections. When enumerating the number of professionals to be trained, a larger number of professionals needed basic and intermediate training than advanced training.

Finally, in the domains of 'communication and advocacy' and 'laboratory systems and methods', countries indicated that the face-to-face format would be most suitable for continuous professional learning opportunities. For all other domains, respondents said that a blended format was the most suitable, followed by e-learning and face-to-face.

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Background

Article 9.6 of the ECDC Founding Regulation (85/2004) states that: 'The Centre shall, 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'. In addition, Article 4 of the Decision 1082/2013/EU on serious cross-border threats to health calls for consultations aimed at 'supporting the implementation of core capacity requirements for surveillance and response as referred to in Articles 5 and 13 or the IHR'.

Adhering to Internal Audit Service recommendations from 2014 to address the training gaps across Europe based on needs assessments, ECDC has worked with EU Member States and EEA countries on designing and carrying out regular assessments of training needs and workforce capacity gaps. The assessments are repeated every three years to reflect the changing reality in workforce demographics and their training needs in EU/EEA countries. The first one of these periodic assessments took place in 2015 (see the report¹ available online), the second one in 2018 (see the report² available online).

This report presents the third periodic survey carried out by the Centre in 2021, through an EU/EEA-wide online questionnaire based previous surveys from 2015 and 2018. The advice received by the Technical Advisory Group³ of international experts and ECDC National Focal Points for Training was taken into account when developing the 2018 survey. The 2021 survey has been subject to further expert input, leading to minor changes compared with the 2018 one.

Objectives

The objectives of the 2021 Survey were:

- to serve as a tool for countries to map the size and composition of their existing workforce capacities in the area of communicable disease prevention and control; raising awareness of in-country, as well as EU-level, strengths and gaps in the area, to serve as a tool for advocacy and policy attention.
- To quantify, qualify and prioritise training needs in communicable disease prevention and control in EU/EEA countries within the primary target audience³ of the ECDC training activities, in order to inform ECDC's training offer in 2023-2025, within the scope of the Centre's Continuous Professional Development.

Methodology

The questionnaire was divided into two parts – 1. Workforce Capacity Assessment (Part 1) and 2. Training Needs Assessment (Part 2).

Workforce capacity assessment

The first part of the questionnaire enquired into the capacity of the countries' workforce in communicable disease prevention and control. It was administered through the National Coordinators of the ECDC Coordinating Competent Bodies. It consists of three sections:

- Strategic level: strategic documents (i.e. national action plans), recruitment and retention of public health workforce and workforce demographics (workforce profile, ageing of workforce, forecast of gaps and needs);
- Capacity indicators: enumeration of the workforce (full-time equivalent estimate for each job function), existence of advanced level training programmes and capacity of workforce to publish in scientific journals and epidemiological or public health bulletins;
- Standards efforts towards standardisation (national level censuses/assessments of public health workforce, core competencies).

¹ ECDC. Training needs assessment for EU/EEA countries: Assessment methodology and 2015 survey. Stockholm: 2017. https://ecdc.europa.eu/sites/portal/files/documents/Training-needs-assessment-for%20EU-EEA-countries_0.pdf

² ECDC. ECDC capacity and training needs assessment 2018. Stockholm: 2020. <https://www.ecdc.europa.eu/en/publications-data/ecdc-capacity-and-training-needs-assessment-2018>

³ The Capacity and Training Needs Assessment for cross-border communicable disease prevention and control Technical Advisory Group consists of 11 experts, from the following entities: Coordinating Competent Bodies (NC and NFP level), Public Health Institutes (through official nomination), World Health Organization (WHO), the US Council of State and Territorial Epidemiologists (CSTE) and the Association of Schools of Public Health in the European Region (ASPHER).

Training needs assessment

The Training Needs Assessment questionnaire was administered through the National Focal Points for Training. It included nine questions on: perceived training needs and relevance of ECDC training in the field of communicable disease prevention and control, number of professionals to be trained, training format, and additional domains relevant for training. The domains and sub-domains used for the questions were based on a selection of domains of core competencies for public health epidemiologists and microbiologists in communicable disease prevention and control (see Table1).

Table 1. Domains and sub-domains used for the questions of the training needs assessment

DOMAINS	SUBDOMAINS
<i>Communication and advocacy</i>	Risk communication Communication during a public health emergency Advocacy Use of new communication technologies Ethics
<i>Prevention</i>	Behavioural insight
<i>Laboratory system and methods</i>	Setting up a digital laboratory –based surveillance system Laboratory-based real-time cluster detection and early warning system design and operation Pathogen genomics/WGS use for outbreak investigations Pathogen genomics/WGS use for enhanced disease surveillance Pathogen genomics/WGS use for antimicrobial resistance detection and surveillance Laboratory quality assurance Laboratory biosafety Public health microbiology system organisation and evaluation
<i>Surveillance</i>	Indicator-based surveillance Event-based surveillance/Epidemic intelligence Reporting surveillance data Field studies (Population-based research) Surveillance system evaluation Setting up a surveillance system Biostatistics Public health informatics
<i>Risk assessment</i>	Assessment of emerging risks Rapid risk assessment
<i>Public health emergency preparedness</i>	Coordination and communication Planning Design of simulation exercises Recovery from public health emergencies
<i>Response</i>	Outbreak investigation Outbreak management Public health intervention
<i>Additional domains (question 4.1)</i>	

