

CAPACITY/CAPABILITY ASSESSMENT

ECDC assessment of public health workforce capacity in prevention and control of infectious diseases in the EU/EEA

Report on 2024 survey

Summary

In 2024, ECDC conducted a survey on public health workforce capacity in the field of prevention and control of infectious diseases in the EU/EEA. This was in response to requests from several European Member States to help assess existing workforce capacity and identify gaps and additional investments needed. The survey was designed for this purpose, as well as to support countries in taking the first steps to describe the size and composition of their existing public health workforce capacity, and to better understand issues related to recruiting and retaining that workforce. The survey had a good response rate (70% = 21 countries) and provided some valuable insights that can inform future capacity-building approaches.

However, due to the diversity of health system structures and governance systems across countries, it was challenging to obtain comparable data. In most respondent countries, a strategic document, mechanism, or legal instrument for workforce planning and development in public health or specifically in infectious disease prevention and control does not exist. The public health workforce is distributed across different organisations, the majority is based within the ministry responsible for health and the national public health institute, and across different administrative levels (national, regional and local).

A lack of harmonised workforce data collection mechanisms at the national level impacted the data collection, so, in general, incomplete data were reported. It was difficult to estimate the number of staff for each job function working in infectious disease prevention and control, as there is often no central registry of staff by profession, and the responsibilities of staff differ in the same country between regions and professionals. As quantifying the infectious disease workforce and the public health workforce in general is challenging, a good first step for all countries that do not currently do this should be setting up a regular census and registry to assess the current workforce capacity situation.

In all respondent countries, the public health workforce working on infectious diseases increased during the COVID-19 pandemic. However, only some countries retained this additional staff beyond the end of the pandemic.

Recruitment was not reported as a challenge, even if some difficulties hamper it, such as insufficient numbers of qualified applicants, hiring freezes due to insufficient funding, and inadequate salary scales. In contrast, most of the countries reported that retaining the appropriate number of staff is more difficult, mainly due to the high work burden and/or burnout, aging workforce leading to retirement, and inadequate

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ISBN 978-92-9498-769-3 doi: 10.2900/8546386 Catalogue number TQ-01-25-000-EN-N salary scale compared to staff working in the clinical sector. On the positive side, a career in this area was seen as providing good job security.

Another positive finding was that many countries have one or more specialist programmes for training the public health infectious disease professionals of the future. Continuous professional development is also provided in several countries. It is important to maintain these in the countries that have them and introduce them in other countries to maintain the supply of well-trained staff in the future.

The information presented in this report only provides a partial snapshot of the current status of the EU/EEA public health infectious disease workforce, based on a mixture of qualitative and quantitative data. Continuing to collect comparable data over time to monitor trends to identify needs and opportunities will increase the value of this type of survey. ECDC will continue to conduct such public health workforce capacity surveys on a regular basis. Data completeness would be further improved if registries of public health staff, possibly by job type, were developed, where they do not currently exist. Comparability of data would be improved by more harmonised definitions of the job types constituting a public health workforce.

ECDC encourages EU/EEA countries concerned by potential shortages in their public health workforce to assess their current public health workforce situation, needs and opportunities for progress using the WHO operational roadmap on National Workforce Capacity for Essential Public Health Functions. ECDC can provide methodological support to countries to conduct such exercises through the EU Health Task Force.

Under Article 8 of the EU Regulation EU:2022/2371 on serious cross border threat to health, ECDC is responsible for assessing all 30 European Union and European Economic Area countries' prevention, preparedness and response plans every three years. In these public health emergency preparedness assessments, the human resources capacity related to public health emergencies, including surge capacity, is also considered.

1 Introduction

European Union Member States expressed to ECDC the need to assess workforce capacity in the public health sector and the area of prevention and control of infectious diseases in particular.

It is important for European and Economic Area (EU/EEA) countries to assess existing workforce capacity and identify gaps and possible additional investment to better prevent and respond to outbreaks and public health threats in humans and to meet the growing public health needs nationally and internationally.

However, the diversity of health system structures and governance systems across European countries makes it challenging to obtain comparable data on the evolution of public health workforce capacity, especially in the field of infectious diseases prevention and control. Lack of harmonised workforce data collection mechanisms and the fragmented governance processes within health systems impact data flows and data availability for public health workforce planning purposes.

