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Antimicrobial Resistance and
Healthcare-Associated Infections

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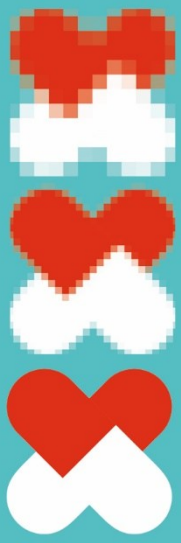
EU-JAMRAI 2 – DL 7.1

Recommendations for changes to ECDC´s technical 2013 document on IPC core competencies



BUILDING A ONE HEALTH WORLD ♥
to reduce Antimicrobial Resistance (AMR)

WP7 | Deliverable D7.1: European Framework for IPC Core Competencies*
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2 ABBREVIATIONS

AI – Artificial intelligence

AMR – Antimicrobial Resistance

AMS – Antimicrobial stewardship

APT – Adaptive Platform Trials

COM-B – Capability, Opportunity, Motivation, Behaviour

EC – European Commission

ECDC – European Centre for Disease Prevention and Control

ER – Emergency Response

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EUCIC – European Committee on Infection Control

ESCMID – European Society of Clinical Microbiology and Infectious Diseases

FAO – Food and Agriculture Organization

HaDEA – European Health and Digital Executive Agency

IPC – Infection Prevention and Control

LTCF – Long term care facility

OECD – Organization for Economic Co-operation and Development

SAS – Self Assessment System

UNEP – United Nations Environment Programme

WHO – World Health Organization

WASH – Water, sanitation and hygiene

WOAH – World Organization for Animal Health

WP – Work Package

3 INTRODUCTION

As a part of EU-JAMRAI 2 the aim is to bridge the gap between international IPC competency guidance for ideal core competencies in IPC staff and what the reality is in national and local contexts in the European region.

The European Commission (EC) has put forward legislation that extends the ECDC mandate. EC intends to develop EU infection prevention and control guidelines in human health in coordination

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with ECDC and in close collaboration with European and national professional societies (EU Regulation 2022), (European Commission 2023).

In the EU-JAMRAI 2 project one sub-task is: *"To provide an EU Framework for IPC to support implementation of core competencies for the IPC team in human health care".*

In March 2013, ECDC published a technical document on IPC core competencies for infection control and hospital hygiene professionals in the European Union (ECDC 2013). The publication from ECDC is the current European reference for IPC core competencies and in this report, we take the liberty of referring to this document as a framework. In September 2020, WHO published their guidance on IPC core competencies: "Core Competencies for infection prevention and control professionals" (WHO 2020).

This report is based on an evaluation of the ECDC technical document from 2013: *"Core competencies for infection control and hospital hygiene professionals in the European Union".* The report proposes changes to the ECDC 2013 framework. The recommendations in the report will be conveyed to ECDC. The approach was discussed with ECDC who applauded the method. The evaluation focuses on how the ECDC technical document is used and whether it sufficiently supports the countries´ efforts in relation to implementation of the domains of IPC core competencies. The evaluation looks at both the changes within the field of IPC since publishing the 2013 ECDC document and which future healthcare challenges and barriers can make it organizationally, educationally and technologically demanding to achieve core competencies for IPC and hospital hygiene professionals.

The suggestions in this report support the implementation of the EU Council recommendations of AMR (European Commission 2023) by enabling that the necessary IPC core competencies are present in the healthcare facilities.

4 PURPOSE

The purpose of this report is to give an overview of the use, reach, and limitations of the 2013 ECDC IPC core competency document based on a questionnaire survey sent to the national institutes being a part of the specific sub-task. This report is a part of the EU-JAMRAI 2 project. The recommended changes are suggestions for what an updated EU framework for IPC to support the achievement of core competencies in the IPC teams in the European Region should contain. The results are to be conveyed to ECDC.

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5 RECOMMENDATIONS FOR EXTENSION OF IPC CORE COMPETENCIES

Based on the results from the questionnaire, advice from the Advisory Board for EU-JAMRAI 2 task 7.1. outputs and discussion with the working group a set of recommendations is made for future extension of IPC core competency guidance. The recommendations may also serve as inspiration for member states when developing national or local guidance on IPC core competencies. The recommendations are grouped in two as follows:

Recommendation group 1 **"Purpose, target group and usage of the document made clearer**":

- Updating the design and layout of the ECDC technical document for 2025 dissemination e.g., modular format and practical checklists.

- To make the content more dynamic for the IPC professionals e.g., by making use of an AI (artificial intelligence) prompt to query into the document or a selection of documents.

- The introduction in the ECDC document could emphasize the importance of collaboration between different care settings in healthcare which is crucial in a coherent healthcare system. In e.g., with a growing outpatient population, it is important for healthcare staff to have direct access to an IPC team or IPC professional.

- It should be emphasized that the document is a framework document that lists the necessary IPC core competencies which should supplement the components of an IPC programme. The ECDC technical document is to be used by the IPC professional/the IPC responsible in the healthcare setting to prioritize depending on the needs in the organization. The desired core competencies are those of the IPC team. Depending on the healthcare setting and the individual job descriptions, the infection prevention and control professional (IPCP)/IPC responsible in the organisation will determine locally the level of IPC core competencies.

- IPC training should be based on core competency self-assessment and an individual development plan regardless of whether one is at junior vs. senior level. Frameworks or tools for the achievement of core competencies should be explicitly recommended to bridge the gap between core competencies listed and how to achieve them. A self-assessment system (SAS) could advantageously be recommended as a companion tool in an updated ECDC IPC core competency framework. Also, linking to core competency

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guidance and tools/training resources from e.g., WHO could be considered to support the further achievement of IPC core competencies in the facilities.

Recommendation group 2 "**Inclusion of extended IPC core competencies**":

There are several well-described challenges in healthcare that can have a direct impact on the level of IPC implementation in the healthcare facilities. Overcoming these challenges may require extended core competencies for the IPC professionals. In this report, by "extended IPC core competencies" are understood; future sub-elements or more substance to the current core competencies described in the ECDC 2013 document. Competencies in the facilities should align with national and hospital IPC actions plans. However, which IPC core competencies are needed should be prioritized locally depending on the needs in the organization. Suggestions for extension of IPC core competencies to consider in future core competency guidance for hygiene professionals are listed below. Also, we suggest elevating the ECDC document to a framework.

- **Health economics and cost-effectiveness** competencies are increasingly important for IPC decisions requiring robust economic assessments.

- **Behavioural - social - and implementation science.** Sustainable IPC effectiveness depends on applying behavioural, social and implementation science, which emphasize understanding human behaviour, fostering a strong safety culture, and driving organizational change. Together with approaches for cultivating a **positive and supportive working environment**, ensuring staff retention, recognizing IPC as a career pathway and supporting psychological resilience to reduce burnout risks.

- **Cross-disciplinary collaboration,** including interprofessional communication, knowledge of care transitions and integrated care models. As care shifts out of hospitals, IPC protocols must adapt to home-based, ambulatory, and telemedicine care.

- **Leadership and advocacy.** IPC professionals must increasingly advocate for system change, funding, and education at institutional and national levels. It is significant to address disparities in IPC training and resources between high- and low-resource settings within the EU to overcome inequity in IPC. It is important to understand the political and administrative commitment on IPC implementation.

- **Digital health.** Competencies in digital surveillance, data analysis, data sharing, infection tracking, electronic health records, telehealth IPC protocols, robot control, proficiency in

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cybersecurity, use of digital training resources and use of AI for outbreak prediction should be IPC core competencies.

- **Molecular epidemiology.** Knowledge of innovative molecular methods and how this can be combined with epidemiology methods allowing for establishing RCT and adaptive platform trials (APTs).