Results

Part 1. Workforce capacity assessment

Out of the 30 EU/EEA countries invited to participate, ten responded to the Workforce Capacity Assessment Survey via the EU survey tool (Bulgaria, Czechia, Cyprus, Germany, Latvia, Lithuania, the Netherlands, Poland, Romania, Sweden). Lithuania also provided the World Health Organization (WHO) Joint External Evaluation report.

Strategic level

Four countries (4/10) replied that there is a documented and approved national, subnational or local mechanism, strategy or a legal instrument for workforce planning and development in the area of public health or more specifically in communicable disease prevention and control. Three countries provided additional details about it. Four countries replied that such a mechanism does not exist and two did not know.

For the question about whether there is a plan to develop such a strategic mechanism or legal instrument by 2023, only one country replied that there is such plan, and one did not know.

Almost all countries strongly disagreed or disagreed with the statement 'in the last three years the country was generally able to recruit sufficient number of staff working in communicable disease prevention and control with the right competencies at the national and at the sub-national level'. None of the countries strongly agreed or agreed with the statement that in the last three years the country was generally able to retain sufficient number of staff working in communicable disease prevention and control with the right competencies at the sub-national level, while three (3/10) agreed that this happened at the national level.

Figure 1. Responses by EU/EEA Member States on level of agreement (Likert scale) with the statement 'In the last three years, my country has generally been able to recruit/retain sufficient number of staff working at the national/sub-national level in communicable disease prevention and control with the right competencies'



The major problems identified for recruitment were insufficient number of qualified applicants (6/10), aging workforce leading to retirements (5/10), and inadequate salary scale (5/10). See Figure 2.

The major problems identified for retention were aging workforce leading to retirements, inadequate professional status/job title, inexistent job promotion, lack of job benefits, and inadequate salary scale (4/9). See Figure 3.

Figure 2. Responses by EU/EEA Member States to the question 'To what extent is each of these factors a problem in recruitment of workforce in communicable disease prevention and control?'

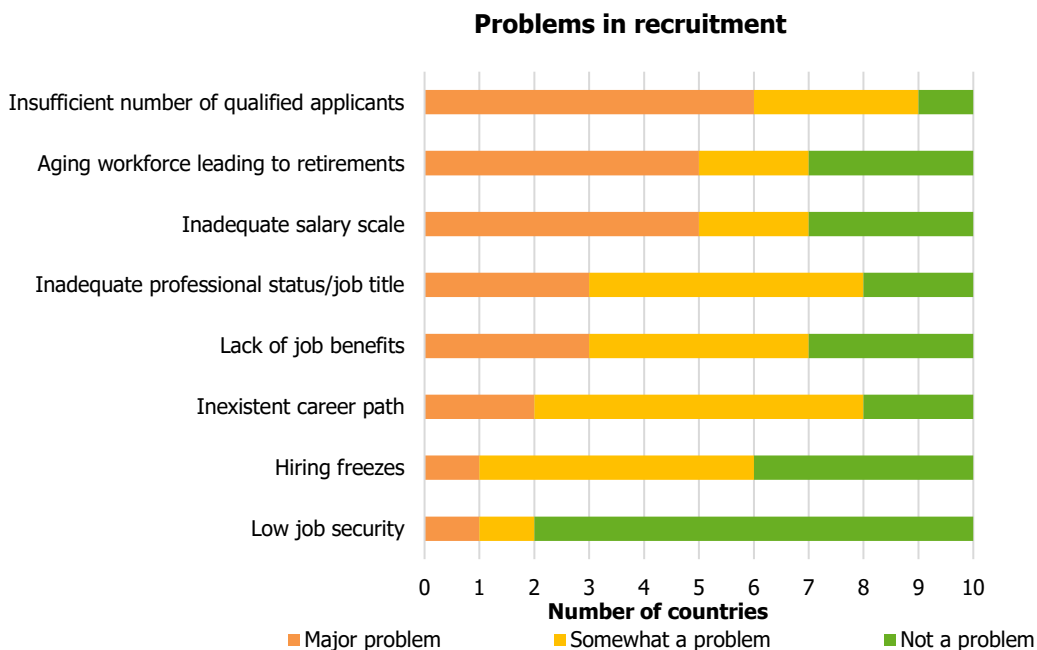
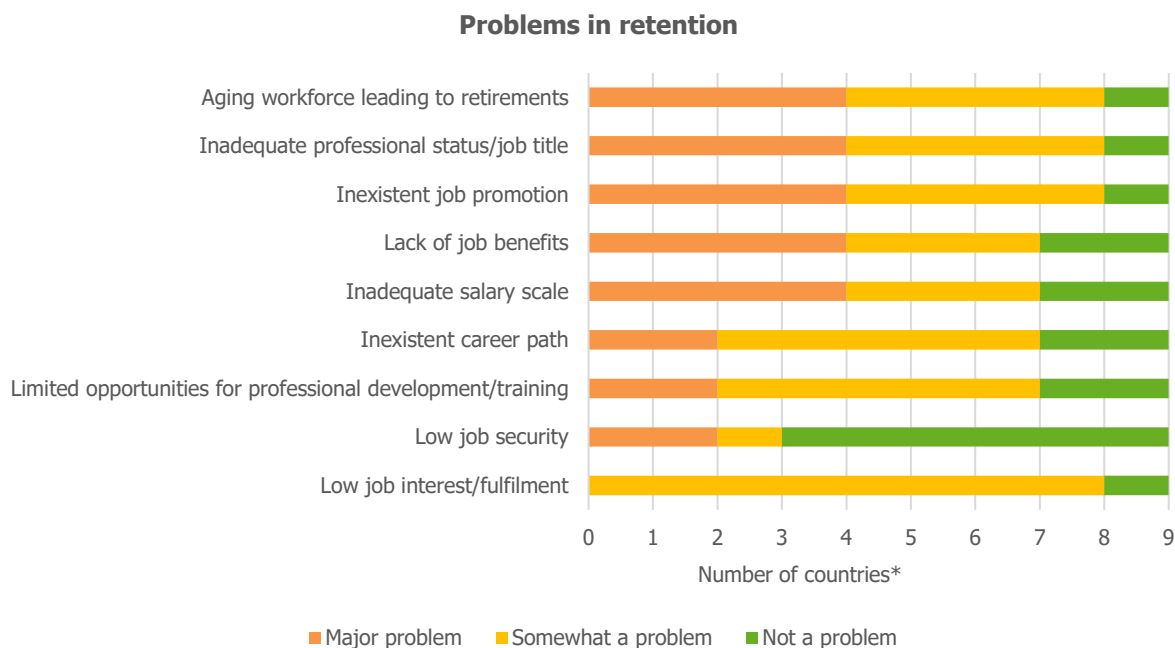