ECDC has previously worked to monitor the evolution of public health workforce capacity in EU/EEA countries in the field of infectious diseases prevention and control through a regular survey launched in 2015, 2018 and 2021 with the significant difference that those surveys also had a joint focus on training needs analysis [1-5]. To reflect the post-pandemic circumstances, the survey was revised and updated by the ECDC Advisory Forum working group on workforce capacity in 2023 and launched in 2024.

The aim of the 2024 survey is to support countries to map the size and composition of their existing public health workforce capacity in the area of infectious disease prevention and control. This exercise can support countries to take stock of their strengths, identify gaps in their current capacity, serve as an advocacy tool for policy makers and inform a more tailored in-country and EU-level public health work force capacity building approach. This report provides the results of the 2024 survey and an overview of the current EU staffing capacity in the area of infectious disease prevention and control based on the self-reported data submitted by the EU/EEA countries.

The report covers the following areas:

- strategic mechanism for workforce planning and development;
- workforce capacity indicators (organisation, enumeration of workforce, additional staff during COVID-19, recruitment and retention, training programs);
- standards (workforce census/registry).

This report has been shared with all contributing EU/EEA countries for review, and validation support interpreting the results.

2 Study design and methods

The 2024 survey is based on the previous survey launched in 2021 that was a combination of one survey on workforce capacity and another on training needs. The 2024 survey was thus revised and updated in 2023 by the ECDC Advisory Forum working group on workforce capacity, and new questions were added on organisational structure and additional staff during COVID-19, while the training aspect was removed. The Advisory Forum working group was composed of seven members from Belgium, Estonia, France, Hungary, Poland, Slovenia, and a representative from ASPHER.

The survey was sent to EU/EEA countries in May 2024 via their nominated ECDC National Coordinators of Coordinating Competent Bodies. The EU survey tool was used to implement the web-based form. Only one reply per country was allowed. User support was provided in May 2024 with two online survey clinics, where ECDC experts were available to address specific questions or issues for all those responding to the survey.

The survey contains quantitative and qualitative questions and is split into three sections comprising a total of 39 questions: (1) strategic level; (2) workforce capacity indicators, and (3) standards (see <u>Workforce Capacity</u> <u>Survey</u>).

A new question was introduced to find out how the public health workforce on infectious disease is organised in each country, namely in which organisations and at what administrative level staff are working. The questions about the enumeration of workforce have been constructed to act as quantitative indicators, where countries were asked to assess the number of full time equivalent (FTE) for different job functions. The categorisation of the functions for the enumeration of FTEs is a combination of the list of functions from the previous surveys, from desk review and expert consultation, and changes according to the feedback in 2024 from the AF.

The structure of this report follows the areas/capacities presented in the survey. The aggregated analysis provides information based on self-assessed workforce capacities.

3 Results

Of 30 countries invited to complete the survey, 21 replied (Austria, Belgium, Bulgaria, Croatia, Czechia, Cyprus, Estonia, Finland, Germany, Greece, Hungary, Iceland, Liechtenstein, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovenia, Sweden).

Workforce capacity indicators - strategic level and general outline

A strategic document, mechanism, or legal instrument for workforce planning and development in public health or specifically in infectious disease prevention and control exists in nine countries (see Figure 1). Of the 12 countries that do not have such a document or strategy in place, four have plans to develop it: in one country this is under development, in another country it will be developed in 2025 for pandemic preparedness, while for the other two countries the timeline is still to be defined.

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Figure 1. Strategic document for workforce planning and development, ECDC survey, 2024
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The public health workforce on infectious diseases is distributed across different organisations and different administrative levels (see Figure 2). In almost all countries (19/21), part of the infectious disease public health workforce is placed in the ministry responsible for health. Of the remaining two countries, the workforce is placed in the national public health institute but not in the ministry in one country, and in the other country, a dedicated structure for infectious disease prevention and control is in place. In some countries (10/19), the workforce is also placed in other ministries. In the majority of countries (17/19), the workforce is also in the national public health institute. The countries that mentioned that the workforce is placed in other institutions specified these are hospitals, universities, diagnostic and research centres, national institutes such as the blood safety and transplantation institute, drug addiction institute, national AIDS centre, institute of tuberculosis and lung diseases are also involved in the overall prevention and control of infectious diseases in addition to institutes specialised in other sectors as food safety, animal health, environment, etc. Finally, one country mentioned that local public health units contribute to prevention activities providing health education in communities and schools.