- **Climate change and sustainability:** IPC must play a key role in ensuring that climate-driven changes and green hospital policies are implemented safely, without compromising infection prevention standards. E.g., taking position on reuse of personal protective equipment.

- **AMS integration**: IPC and AMS are interdependent strategies; future guidelines should recommend dual training or collaborative roles.

- **Preparedness and emergency response (ER) teamwork:** Skills within IPC in humanitarian/crisis settings are essential. Pandemics, climate-driven outbreaks, conflicts, and migrations have created needs for rapid IPC deployment under resource constraints.

6 BACKGROUND

Having the right competencies is a prerequisite for sustainable implementation of IPC measures in healthcare to prevent hospital acquired infections and the spread of AMR.

What are competencies? "Competencies are the proven ability to use knowledge, skills, and personal, social, and/or methodological abilities in work or study situations and in professional and personal development" – in other words, competencies are what a professional should know how to do. (ECDC 2013, WHO, 2020). Core competencies are the minimum pre-requisite that professionals within a field should have. Regarding IPC, it is a list of IPC core competencies that medical professionals (medical doctor, nurse or other health-related professional/caregiver) in healthcare in Europe should acquire.

In March 2013, ECDC published an technical document about IPC core competencies for infection control and hospital hygiene professionals in the European Union (ECDC 2013). The purpose of the document was to publish a comprehensive list of core competencies that should be adopted by IPC and hospital hygiene professionals across Europe.

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The ECDC IPC core competencies support:

- Standardization of the competencies for infection control and hospital hygiene professionals in Europe;
- Design and implementation of training courses according to different national contexts while facilitating the mutual recognition of competencies across EU Member States;
- Self-assessment of performance for infection control and hospital hygiene professionals and planning of their professional development;
- Identification of the needs of healthcare organisations regarding professional staff; and
- Evaluation of the performance of infection control and hospital hygiene professionals.

In 2018 WHO published an interim practical manual supporting implementation of the WHO core components of the IPC programmes: "Improving Infection Prevention and Control at the health Facility". This manual offers practical guidance, tips, resources and examples from around the world to support guideline implementation including WHO core component 3: IPC education and training. Also, the manual focuses on integrating and embedding IPC within the day-to-day structure and activities of a health care facility (WHO 2018).

In September 2020, WHO published their guidance on IPC competencies: "Core Competencies for infection prevention and control professionals" (WHO 2020). The purpose of the document is to define who IPC professionals are and identify what core competencies are needed to be qualified in this discipline and at what level, that is at junior and senior level. The goal of this document is to support the achievement of the specific expertise and core competencies of IPC professionals needed at country and facility level. In addition, WHO in 2024 published "Infection prevention and control in-service education and training curriculum" which provides a comprehensive framework for improving IPC practices through targeted in-service education for all health and care workers (WHO 2024). The document was developed using a three-pronged approach: compiling an inventory of available IPC competency documents, expanding the inventory through a questionnaire and reviewing key WHO resources. The curriculum was developed to meet the needs of IPC professionals responsible for developing learning resources and overseeing training within health care organisations and align them closely with the WHO, 2020 core competency document. To meet specific national and local IPC requirements the WHO 2024 document delineates three competency levels within the curricula: foundational, intermediate and advanced.

The ECDC 2013 document and the WHO, 2020 document have the same definition of a core competency, and both define two levels of IPC professionals (junior and senior) and the specific core competencies needed to be qualified within the discipline. Additionally, the WHO, 2020 document provides guidance on the assessment of knowledge and skills.

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Since the publication of the ECDC 2013 core competency document the world has experienced the COVID -19 pandemic which has changed and focused the understanding of infection prevention and control both in hospitals as well as in primary care, home care and in society. At the same time the field of IPC has developed with an increasing focus on digital health, IPC informatics, robot control, data literacy, artificial intelligence, IPC in community settings, cross-disciplinary collaboration, quality improvement and the importance of being knowledgeable about behavioural, social and implementation sciences. These areas will be reflected upon in this report.

Several major European programs for multidisciplinary training exist. The EUCIC IPC Certificate Programme is a two-year tailored educational program covering basic and advanced IPC and HAI topics for the next waves of IPC experts (EUCIC, webpage). ESCMID also offers a two-year Antimicrobial Stewardship Certificate. The modules cover a range of topics and connect groups of diverse professionals with global experts to discuss clinical and scientific advancements in the field of AMS. ECDC organises several training activities including AMS and IPC modules (ESCMID webpage).

7 METHODOLOGY

This report is based on an evaluation of the ECDC technical document from 2013: *"Core competencies for infection control and hospital hygiene professionals in the European Union"* (ECDC 2013). A mixed methods approach was used: i) a questionnaire survey among the EU-JAMRAI 2 work package 7.1. partners collecting quantitative and qualitative data about the implementation of the ECDC 2013 IPC core competency document; ii) reviewing international reports, reviews and single articles describing challenges that could impact implementation of the domains of IPC core competencies; iii) discussions with and comments from the working group and an Advisory Board of IPC experts.

A questionnaire survey was carried out to evaluate and explore if and how EU countries use the ECDC technical document and uncover present needs of those responsible for IPC education and training in the countries. In the first round of the survey, the questionnaire was sent to human partners (EU countries part of WP7 in EU JAMRAI-2) who have shown interest in being part of subtask 7.1.1 (n=17 institutions). A second round of the survey (same questionnaire) was sent out six months later to all partners in sub-task 7.1 with an additional 13 institutions responding, with a total of n=31 institutions.

The institution responding to the questionnaire was asked if the person who answered had the most sufficient and relevant knowledge about how IPC is organized in the institution or in the

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country if the partner was from the national level. Multiple professionals may contribute to answering the questionnaire if it is kept to one response from the participating institution.

Based on the results from the questionnaire several topics have been identified which are reviewed based on the literature and evidence immediately available to us – i.e., not a systematic review of the area. Primarily, by reviewing key international reports from WHO, ECDC, OECD and other UN organisations Single articles or reviews were included if deemed relevant. In the discussion, we provide our analytical comment to the respondent's use of the ECDC document. In addition, we highlight well-known as well as emerging challenges and issues in healthcare that could have an impact on IPC core competencies for the future. The content of the report has been discussed and commented on via working group meetings. The Advisory Board has commented on the pre-final and final version of the report. Suggestions for changes and literature have subsequently been incorporated.

In the report we use the WHO definitions of e.g.: ´competency´, ´core competencies´, ´health worker´, ´IPC professional´, ´primary care´ and ´homecare´.

7.1 Survey structure

The questionnaire was a mix of quantitative and qualitative questions, see the entire questionnaire in **Appendix 1.**

7.2 Analyses

The questionnaire was developed and administered using Microsoft Forms in English. A thematic analysis of the qualitative responses was done for an overall categorisation of topics including an overview of recurring responses.

7.3 Organisation

The working group consisted of Statens Serum Institut, Denmark (lead) and partners from WP7 who shown an interest in this specific human health sub-task 7.1.1. The working group represented different target groups (national public health institutes, hospitals, medical universities, research institutes) responsible for IPC training and education in the healthcare system.

The reference group consisted of all partners who participate in the 7.1.1. sub-task on *"Providing an EU Framework for IPC to support implementation of core competencies for the IPC team in human health care".*

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The Advisory Board consisted of international and European organizations and European experts within the field of IPC. The Advisory Board supports the WP7.1. (IPC in human health) EU-JAMRAI 2 outputs. This approach will streamline engagement and ensure cohesive IPC recommendations for the EU context.

See Acknowledgements for named participants and institutions.