Figure 3. Responses by EU/EEA Member States to the question 'To what extent is each of these factors a problem in retention of workforce in communicable disease prevention and control?'



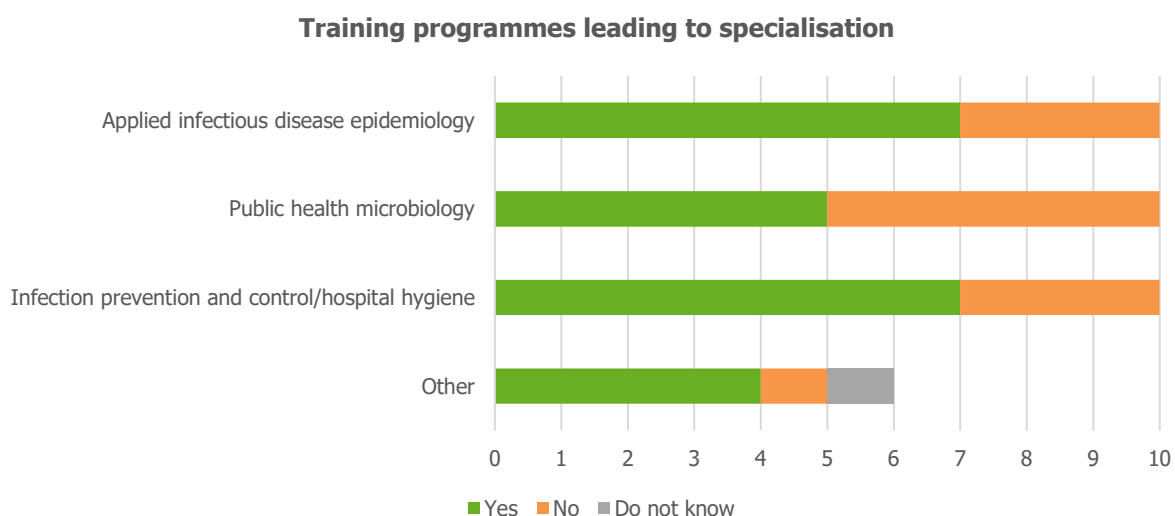
**In total only 9 countries replied to this question*

Workforce capacity

All countries except two provided an outline of the organisation/structure/staffing of the communicable disease prevention and control service or the link to their organigramme. The enumeration of the workforce, i.e. the fulltime equivalent estimate for each job function of staff currently working in communicable disease prevention and control in public health institutions, was provided by three countries (3/9), although the information was reported only for some of the job functions indicated. Countries mentioned that it was difficult to collect these numbers for different reasons: they are not available as there is no central registry of staff by professions, the responsibilities of staff do not match the professions indicated in the questions, other priorities due to the COVID-19 pandemic did not allow data collection, numbers are not available to survey recipients as staff working in communicable disease are under the remit of the Ministry of Health.