In four countries the microbiology laboratories are only part of the national public health institute, in one country they are separate from the national public health institute and in ten countries there are both microbiology laboratories as part of the national public health institute and microbiology laboratories that are separate from it. When looking at the regional and local level, a similar picture emerges, with regional organisations separate from the national public health institute (nine countries), part of it (five countries) or both separate and part of it in the same country (three countries). The local organisations are separate from the national public health institute (nine countries) or both (three countries). Small countries such as Liechtenstein and Malta have the public health workforce working spread in different units or departments, with the possibility to increase their capacity from other areas in case of an emergency.



Figure 2. Organisations and administrative level of the public health infectious disease workforce, ECDC survey, 2024

Enumeration of workforce

For the enumeration of the workforce, incomplete data were included from 17 out of 21 respondents. The estimates were difficult to collect as often no central registry of staff by profession is available and the responsibilities of staff differ in the same country between regions and among different professionals.

Full-time equivalents (FTEs) are the unit of measurement used to calculate the total amount of time worked by all professionals in an organisation and is used to take into account full-time, part-time work and other type of working arrangements and make them comparable. The respondents indicated the FTEs of staff members working in infectious disease prevention and control with different job functions (epidemiologist, microbiologist, veterinarian, sociologist/anthropologist, sanitarian or environmental specialist, informatics specialist/data manager, statistician/mathematical modeller, communication specialist, infection prevention and control/hospital hygiene specialist, training specialist, health economist, food safety specialist). For staff members with overlapping functions, their FTEs were possibly indicated in the different categories.

However, due to the scattered data below, an aggregated summary is provided of the estimated total FTEs by country per million population at national level (Figure 3) and at sub-national level (Figure 4).

Figure 3. Infectious disease national workforce capacity FTEs (per million population) by country aggregated for all job functions included in the survey, EU/EEA, ECDC survey, 2024



Figure 4. Infectious disease sub-national workforce capacity FTEs (per million population) by country aggregated for all job functions included in the survey, EU/EEA, ECDC survey, 2024



Map produced on: 7 Oct 2024. Administrative boundaries: 🕃 EuroGeographics 🗄 UN-FAO 🗄 Turkstat. The boundaries and names shown on this map do not imply official endorsement or acceptance by the European Unior

Additional staffing during the COVID-19

In all 21 respondent countries, the public health workforce on infectious diseases increased during the COVID-19 pandemic. However, 13 countries reported having retained none of the additional staff after the end of the pandemic.

The number of additional FTEs employed during the pandemic varied from a low number such as less than 10 in three countries to more than 300 in one country.

As an example, one country reported that additional staff were hired temporarily for roles in contact tracing, isolation centres, borders and community testing, and laboratory. Furthermore, a contract with a private laboratory for analysis and sequencing of tests was established. In another country, additional staff was hired for surveillance, contact tracing and outbreak investigation. In other countries, public health professionals employed in other institutions, trainees and volunteers from other sectors were allocated to the emergency response.

Whilst many countries reported that the increase in staffing during COVID-19 was only temporary, others managed to retain some staff beyond the end of the pandemic. For example, a country reported that additional staff was retained for infectious disease surveillance, knowledge management/transfer, and international contact tracing. In other countries, staff was retained for microbiology, information technology, communication and management or for preparedness, response and research. Usually, the number of FTEs retained was less than 50% of the number hired.

Recruitment

Most countries (11/21) have generally been able to recruit staff to work at the national level in infectious disease prevention and control during the last three years. Eight countries reported that they have not been able to recruit staff and two were undecided about this question. The three main problems related to recruitment at the national level are an insufficient number of qualified applicants, hiring freezes due to insufficient funding, and inadequate salary scale (see Figure 5). Among other problems for recruitment, the respondents indicated the lack of modern technology and insufficient funding of public health in general which makes the workplace not attractive for young professionals, the lack of targeted epidemiology training which forces newly recruited professionals to learn on the job, and the lack of long-lasting government funding for public health job positions. On the positive side, a career in this area was seen as providing good job security.