7.4 Limitations and strengths

Limitations:

- The respondents to the questionnaire evaluating the ECDC 2013 document are partners in the EU-JAMRAI 2 project subtask 7.1. on IPC. Most of the partners are from public health institutes besides hospitals, research institutes and laboratories. It might be a weakness that only a part of the partners is practically involved in IPC in their daily work. However, the aim of the evaluation of the ECDC 2013 document is to investigate the national institutions and central organization's use and knowledge of the document.
- It might be considered a weakness that we have not directly emphasized that the responses from each country should cover perspectives from different settings as hospitals, primary care, long-term-care facilities, specialised care, homecare etc.

Strengths:

- It is a strength that the survey is carried out as part of the EU-JAMRAI 2 project where most countries in the European Union + Iceland, Norway and Ukraine participate. The respondents represent 22 countries.
- We have encouraged our respondents which are primarily partners in subtask 7.1. in the EU-JAMRAI 2 project to involve the person in the institution or country having the most sufficient and relevant knowledge about the use of the ECDC 2013 document in the response to the questionnaire. Also, the respondents have been welcomed to include answers from more than one person in the institution or country.
- In the questionnaire the respondents were given rich opportunities to include qualitative answers.
- The Advisory Board for subtask 7.1. outputs in the EU-JAMRAI 2 project have had the possibility to comment on the evaluation report. The Advisory Board consists of international IPC experts and advisers deeply involved in the field of IPC.

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8 RESULTS

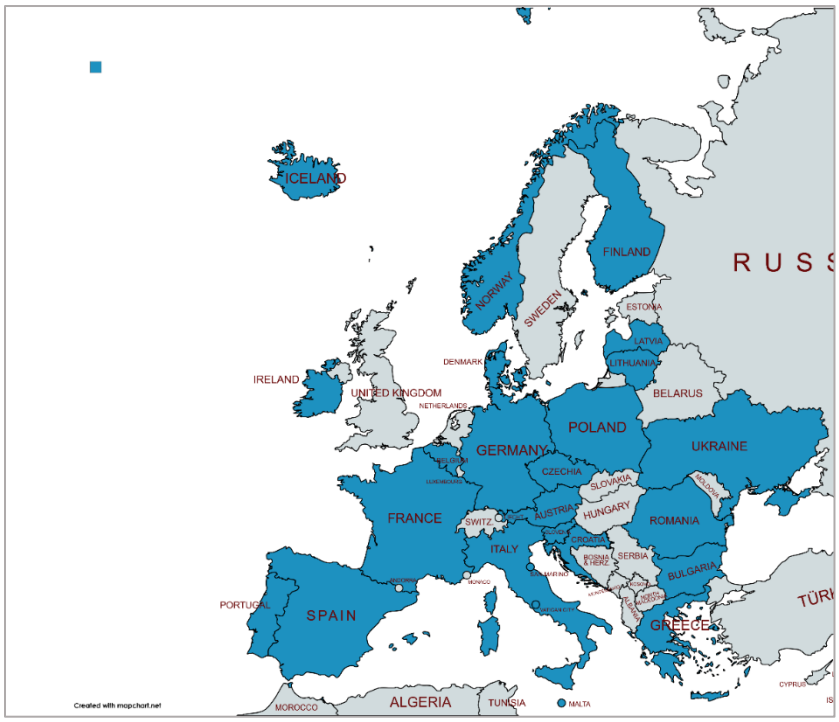
Results from the first and second round of the questionnaire, send to all partners in task 7.1, will be presented as one result in the following section. Discussion and commenting on the respondent's answers is to be found in the Discussion and Recommendation sections.

8.1 Respondents

The following section will describe who the respondents from the questionnaire were.

In total during the first and second round of the questionnaire 31 institutions from 22 countries responded to the questionnaire. See **Figure 1** for which countries are represented in the results. The respondents were mainly from public health institutes, hospitals and medical universities.

Figure 1: Map of countries who responded to questionnaire (Austria, Belgium, Bulgaria, Croatia, Czechia, Denmark, Finland, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovenia, Spain & Ukraine)



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8.2 Use of the ECDC technical document

Respondents were asked if they know of the ECDC technical document "Core competencies for infection control and hospital hygiene professionals in the European Union" from 2013. As seen in **Figure 2** of the 31 respondents 27 (87%) knew of the ECDC technical document on IPC core competencies.

Figure 2: Does your institution have knowledge of the ECDC technical guidance document?

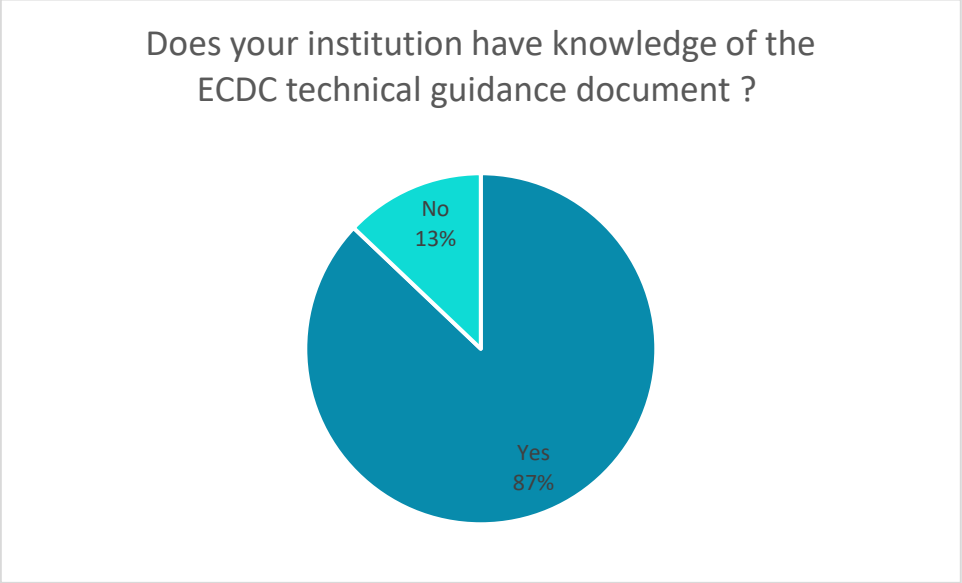
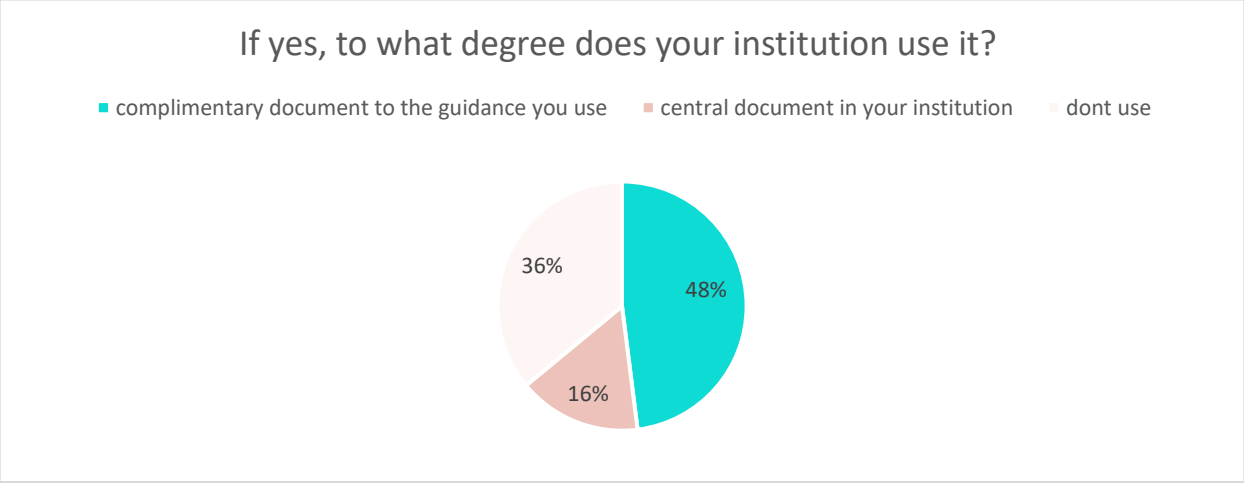


Figure 3:If yes, to what degree does your institution use it?