Seven countries offer training programme leading to specialisation in infection prevention and control/hospital hygiene, seven in communicable disease epidemiology, five in public health microbiology and four in other fields (Figure 4).

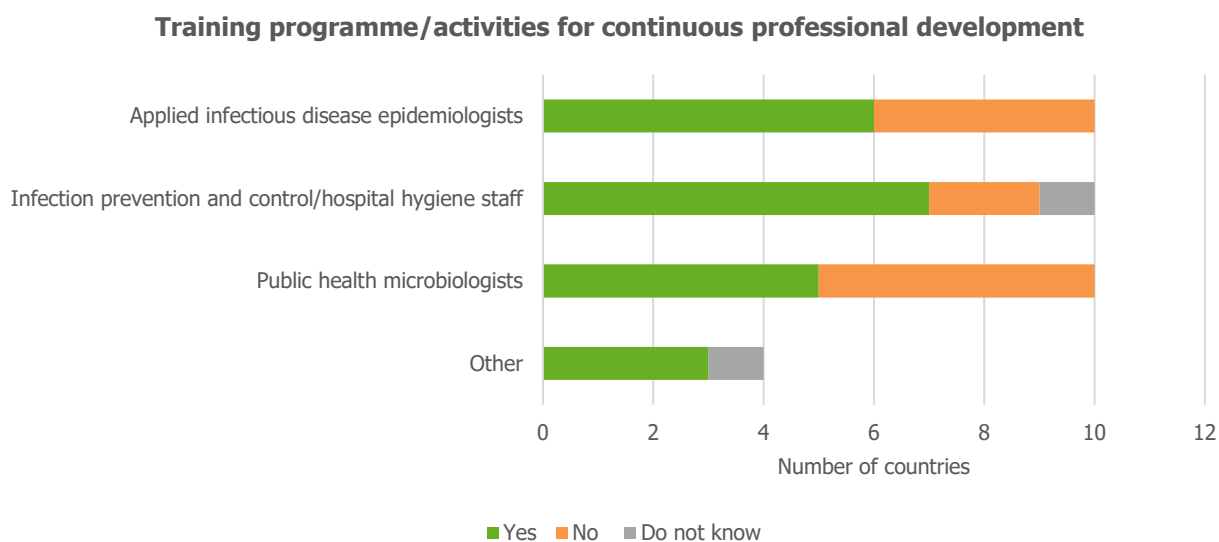
Figure 4. Number of countries that offer training programmes leading to specialisation in several fields



Only two countries (2/10) responded that they offer national 'learning-by-doing' field epidemiology training programmes. One of the countries responded that they have an advanced/specialised programme, while the other country has basic, intermediate and advanced programmes .

Six countries have training programmes or activities for continuous professional development in communicable disease epidemiology, seven in infection prevention and control/hospital hygiene, five in public health microbiology and two in other fields (Figure 5). See Table 5 for further details.

Figure 5. Number of countries that have training programmes/activities for continuous professional development in several fields



Eight countries (8/10) stated that the national public health institute/authority is active in publishing articles on communicable disease prevention and control, all (8/8) in international peer reviewed journals, and also mainly in national bulletins (7/10), and in national peer reviewed journals (6/10).

Standardisation

Countries were asked if they use some of the following ECDC competency frameworks for specialisation or post-graduate training:

- field epidemiologists core competencies
- public health microbiology core competencies
- public health emergency preparedness core competencies
- vaccine-preventable diseases and immunisation core competencies
- core competencies for infection control and hospital hygiene professionals.

Four countries (4/10) stated that they use the field epidemiology core competencies; one, the public health microbiology core competencies; and one, the core competencies for infection control and hospital hygiene professionals. Four countries do not use any ECDC competency framework and two replied 'Do not know'.

While five countries (5/10) have a regular census/registry of public health workforce and provided additional details about it, only three mentioned that there is a regular census/registry of workforce in communicable disease prevention and control.

Regarding competencies, six countries (6/10) replied that they have national/subnational standards for competencies which are used when building the curriculum for specialisation or post-graduate training in applied epidemiology, microbiology and other prevention and control disciplines. Five of these countries use them to measure acquisition of individual competence in training programmes in communicable diseases prevention and control.