Of the 21 countries replying to the survey, 17 answered the question on recruitment at the sub-national level. Seven indicated that they have generally been able to recruit staff working at the sub-national level in infectious disease prevention and control during the last three years; seven countries indicated that they have not been able to recruit staff; and three reported being undecided. Similar to the national level, the main problems, reported by 14 countries, related to recruitment at sub-national level are inadequate salary scale and insufficient number of qualified applicants, but also poorly perceived professional status (see Figure 6). Among other problems for recruitment, the respondents indicated the lack of targeted epidemiology training which forces newly recruited professionals to learn on the job, the lack of positions at the sub-national level where public health tasks are taken up by primary care centres and hospitals, and the lengthy administrative process for recruitment.

Figure 6. Problems in recruitment at the sub-national level, ECDC survey, 2024



Retention

Some countries (10/21) have generally been able to retain the appropriate number of staff working at the national level in infectious disease prevention and control during the last three years. Six countries reported that they have not been able to retain the appropriate number of staff and another five were undecided about the question. The three main problems related to retention at the national level are high work burden and/or burnout, an ageing workforce leading to retirement, and inadequate salary scale (see Figure 7).

Figure 7. Problems in retention at the national level, ECDC survey, 2024



Of the 21 countries replying to the survey, 17 answered the question on retention at the sub-national level. Six of them indicated that they have generally been able to retain staff working at the sub-national level in infectious disease prevention and control during the last three years; five countries indicated that have not been able to retain staff; and six reported being undecided about the question. The three main problems indicated by 12 countries related to retention at sub-national level are, similar to the national level, an aging workforce leading to retirement, a high work burden and/or burnout, and inadequate salary scale (see Figure 8).

Figure 8. Problems in retention at sub-national level, ECDC survey, 2024



Existence of advanced level training programmes and professional development

Various training programmes leading to specialisation (e.g. at the Masters level, or on field epidemiology and microbiology EPIET/EUPHEM) in applied infectious disease epidemiology and in public health microbiology are offered in 15 countries, in infection prevention and control/hospital hygiene in 11 countries, and training programmes in other areas in seven countries (Figure 9). Of the latter seven countries, only four specified that these programmes are in medical microbiology and community health medicine, in epidemiology for nurses and midwives, in public health in general, or that they are advanced training programmes.

The approximate number of trainees entering the programme varies annually from one to 36 for applied infectious disease epidemiology, from one to 10 for public health microbiology, and from one to 50 in infection prevention and control/hospital hygiene.

Moreover, four countries offer national 'learning-by-doing' field epidemiology training programmes lasting between three months to two years.

Figure 9. Training programmes leading to specialisation in the area of public health for infectious disease prevention and control, ECDC Survey, 2024



Figure 10. EU/EEA countries offering training programmes leading to specialisation in public health for infectious disease prevention and control, ECDC Survey, 2024



Since the EPIET/EUPHEM programme is coordinated by ECDC, data on all countries offering the programme are available. In addition to the countries replying to the survey, eight more EU/EEA countries currently host fellows from Cohort 2022 and Cohort 2023 of the programme.

The survey also included a question on continuous professional development, defined as the maintenance and enhancement of the knowledge, expertise and competence of professionals throughout their careers, or in other words, professionals learning new skills and knowledge that they can apply to further success in their field.

For most countries, continuous professional development is required and actively monitored (e.g. there is time allocated for it, is it included in the annual development plan and in the annual performance review, etc.) in the area of applied infectious disease epidemiology (12 countries), public health microbiology (12 countries) and in infection prevention and control/hospital hygiene (12 countries), see Figure 11.

In some countries, continuous professional development is mandatory for medical doctors, but it is present also for other professionals such as nurses and public health officials. Post-graduate education varies and includes practical work on the job, training modules, participation in conferences and webinars, and work on research and publications. Examples of course topics are outbreak investigation and surveillance of infectious disease. ECDC courses were also mentioned as training opportunities for professionals in the countries.





Standards

In seven countries there is a regular census/registry of the public health workforce, and in four of these there is also a regular census/registry of the workforce in infectious disease prevention and control. One country has a regular census/registry of workforce in infectious disease prevention and control only.

In one country, different registries record microbiology and laboratory personnel, medical doctors, nurses and midwives; in another country the registry keeps record of public health medical doctors, and finally in other countries the registry is about healthcare workers in general.