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Following the respondents were asked, if they knew of the document, to what degree does your institution use it? Although the awareness of the document was large, **Figure 3** shows that 39% (n=9) of the respondents did not use the document, 48% (n=12) used it as a complimentary document and only 16% (n=4) used it as a central document in their institution.

Respondents were also asked if they use the document, for what purpose do they use it? They were given the opportunity to provide qualitative answers. In total 19 (61%) out of 31 responded to this question, with two respondents reiterating that they did not use the document and one response not being an answer. The most common response, by nine respondents, were that the ECDC technical document was used for planning training activities and educational programs. It was used as material for developing training programs at university level and training IPC nurses and other healthcare professionals. Some also mentioned using it when making/updating recommendation and IPC programs, both at a national level and facility level.

Following the questions about the implementation of the ECDC technical document, respondents were asked if used, what where their opinion about the document, where they could provide qualitative answers as well. In total, 18 (58%) of 31 respondents answered this question, of them two answered they did not use it. Most respondents answered that they find the document good, comprehensive and were happy that there is a list of IPC core competencies from ECDC. At the same time, they also mentioned that the level of difficulty of the document was too high. The language was too technical and while the overall structure was fine it was not properly structured for its purpose and not a very practical document, making it not easy to use. It was also suggested that the document should be updated since it was from 2013, and there have been changes since then.

The following question was what specific changes they wished adding to the document to make it more useable when implementing. Qualitative responses could be added. In total, 18 (58%) of 31 respondents answered this question. In both the prior questions and this one the respondents came up with suggestions to improve the technical document. The respondents made it clear that the institutions want the document to be easier to use in practical settings. The respondents suggested a clearer and simpler structure as the current structure can be seen as difficult to follow when making practical guidelines. A suggestion from respondents was, that it is re-written with a more practical perspective on how to achieve the IPC core competencies and with more simple and concise language. Respondents mentioned there was a gap between the document and the core competencies listed and how to achieve them. It was also suggested that the recommendations were ranked after prioritization by importance of core competencies listed in the document or the minimum requirements. There were many IPC core competencies listed in the document, and even when split into junior and senior level it wasn't clear which core competencies should be prioritized first or are "required". Respondents also suggested that the

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document had a checklist that facilities could use regarding required IPC core competencies to ensure they have what is required. One respondent also mentioned that the document could align with WHO guidance on IPC core competencies that was more focused on everyday use compared to the ECDC technical document.

8.3 Potential IPC core competencies suggested by respondents

The questionnaire did not explicitly ask respondents whether additional IPC core competencies were needed. However, respondents indirectly addressed this issue through providing insights as part of the qualitative responses. Respondents suggested other areas they believed also should be added to the list of core competencies. Since the document has been published, there are more technologies that play a role compared to 12 years ago. The respondents suggested that IPC core competencies are needed within; environmental IPC (covering technical infrastructure, safe hospital environment), reprocessing (cleaning, disinfection), sterilization (decision and policies on it) and sustainability. Respondents also asked that for the future it was considered that the document or other documents considered a wider range of backgrounds/IPC practitioners in healthcare settings.

8.4 What other guidelines are used?

Respondents were asked if they did not use the document, what guidelines do they use instead, as shown in **Figure 4**. In total, 22 (71%) of 31 respondents answered this question. 15 (45%) of 22 respondents answered they used national, local or regional guidelines. 3 (10%) answered they used the 2020 WHO IPC document and 4 (13%) answered they used other international guidelines. Respondents were also asked what other guidelines they use and they referred to national guidelines, WHO guidelines and guidelines from the U.S – Centre for Disease Control and Prevention (CDC).

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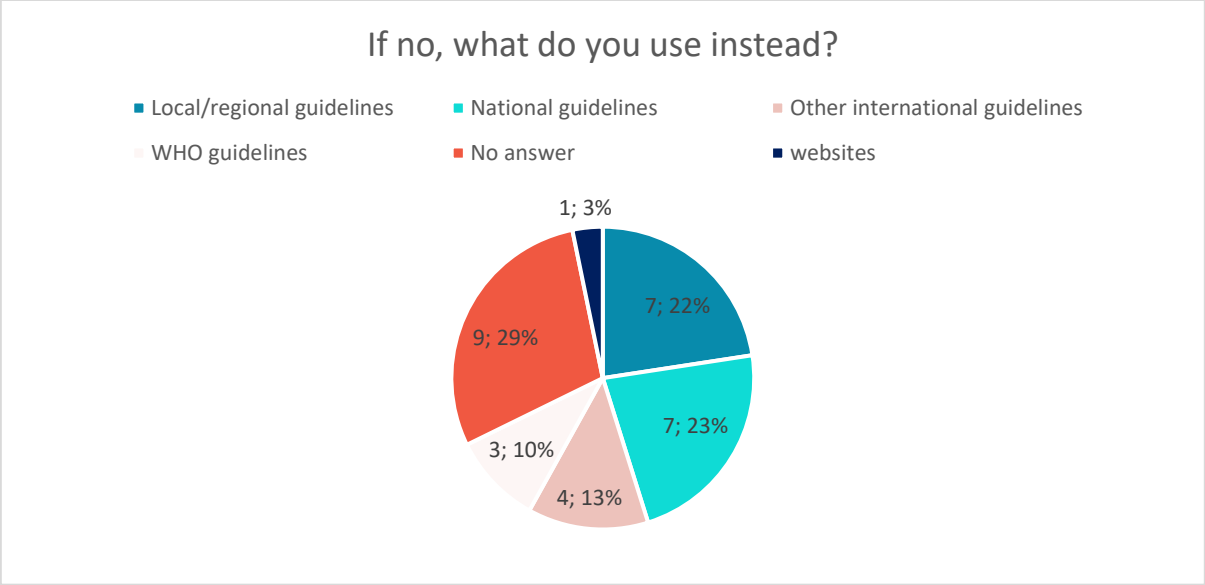
Figure 4: if no, what do you use instead? Nationally made IPC core competencies or other international guidelines, sucha as the WHO guidelines form 2020 (Core competencies for IPC)



8.5 Main challenges and needs

The following section will look at what challenges the respondents think affect healthcare today on an overall perspective, but also regarding IPC and having the necessary core competencies.

In the questionnaire the respondents were asked what challenges and/or opportunities there are in their country. This was centred around the challenges/themes described in the questionnaire. The challenges/ themes were; lack of workforce in healthcare, specialised care moving out of the hospital to other care settings, legal prerequisite and financial resources (see **Appendix 1**). In total, 27 (87%) of 31 respondents answered this question with qualitative answers. Respondents agreed that these four areas where big challenges all countries are facing, with an emphasis on lack of workforce in healthcare, specialized care moving out of the hospitals and lack of financing. Respondents also mention that with specialised care moving out of hospital-settings, the staff has different background and may lack the needed knowledge in IPC.