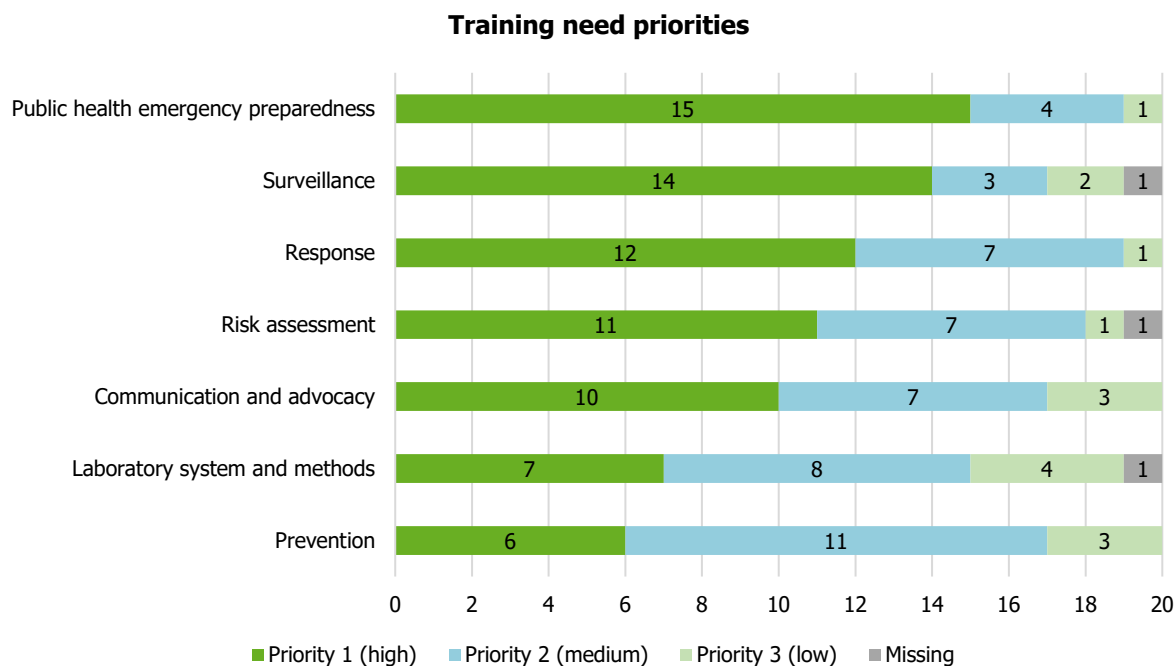
Part 2. Training needs assessment

Out of the 30 EU/EEA countries invited to participate, 20 responded to the Training Needs Assessment Survey via the EU survey tool (Austria, Belgium, Bulgaria, Croatia, Czechia, Cyprus, Denmark, Estonia, France, Germany, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Spain, Sweden).

Perceived training needs and relevance of ECDC training in the field of communicable disease prevention and control

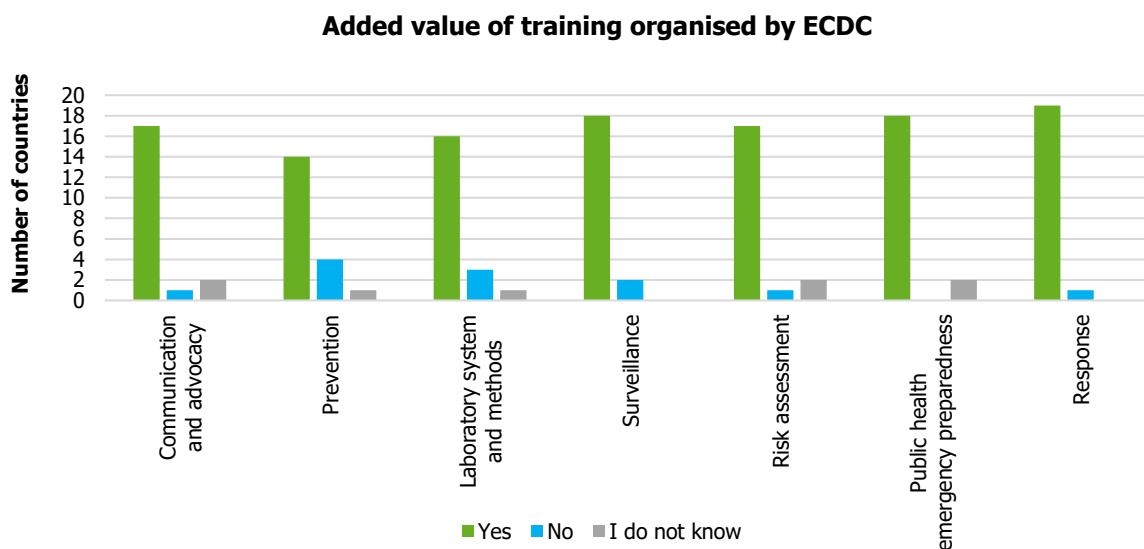
The training needs domains with high priority were public health emergency preparedness (15/20 respondents), surveillance (14/20) and response (12/20); followed by risk assessment (11/20), and communication and advocacy (10/20). See Figure 6.

Figure 6. Is this domain a training need priority in your Member State?



A training organised by ECDC was considered as being of added value for all the domains, in particular for response (19/20), public health emergency preparedness (18/20), and surveillance (18/20) see Figure 7.

Figure 7. Would a training organised by ECDC be of added value for your Member State (complementary to existing training and educational service at national or sub-national level)?