4 Conclusions

The 2024 ECDC workforce capacity survey follows on from previous similar surveys conducted in 2015, 2018, and 2021 but with a significant difference in that those surveys had a joint focus on training needs analysis. As a result, the survey questions on workforce capacity were extensively reviewed and, in some cases, modified making direct comparisons between this survey and previous surveys difficult. However, questions on recruitment and retention, and on the census/registry were unaltered from the 2018 and 2021 surveys, enabling some comparison. One significant addition to the 2024 questionnaire is that respondents were asked to describe any changes to the workforce during and after the COVID-19 pandemic.

Of the 21 respondent countries, nine confirmed they had a strategic document, mechanism, or legal instrument for public health workforce planning with an additional four planning to develop a strategy, which can be considered an important first step in workforce planning. Many countries expressed difficulty in answering the survey or accurately describing what constituted the infectious disease workforce for a variety of the following reasons. Neither a regular census nor a registry of people working in infectious disease prevention and control was present in all countries, even when a registry was in place the ability to distinguish the infectious disease workforce from other similar roles was not always possible. Not having these tools available made understanding and describing the overall public health infectious disease workforce very difficult.

As the quantification of the infectious disease workforce and the public health workforce in general is challenging, a good first step for all countries that don't currently do this should be setting up a regular census and registry, possibly indicating the job type, to assess the current workforce capacity situation. A further improvement would be to have a more harmonised definition of job type across countries. This would improve data completeness and comparability. Having an official list and records of the number of public health professionals could support the identification of the needs and opportunities for progress in human resources and related capacities. It also aligns well with the recently published WHO operational roadmap on National Workforce Capacity for Essential Public Health Functions [6].

The COVID-19 pandemic redirected funding and human resources to public health in many countries. Several areas were temporarily strengthened as indicated by the feedback captured in this survey. However, since then, funding and resources have declined, as evidenced by the reduction of staff numbers post-COVID-19. A significant consequence of the pandemic is that governments expect an improved response to the next pandemic with additional tasks mandated by new legislation and/or revisions of existing legislation. New initiatives at the international level also abound. All of these activities put further pressure on the public health infectious disease workforce in an attempt to satisfy the additional demands. Some countries have managed to retain additional staff post-pandemic in a variety of roles as evidenced in this report, but this is not consistent, and the roles are spread across various activities.

The problems identified in the current ECDC survey 2024 for recruitment are similar to the problems identified previously such as an insufficient number of qualified applicants (2021 and 2018), inadequate salary scale (2021) and hiring freezes i.e. insufficient funding (2018) [4,5]. The ageing workforce leading to retirement has been identified as a major problem for workforce retention in 2024, 2021 and 2018. The one notable addition in 2024 is that work burden/burnout is more prominent as a reason of poor job retention. The 2024 survey had a significantly higher response rate (70%) compared to the 2021 survey (33%) and to the 2018 survey (29%). This is also significantly higher than many surveys launched by ECDC and whilst the low response rate to the 2021 survey is understandable as it was launched during the height of the COVID-19 pandemic, the 2018 response rate was not impacted by anything specific. One of the principal drivers for refreshing this survey was the significant strain the public health infectious diseases workforce is under as identified by members of ECDC's Advisory Forum and expressed by some colleagues working in Member States. The high response rate could therefore be an indicator of the importance with which this topic needs to be addressed, although other factors cannot be ruled out.

One positive finding from the 2024 survey is that many countries have one or more specialist programmes in training public health infectious disease professionals of the future. Continuous professional development is also present in 12 countries. It is important that both these key activities are maintained in those countries that have them and encouraged in others, to maintain the supply of well-trained staff in the future. This needs continued and renewed support at the national and international level, not only to maintain the current offering but to expand and enhance what is available.

The information presented in this report only provides a partial snapshot of the current status of the EU/EEA public health infectious disease workforce, based on a mixture of qualitative and quantitative data. Continuing to collect comparable data over time to monitor trends to identify needs and opportunities will increase the value of this type of survey. ECDC will continue to conduct such public health workforce capacity surveys on a regular basis. Data completeness would be further improved if registries of public health staff, possibly by job type, were developed, where they do not currently exist. Comparability of data would be improved by more harmonised definitions of the job types constituting a public health workforce.

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