The respondents were asked if there are themes/challenges that are important, that are not part of the four above themes. In total, 17 (55%) of 31 respondents answered this question with qualitative answers. Many of the points mentioned by the respondents fit into the four themes/challenges. Also, they underline how these four themes/challenges are intertwined and

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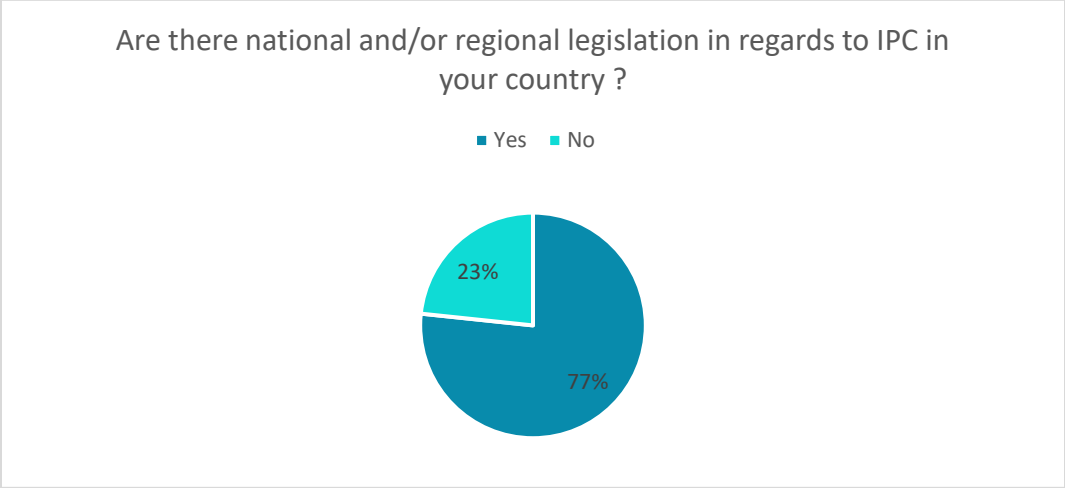
reiterated and how lack of IPC knowledge among healthcare workers is a big challenge. The respondents mentioned other challenges/themes such as digital health. While developments like telemedicine improve access, they present modern challenges for IPC. It is important to integrate digital health in IPC training to ensure infection control in telehealth environments. Similarly, technology and artificial intelligence (AI) and its future application in IPC was mentioned.

Another theme/challenge that was mentioned was cultural differences. While they are not directly IPC related, they are important factors that create different challenges for IPC across EU. Health care worker´s adherence to the guidelines can be affected by workplace culture, personal habits, language and attitudes towards prevention. The respondents mentioned that it is important to take into consideration when making guidelines or documents like the ECDC technical document that they can be used in different cultural norms.

8.6 How IPC is organised across EU

To have a better understanding on how different the field of IPC on a national basis is structured in the EU countries, respondents were asked about how IPC is organised. The purpose was to investigate the overall trend.

Figure 5: Are there national and/or regional legislation in regards to IPC in your country?



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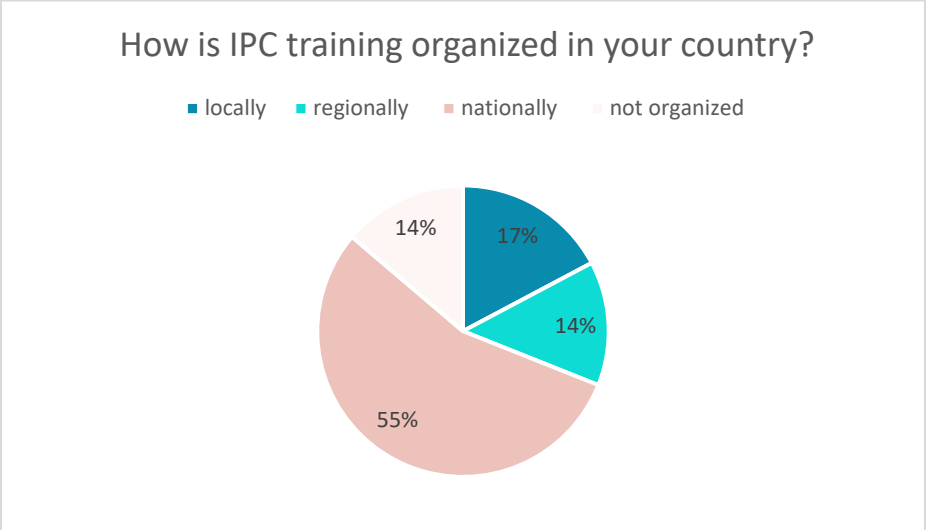
The respondents were asked if there is national and/or regional legislation regarding IPC in their countries (See **Figure 5**). In total 23(77%) of the 30 respondents answered yes to this question, showing there is some legal framework for IPC in some countries. The following questions explored how IPC training is organised in their countries. In total 16(55%) of the institutions answered that IPC training is organized at national level, the rest of the institutions answered regionally 4(14%), locally 5(17%) and not organized 4(14%), **Figure 6.**

Figure 6: How is IPC training organized in your country?



IPC training is organized in many ways, some have IPC training as part of their pre-graduate curriculum (medicine, nursing etc.), for some it is organized as specialized training courses for healthcare workers. The funding for these courses also varies a lot, with some being state funded and other locally funded.

9 DISCUSSION

9.1 Main results of the use of the ECDC document (summary)

In total, 27(87%) of the respondents have knowledge of the ECDC document, 9(36%) of the respondents do not use the document, while 48% use the document as a complimentary to other IPC core competency guidance documents as for instance national/regional/local guidelines (45%), WHO guidelines (10%) and other international guidelines (13%). In total, 16% of the respondents use the ECDC document as a central document in their institution for planning educational and training activities and for updating IPC recommendations. Respondents who use the document find it comprehensive, but its high level and technical design make it less user friendly.

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A highlighted comment from the respondents was that the target group for the technical guidance should cover both IPC professionals and health workers who are not IPC professionals performing IPC tasks in different care settings. This comment was elaborated upon by stating that when specialized care moves out of the hospitals to for instance home care and long-term care facilities the staff often have different backgrounds and might not be IPC professionals. Therefore, the respondents emphasize a need for IPC competency guidance for these groups of health workers who are not IPC professionals.

Another highlighted comment was that cultural aspects create different challenges for IPC in the healthcare facilities and it is important that IPC core competency guidance can be adapted and used in different cultural settings having differing norms. The cultural aspects mentioned includes workplace culture, personal habits, language and attitudes towards prevention.

Lastly, it was mentioned by the respondents that there is an overwhelming amount of IPC core competencies listed in the document, which should be prioritized. While all core competencies are important, respondents highlight a need to know the most important ones or minimum required both at junior and senior level if they must prioritize. It was also mentioned that today healthcare is much more cross-disciplinary, so the document should have that aspect in mind as regards prioritization of core competencies.

9.2 Analytical comment to the use of the ECDC document

Regarding prioritization of core competencies, the definition of "a core competency" is "the knowledge, skills and attitudes required for infection prevention and control" (ECDC 2013), (WHO, 2020). That is the "core" is the "required" for a general IPC professional. Both the ECDC 2013 document and WHO 2020 document describe two levels of core competencies: one for junior and one for senior level. However, in practice one must start somewhere when acquiring the core competencies. Depending on in which healthcare setting one is working in and which competency level one is on, not all IPC core competencies are equally important in the specific setting and at the national or local level tailored pathways could be considered (WHO 2024). In this evaluation report, we use the term `prioritization` about the goal achievement process in local context/setting. The ECDC technical document is to be used by the IPC professional/the IPC responsible in the healthcare setting to prioritize locally, depending on the needs in the organization. The IPC responsible must have the overview of the individual staff and their job description, which IPC core competencies they have and which they need to achieve. The ECDC technical document defines core competencies for IPC professionals in the European Union. It is out of scope of the ECDC document to define IPC competencies for healthcare workers who are not IPC professionals. The principles of IPC are the same irrespective of the setting and it is the IPC professional as the competent healthcare worker, who should give advice about proper IPC

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measures. Healthcare workers who are not IPC professionals working in outpatient settings should have access to an IPC professional or an IPC team (WHO 2024). The achievement of IPC core competencies should be based on competency self-assessment and an individual development plan regardless of competency level or profession (WHO 2020).