The countries had the possibility to specify in an open-ended question in which sub-domains training organised by ECDC would be of added value. Eleven countries replied to the open question. Specific sub-domains of 'Surveillance' were noted to be of likely added value:

- biostatistics;
- modelling;
- surveillance system evaluation;
- public health informatics.

as well as specific sub-domains of 'Laboratory system and methods':

- laboratory-based real-time cluster detection and early warning;
- pathogen genomics/WGS use for antimicrobial resistance detection and surveillance.

Finally, risk communication was also indicated as an additional specific sub-domain of interest.

The countries also had the possibility to specify further details in an additional open-ended question (*Please feel free to provide further details including combination of public health functions and disease specific needs (e.g. training on surveillance of vaccine preventable disease)*).

Several topics of interest were mentioned by six countries (6/20). The two emerging topics are:

- vaccination, specifically how to respond to vaccine-preventable disease outbreaks and vaccine advocacy and behaviour change;
- antimicrobial resistance and healthcare associated infections, surveillance and outbreak management.

Some countries had comments on additional areas where training is needed:

- data protection;
- how to deal with novel and emerging threats;
- legionnaires' disease;
- microbiology.

Number of professionals to be trained

When asked to provide an estimate of the number of professionals who would need to receive basic, intermediate and advanced training organised by the country or by ECDC, six countries did not reply. Several countries explained that it is difficult to measure and provide such a number. It was noted that only highly skilled professionals would benefit from training in English, that not all professionals at the same time could have time allocated to professional development, and that in some instances countries are facing a broad reorganisation of the health services following the pandemic and this will result in a large need to train professionals. A suggestion for ECDC is to organise training courses in collaboration with the experts and institutions in the country and in the local language.

The numbers provided highlight that a larger number of professionals would need basic and intermediate training than would need advanced training.

The detailed results are shown in Figure 8 for Member State organised training and in Figure 9 for ECDC organised training.

Figure 8. Summary of the estimates. How many professionals (estimate) would need to receive Member State organised training in each of the levels listed below?

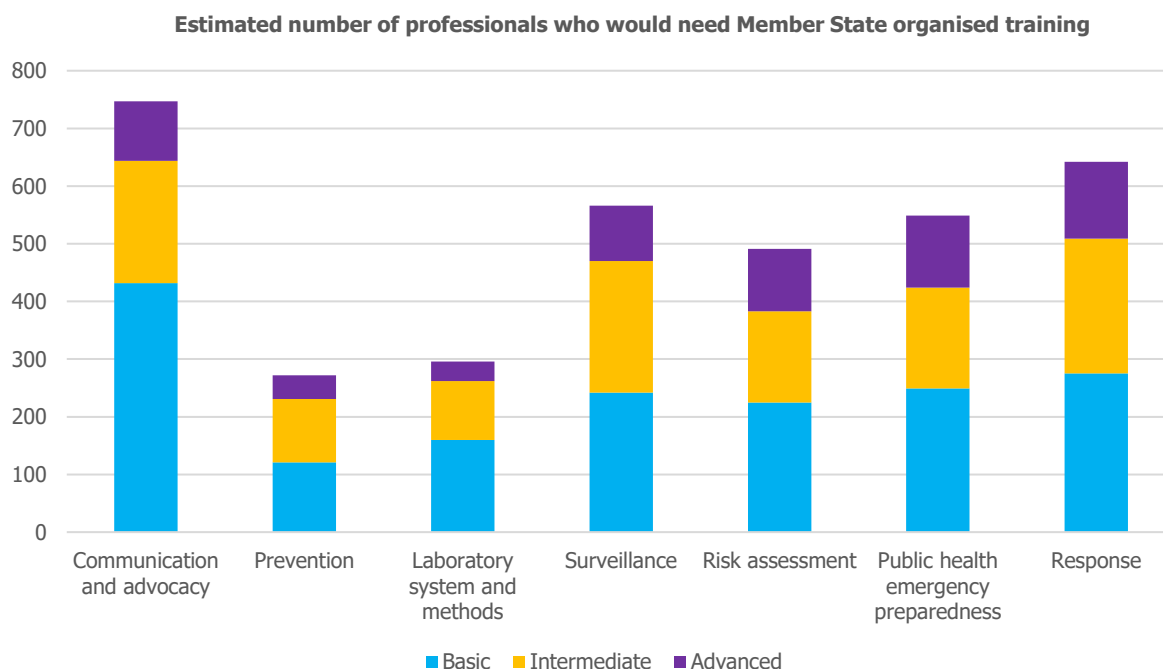
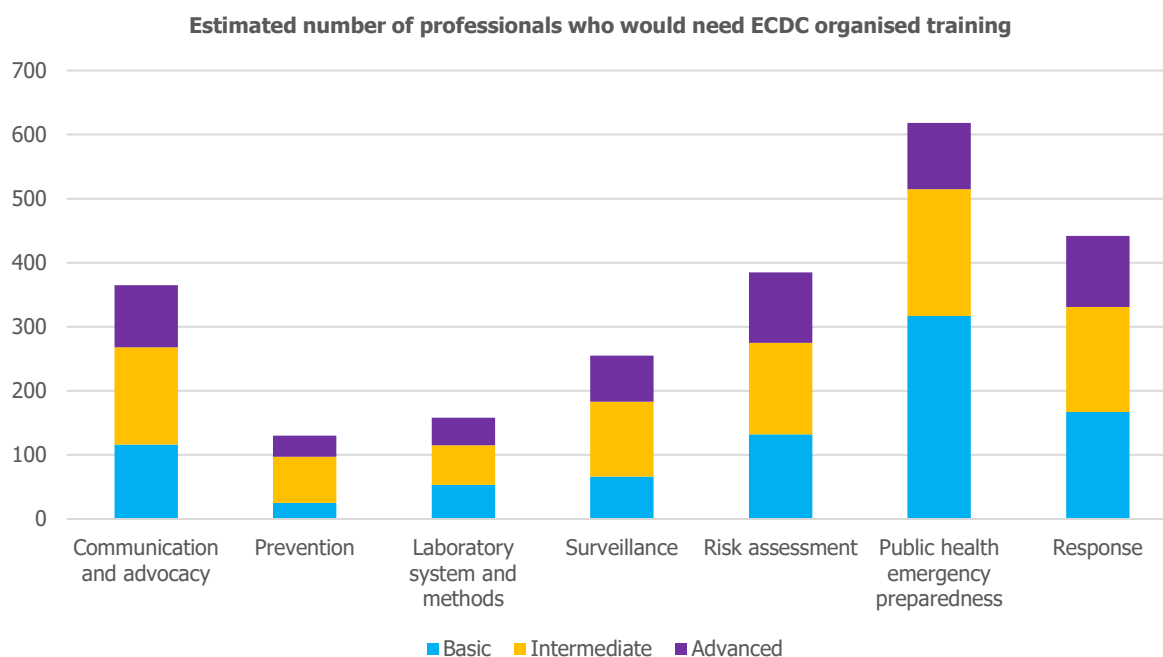