As part of the EU-JAMRAI 2 project (EU-JAMRAI 2 website) one sub-task is "to develop a self-assessment system (SAS) which can be used to assess the degree of IPC core competencies integrated at the local and national level based upon IPC competency recommendations from WHO and adjusted to EU needs". As part of this work, a "generic SAS" for the individual junior and senior level healthcare staff (IPC professional/IPC team) is under development and is to be released in 2026 (EU-JAMRAI 2 IPC webpage). Using a SAS in the facilities is an example of quality improvement at facility level. The purpose of the SAS is to ensure that the health care staff in the facilities, via an individual dialogue with the person´s superior, get an overview of the persons competencies vs responsibility, and in collaboration with the superior plan for how to achieve, develop and maintain any missing/needed competencies. The SAS is also an opportunity to reflect upon personal´s professional and personal development, success and motivation, unexploited potential, work-life-balance and to support the individual's continuous development in IPC. Bridging the gap between core competencies listed and how to achieve them, a SAS could eventually be an essential tool in the practical achievement of IPC core competencies in the facilities at the individual and in a step-by-step manner. Lack of work force in healthcare is a well-known challenge. Integrating SAS as a key tool in the organisations' human resource strategy might be a crucial contribution to the organisation's retention strategy.

Most respondents have knowledge of the ECDC document but less than half use the document. Those respondents who use the document find it difficult to use, which might explain why it is not used more as either as a primary or complimentary document.

Cultural aspects were mentioned by the respondents. However, cultural differences do not directly affect the individually defined IPC core competencies which should be similar irrespective of culture. Knowledge of cultural differences is indeed crucial to understand and consider when implementing sustainable IPC in the healthcare facilities (Tacconnelli et al 2019). The COM-B (Capability Opportunity Motivation-Behaviour) model for behaviour change is an example of a behaviour framework which can be used to analyse and understand barriers and enablers when planning an IPC intervention in the facility (UCL UK Center for behaviour Change). Knowledge of "power distance" when implementing IPC is also important to mention as it among other things affects project management, employee behaviour and decision making (Borg 2014). The ability to teach several different cultural professional groups could be a part of the pedagogical competencies of the IPC trainer. Furthermore, the understanding of the effect of political and

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management commitment to IPC implementation could be added as an IPC core competency, including advising on how and when the professional should use this competency.

9.3 Challenges in healthcare that impact IPC core competencies

There are several well-described challenges in healthcare that can have a direct impact on the level of IPC in healthcare facilities. In the survey four well-known themes were mentioned: Lack of workforce in healthcare, specialized care moving out of hospitals, financial challenges and legal prerequisites. The first three were emphasized by the respondents as challenges they are facing in their daily work. Several other challenges were mentioned by the respondents and those related to an update of EU IPC core competency document have been incorporated into the recommendations in this report. **Table 1.** gives an overview of the most significant challenges identified as part of this report and the proposed IPC core competency.

Table 1. The most significant challenges identified together with the proposed extension of core competency

Challenge	**Extended IPC core competency**
Lack of finances	Health economics and cost-effectiveness.
Lack of workforce and lack of workforce retention measures in healthcare	Social science knowledge, supporting psychological resilience and wellbeing, approaches for a positive and supportive working environment, retention measures, recognition of IPC as a career pathway, advanced training and communications skills including using digital training resources.
Burnout in healthcare workforce	Cultivating a positive and supportive working environment, ensuring staff retention, supporting psychological resilience.
Sustainable implementation of IPC	Behavioural and implementation science.
Specialized care moving out of the hospitals leading to more demand for home care and rehabilitation	Cross-disciplinary collaboration including interprofessional communication, knowledge of care transitions and integrated care models.

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Equity in IPC training access depending on different legal frameworks for IPC education and training, funding limitations and language barriers	Further skills within leadership and advocacy.
Data literacy/literacy within new technologies	Knowledge in digital health including knowledge within digital surveillance, data analysis and data sharing, infection tracking, electronic health records, telehealth, robot control, use of digital training resources and use of AI for e.g., outbreak prediction etc.
New developments in epidemiology and microbiology	Knowledge in innovative molecular methods and how this can be combined with epidemiology methods allowing for establishing RCT.
Climate change	Knowledge about sustainability and green hospital policies.
Lack of AMS integration	How to collaborate in the hospitals and other care settings across the AMS and IPC teams.
Preparedness	Knowledge and skills with IPC in humanitarian crisis settings including managing rapid IPC deployment under resource constraints. ER team competencies.

*Using `knowledge` in the table could also mean access to knowledge and it could include skills etc. according to the definition of `competency`

In the following we go through the challenges and considerations regarding which extended core competencies that could be considered in future IPC core competency guidance. *In italics perspectives and conclusions from the working group.*

Financial challenges

The financial resources available for the field of IPC vary across EU. The financial challenges are described in several international reports and will not be further described as part of this report. However, it should be noted that WHO in 2025 published an IPC investment case (WHO 2025) showing that investment in hand hygiene and infection prevention and control minimum

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requirements will require a fraction of the costs deemed necessary to minimize antimicrobial resistance.

To tackle diverse financial challenges IPC professionals must have competencies within health economic and cost-effectiveness competencies. IPC decisions increasingly require robust economic assessments.

Lack of healthcare workforce and workforce burnout

The lack of workforce in healthcare is a multifaceted problem in today's healthcare system. It covers the shortage of healthcare workers due to an intermix of reasons. Globally the shortage of healthcare workers has been identified as one of the most critical constraints to adherence with IPC measures. This factor is not only about the number of healthcare workers but also lack of healthcare workers with the necessary competencies that is the IPC professionals. The shortage increases the burden on existing staff, who often must take on IPC responsibilities without the time or resources for thorough training. As a result, maintaining high standards of infection control becomes much more difficult. *To tackle these challenges, the IPC professional must have advanced competencies within social science, psychological resilience and wellbeing. Also, managers responsible for the IPC programme must prioritize and plan for staff retention measures.*

According to OECD the European health workforce faces a severe crisis (OECD 2024). EU countries had an estimated shortage of approx. 1.2 million doctors, nurses and midwifes in 2022. Key drivers are described to be an ageing population and an ageing health workforce. Also, the interest in a health career among young people is declining with interest in nursing falling in over half of the EU countries. To address the challenge European countries have relied on recruiting foreign-trained health professionals. Improving working conditions and increasing education and training opportunities is vital to boost the supply of health staff. The OECD report points at optimizing skills through the greater use of advanced practice nurses and through greater use of digital technologies and artificial intelligence (AI). Embracing technology and innovation, particularly through digital platforms such as e-learning modules and virtual simulations can help address workforce shortage by providing flexible, scalable IPC education. Expanding digital training resources could make IPC training more accessible to healthcare professionals in all sectors, especially in remote or understaffed care settings. *To tackle these challenges, the IPC professional must have IPC core competencies within cultivating a positive and supportive working environment and advanced teaching and communication skills, and managers responsible for the IPC programme must prioritize digital training resources and a favourable working environment.*

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 (ECDC 2025). In total, 21 countries responded to the survey. Recruitment was not reported as a challenge but retaining the appropriate number of staff is more difficult. A positive side was that a career in these areas was seen as providing good

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job security. In 11 countries a training programme leading to specialization within IPC/hospital hygiene exists. ECDC point out that it is important to maintain the specialist programmes for training in the countries where such exist and to introduce them in other countries to maintain the supply of well-trained staff.

In 2022/2023 ECDC carried out a point of prevalence survey (PPS) of healthcare-associated infections and antimicrobial use in European acute care hospitals (ECDC 2024). In total, 28 EU/EEA countries and three Western Balkan countries participated. In 90% of the hospitals an IPC nurse was present. The median number of IPC nurses full-time equivalents per 250 beds was 1.25, with 9.7% mostly small hospitals not having an IPC nurse. The median number of IPC doctors' full-time equivalents per 250 beds was 0.43, with 17.8% hospitals not reporting any IPC doctor worktime. Regarding IPC education and training, in total 44.2% of the hospitals reported "written information and/or oral instruction and/or e-learning only" and 45.1% "additional interactive training sessions". In general, the PPS confirmed the large variability in the implementation of the core components of IPC. Some of the major recommendations from the findings of the survey regarding staffing and competencies were:

- Increasing IPC nurse staffing levels to ideally one IPC nurse per 100 occupied beds
- Implementation of multimodal strategies for IPC (e.g., education and training)
- Ensuring training, dedicated skilled personnel and time for antimicrobial stewardship consultancies (which also requires skills to understand the IPC/AMS link).

One study reporting data from an online survey including IPC experts in Europe, identified three areas being critical for the IPC compliance rate: number of infection control staff, IPC dedicated educational programmes and the number of clinical staff. In total 482 respondents from 34/44 European countries participated (Tacconelli et al 2019). Increased staffing in a situation with a shortage of training staff was cited the most important need for IPC improvement in Eastern and Southern Europe, while adequate financial resources for IPC and clinical staffing were mentioned in North-western Europe. All respondents selected educational programmes and training of frontline staff as an important area for improvement.

Another study investigating AMS and IPC activities in Europe found that IPC was only acknowledged as a specialty in 32% of countries and that formal national IPC staffing standards for hospital-based personnel was only present in 63% of countries. Also, the background for professionals responsible for IPC varied tremendously (Maraolo et al 2019).

Sustainable implementation of IPC

The WHO Global strategy on IPC advocates for a recognized career pathway for IPC professionals. IPC professionals should be offered a recognized career pathway and empowered

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with a clear mandate and authority, while being held accountable for the implementation and reporting impact. The inclusion of IPC professionals into the structure of hospital executive boards and senior management can help ensure that IPC and WASH are prioritized (WHO 2023).

WHO take initiative on using behavioural sciences for better health and states: "Behavioural and social sciences investigate the cognitive, social, and environmental drivers and barriers that influence health-related behaviours". Behavioural evidence on what influences behaviours at the individual, community, and population level can improve the design of policies and programmes, communications, and products and services aimed at achieving better heath for all" (WHO webpage Behavioural Science for Better Health). ECDC as well has a focus in social and behavioural science within several areas, including IPC (ECDC webpage). Behavioural change is made practical in WHO´s 2022 "Tailoring Antimicrobial Resistance Programme" TAP manual with guidance in designing and planning a targeted behaviour change intervention with COM-B as the theoretical core model (WHO 2022).

From a scoping review of behaviour change theory: "Compliance with IPC practices are often low; and are therefore commonly the focus of improvement interventions. Designing interventions that are based on behaviour change theories may help to improve compliance to practice. Practitioners in IPC should consider the use of these methods to enhance the efficacy of strategies to change healthcare worker behaviour" (Green and Wilson 2022).

In the EUJAMRAI 2 project, one of the key tasks focuses on behavioural change strategies for IPC. Training workshops are delivered to project partners, equipping them to design and implement interventions using the Behaviour Change Wheel, including the COM-B model. Through these workshops, participants gain knowledge of relevant behaviour change theory and receive guidance on data collection and the implementation of behaviourally informed interventions within their local healthcare settings (EU-JAMRAI 2 webpage BHC).

That is the IPC professional must have competencies within behavioural and implementation science to overcome the challenges with not fully implemented IPC programs, IPC compliance issues, sustainable IPC effectiveness and targeted AMR prevention including taking cultural aspects into account.

Specialized care moving out of the hospitals

Specialized healthcare moving out of the hospitals is becoming a challenge for the field of IPC and coordinating IPC activities with other areas and healthcare programs is a key objective (WHO 2023). Patient care is increasingly being moved from hospitals to other care settings e.g., long-term care facilities (LTCF)/rehabilitation and as well into people's homes (Brockhaus et al, 2024). *The increase in primary care requires cross-disciplinary collaboration which need to be taken into consideration. Competencies as interprofessional communication, care transitions (e.g., hospital to LTCF/rehab), and integrated care models are essential.*

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As healthcare shifts from hospitals to outpatient and community care, there is an opportunity to enhance IPC practices across all healthcare programs. Fostering collaboration between hospitals, primary care, and community health services could lead to a more integrated approach to infection control. Additionally, embracing technology and innovation, particularly through digital platforms such as e-learning modules and virtual simulations, can help address workforce shortages by providing flexible, scalable IPC education. Expanding digital training resources could make IPC training more accessible to healthcare professionals in all care settings, especially in remote or understaffed care settings.

LTCF will receive a certain part of the hospital population, which makes cooperation between acute and long-term care even more important. Cross-disciplinary collaboration will become essential when only the sickest patients are left in hospital beds pushing complex care into other settings (Voss 2022).

An integrated healthcare approach with delivery of healthcare in both hospital and community settings and governed by regional health authorities is under development in some EU countries.

Equity in IPC training access

EU countries have different legal frameworks regarding IPC education and training which may results in different levels of IPC knowledge and skills in the European Region. Also, securing financial resources for IPC training and education is a significant challenge in smaller care settings like nursing homes and outpatient facilities. Smaller facilities often struggle to fund continuous staff training and to implement the latest IPC measures including modern IPC technologies. *IPC professionals must increasingly advocate for system change, funding, and education at institutional and national levels. Ensuring strategies for continuous IPC professional development and lifelong learning is vital for maintaining high standards and improving the organisation's readiness to respond infections threats. This requires advanced competencies within leadership and advocacy.* One study mapping current IPC training opportunities for IPC professionals in Europe found that IPC training among doctors and nurses varied greatly across countries with differences in content and type of training as well as in assessment and recognition (Tsioutis et al 2020).

In October 2022, OECD and WHO published a briefing paper on IPC with a focus on G7 countries addressing the burden of infections and antimicrobial resistance (AMR) associated with health care (OECD-WHO 2022). The IPC data in the paper is based on the evidence from several recent reports across healthcare programs carried out by OECD and WHO respectively within the field. Findings in terms of individual minimum IPC requirements (core components) least frequently met, were the ones related to having a national system and schedule of monitoring and evaluation in place to check on the effectiveness of training and education at least annually, and

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having a national IPC curriculum for in-service training of health care workers as key national indicators.

Data literacy/literacy within new technologies

IPC teams need to expand their boundaries since e.g., some of their present problems will be engineered out by cleaning robots, self-disinfecting storage rooms, IPC training in virtual reality and sensor- and video-based ´observations´ of procedures (Voss 2022). Artificial intelligence (AI) is emerging as a key enabling tool. AI encompasses various technologies, including machine learning and deep learning. Acquiring these competencies requires supporting IPC practitioners understanding of AI´s potential and training of the healthcare professional by the ´Centaur´-model.[1] AI in healthcare, especially in IPC units is not a distant vision, but happening now (Mookerjee 2025). "Digital literacy as a new determinant of health" is the title of a scoping review from 2023 which found that individuals with higher digital health literacy scores have better self-management and participation in their own medical decisions, mental and psychological state and quality of life. The study concluded that there still is a long way to go to find effective interventions to reduce the digital health divide (Lopez et al 2023).

An umbrella WHO/Europe review from 2023 shows that "the use of mobile technologies, telemedicine and other digital tools intended to support clinical decisions have improved healthcare workers' performance, skills and competencies" (Borges do Nascimento et al 2023).

Since 2023, WHO has launched a webinar series called "Decoding Data and Digital Health" (WHO webpage Decoding Data and Digital Health). In 2025, WHO conducted a global survey on the use of AI in IPC: "Exploring AI in IPC to understand benefits, effectiveness, challenges, and barriers and facilitators to adopt AI and digital solutions in healthcare settings" (WHO IPC Global Newsletter 2025). One review from 2023 investigated current use and role of robots and smart environments in IPC concluding that it is essential that healthcare workers get trained in these technologies to accomplish the Health 4.0. transformation (Piaggio et al 2023).