Figure 9. Summary of the estimates. How many professionals (estimate) would need to receive ECDC organised training in each of the levels listed below?

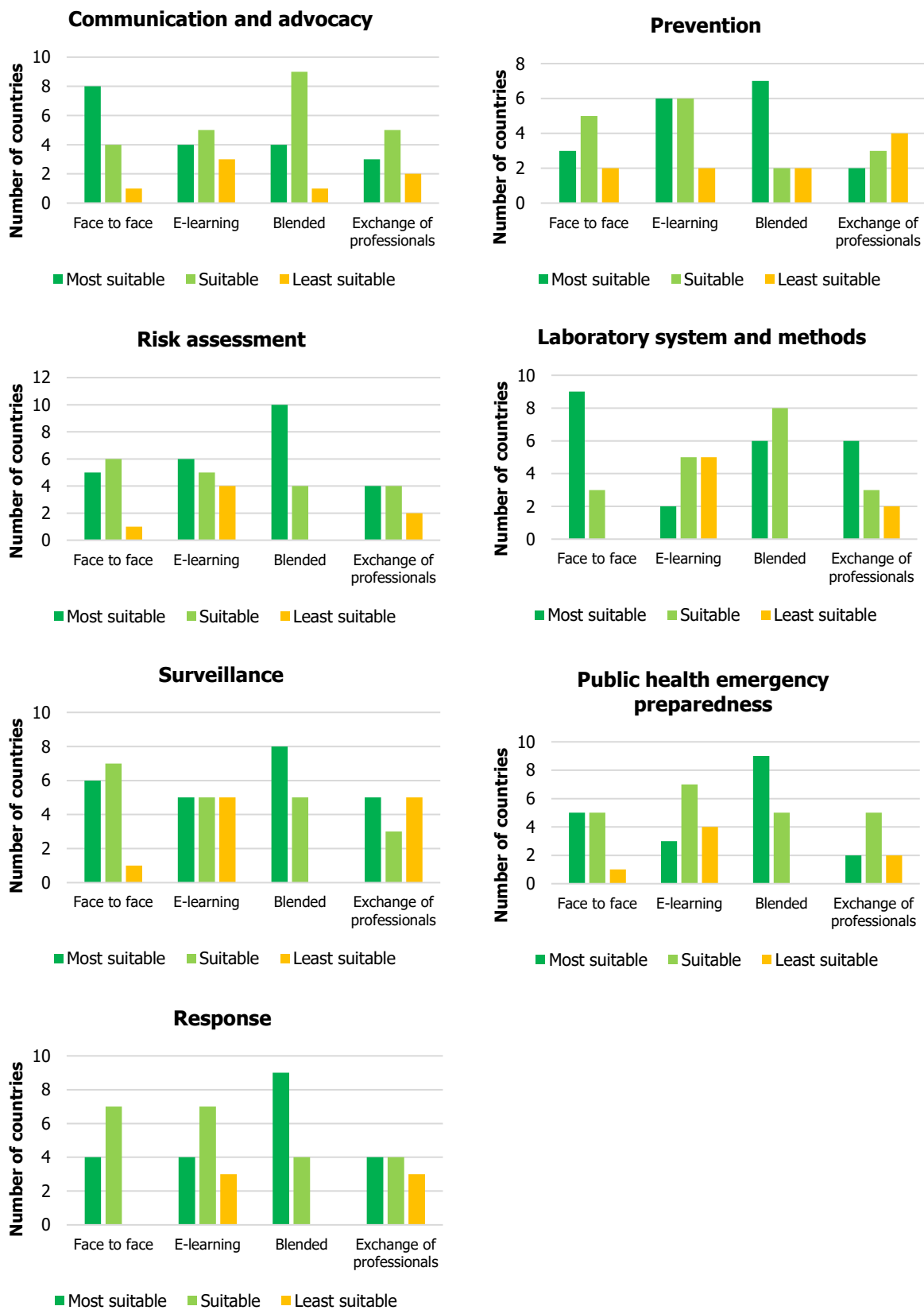


Training format

In the domains ‘communication and advocacy’ and ‘laboratory systems and methods’ the face-to-face format was indicated as the most suitable followed by the blended format (combination of e-learning and face-to-face). For all the other domains, the blended format was indicated as the most suitable followed by e-learning and face-to-face. ‘Laboratory systems and methods’ was also the domain where the exchange of professionals was considered most suitable compared with other domains (see Figure 10).

One additional format was brought up, on-line expert discussion and club/forum to exchange experience in a specific topic.

Figure 10. Which format would be suitable for your Member State for ECDC organised continuous professional learning opportunities?



Additional areas within the field of communicable disease prevention and control where training needs are perceived

The last question of the survey was an open-ended question to indicate any other areas within communicable disease prevention and control which from Member States' perspective would require an EU-level training.

Six countries replied (6 of 20 responding on training needs). Vaccine hesitancy and antimicrobial resistance were mentioned again.

Additional areas for consideration mentioned by at least two countries were:

- vulnerable populations including migrants and outbreaks in specific/closed settings, e.g. refugee centres, long-term healthcare facilities;
- one health;
- global health;
- public health policy.

Finally, areas mentioned once (only by one country each) were:

- climate change;
- leadership in an outbreak/crisis;
- big data;
- ethics;
- biorisk management;
- public health law;
- social and behavioral aspects;
- evidence based public health, systematic reviews and guidelines;
- scientific writing.

Conclusions and discussion

The results of the 2021 ECDC capacity and training needs assessment survey provides information on the organisation and composition of the workforce in the area of communicable disease prevention and control of the ten countries that replied, and an overview of the training needs in the same area for twenty countries.

The information on workforce capacity provides useful insights for ECDC on countries' vulnerabilities and needs and is one of several information sources that are being used to develop a greater level of country knowledge within the Centre.

The response rate for the second part of the survey, the Training needs assessment, was high. ECDC collects information on training needs through different sources and methodologies including during network meetings, expert consultations, detailed needs assessments in specific domains and country visits. These qualitative and quantitative data are used to inform ECDC's annual planning. The results of this survey will complement the available data to inform the ECDC's training offer in the period of 2023-2025, within the scope of the Centre's Continuous Professional Development programme.

The delivery formats prioritised in 2021 were mainly the blended format (combination of e-learning and face-to-face) and the face-to-face format, while in 2018 e-learning was considered as more useful for training courses. This change in the preference of the training format may be explained by the big shift towards online and virtual activities during the COVID-19 pandemic.

The three highest training priorities identified through the 2021 survey remain the same as those identified in 2018: public health emergency preparedness, surveillance and response. The ECDC Fellowship Programme (with EPIET and EUPHEM paths) aims to strengthen European and country's capacities in preparedness, public health surveillance and response. While this shows the value of Field Epidemiology Training, a more in-depth analysis of the results shows that blended formats, e-learning and exchange visits are considered valuable, in particular when talking of continuous professional development.

To address Member State needs ascertained from the survey results and from information gathered through other sources, ECDC has already developed e-learning courses freely available online on the ECDC Virtual Academy and these are mainly self-paced. An overview of the available courses currently offered by ECDC can be found in the [online training catalogue](#).

The European Commission is also investing in supporting, creating and expanding training programmes, for example in the area of preparedness and microbiology, where ECDC will contribute.

To validate and complement the results of the survey, a combined approach is essential as for example through follow-up discussion on the survey results through dedicated training network meetings or interviews with respondent countries.

Furthermore, ECDC is working to develop a methodology on self-assessment of training needs at institutional and individual level and is intending to further exchange experience with ECDC and with other partners on this topic.

In conclusion, ECDC relies on its sustained collaboration with the Member States, the European Commission and other key stakeholders, to continue identifying training needs and reorienting its training offer accordingly.

Acknowledgements

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