As healthcare moves towards digital health, IPC professionals need to achieve extended competencies within digital surveillance, data analysis, using data for detection of outbreaks and planning interventions, data sharing, infection tracking, electronic health records, telehealth, robot control, proficiency in

[1] The 'Centaur' model—a concept where AI serves as an intelligent assistant rather than an independent decision-maker.

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cybersecurity, use of digital training resources and use of artificial intelligence (AI) for e.g., using prompts and outbreak prediction.

New developments in epidemiology and microbiology

There is an increasing number of innovative diagnostic technologies (e.g., digital diagnostics, point-of-care genomics, environmental monitoring) together with constant innovative changes in molecular typing methods. The understanding of this together with knowledge of evolving epidemiological methods are important topics to establish relevant fundaments for knowledge on e.g., transmission dynamics. This could further create fundaments for increasing the level of evidence (e.g., increasing the applying of Randomized Control Trials) for interventions and implementation of IPC.

IPC professionals have a need for continuously updating their knowledge of molecular epidemiology, and how to combine it with new emerging epidemiological methods allowing for establishing RCT. IPC professionals should have training in methodologies for RCTs and adaptive platform trials.

Climate change

One overview article from 2024 about greening IPC, states that IPC activities ensuring safety for the patient can drive substantial waste and pollution e.g., single-use disposable medical devices and use of disposable personal protective equipment. The interdependence between sustainability, climate change and IPC is complex, but there are opportunities for IPC to contribute and collaborate in optimizing the healthcare environmental footprint. Examples of opportunities are: optimizing waste management, individualized risk assessments for MDRO transmission to determine when and how to employ contact - and other transmission-based precautions, advocating for high compliance to hand hygiene, rather than waste generating practices and optimizing patient care combining antimicrobial stewardship (AMS) with IPC, e.g. reducing overdiagnosis and misdiagnosis of *Cl. difficile* (wasted testing supplies, wasted protective equipment and unnecessary antibiotics) (Lee et al 2024).

IPC professionals must have knowledge of and be able to give qualified advice to the "Quality and Sustainability Department" about IPC and the green transition in the healthcare system e.g., taking position on reuse of personal protective equipment and using disinfectants with lower environmental impact. That is competencies within sustainability and green hospital policies without compromising infection prevention standards and patient safety.

Lack of AMS integration

Antimicrobial Stewardship (AMS) and Infection Prevention and Control (IPC) are essential, interdependent strategies in combating antimicrobial resistance (AMR). AMS promotes the

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prudent use of antimicrobials to prevent overuse and misuse, while IPC aims to prevent infections, reducing the need for antimicrobials and limiting the spread of resistant strains. Successful AMS-IPC collaboration depends on strong leadership, harmonized policies, and shared resources to optimize efficiency. Education and training are crucial, ensuring that professionals across human, veterinary, and environmental health understand each other's roles (Davido et al, 2025).

Contributing to reducing antimicrobial resistance is already a domain with specified competencies in the ECDC 2013 document However, it seems that competencies within AMS and IPC integration including having combined committees, joint policies and having a cohesive approach is often lacking. In future IPC core competency guidance these skills could be further developed.

The WHO AMR roadmap on antimicrobial resistance for the European Region highlight the need for a holistic and integrated approach to mitigate the impact of AMR (WHO Roadmap on AMR 2023).

Preparedness

The quadripartite organisation´s One Health Joint Plan of Action (2022-2026) emphasizes the role of the COVID-19 pandemic on our understanding of the interconnectedness between biodiversity, a healthy environment, food systems and our health. Also, the increasing number of multidimensional health, water, energy, food security and biodiversity challenges the world is facing a coherent and coordinated action on all levels is becoming most important (FAO, UNEO, WHO, WOAH 2022). ECDCs early insights from their Foresight Programme lists these and more potential challenges for infectious disease prevention and control (ECDC The Foresight Programme webpage).

Considering the COVID-19 pandemic and the climate changes, the IPC professional´s competencies within handling infectious disease outbreaks, pandemics, climate-driven outbreaks, extreme weather events and humanitarian crisis as conflicts and migration – all emergencies where advanced IPC skills being a part of an ER-team are essential part of an infectious disease preparedness. Crisis settings, where rapid IPC deployment is achieved under resource constraints are essential.

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APPENDIX 1: THE QUESTIONNAIRE

Pre-survey for evaluation of ECDC technical document on IPC core competencies

About the survey: Background info and data security

*Required

Background/aim: As a part of EU-JAMRAI 2 we aim to bridge the gap between international guidelines definitions of the ideal core competencies in IPC staff and what is reality in national and local contexts. Having the right competencies are a prerequisite for sustainable implementation of IPC measures in healthcare to prevent hospital acquired infections and spread of AMR. As part of this we plan to evaluate the ECDC technical document from 2013 "Core competencies for infection control and hospital hygiene professionals in the European Union". The evaluation will focus on how the ECDC technical document is used and whether it sufficiently supports the countries efforts in relation to IPC core competencies. We are looking at both the changes within IPC since the 2013 ECDC document was published and what healthcare challenges and barriers that makes it difficult to implement core competencies for infection control and hospital hygiene professionals. We plan to take those results into account when evaluating the ECDC document and further in the development of a roadmap to help implement the recommendations for core competencies in practice.

Participation Preferably, the person who answers the survey, is the one with most sufficient and relevant knowledge about IPC organizing in the current organization/country. However other professionals may contribute to answer the survey as long as only 1 person is listed as the responsible participant. Participation in this survey is voluntarily and you can at any time withdraw from participation in the survey. If you decide to withdraw from the survey, the answers you have submitted will be deleted.

Who is responsible for the study and how do you contact us:

Statens Serum Institut (SSI) is responsible for the execution of the project. SSI is what is called a data controller. This means that it is SSI that must ensure that the rules on the processing of personal data are complied with and done so with appropriate security. If you have any questions about the project, you are welcome to contact our investigators:

Ulisa Jeyaratnam
Work package 7 lead
Infection Prevention and Control expert (human)
ULIJ@ssi.dk

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ardl@ssi.dk.

They can also answer your questions regarding the processing of personal data. You are always welcome to contact our Department for Data Protection and Information Security at ssidatabeskyttelse@ssi.dk, where you can also ask to be called. You can also write to SSI at the address Artillerivej 5, 2300 Copenhagen S, Attn: Department for Data Protection and Information Security. You also have the option of contacting the Ministry of Health's group joint data protection advisor (DPO), Helle Ginnerup-Nielsen. You can contact the data protection officer in the following ways: By e-mail: databeskyttelse@sum.dk By mail: Holbergsgade 6, 1057 København K, Attn: Data protection officer

The purpose of processing personal data and the legal basis We process your personal data for the following purposes: Evaluation of the status of implementation of the IPC guideline in Europe. The following personal data is processed about you:

- Name
- Country
- Institution
- Position

The processing of personal data will take place on the basis of section 222, paragraph 1 of the Danish health act and article 6, paragraph 1, litra e of the Data Protection Regulation, according to which SSI may process general personal data when the processing is necessary for the performance of a task in the interest of society. No sensitive personal data covered by the prohibition in the data protection regulation's article 9, paragraph 1 is processed about the trial participants. **The information may not later be used for anything other than statistical or scientific purposes Storage of data** Data will be kept on a secure server at SSI. Only the principal investigator and staff members mentioned in section 7.1.1 of this survey will have access to the data. Your answers to the survey question will be kept pseudonymized. No personal information will be passed on to external data controllers. Data will be deleted when the EU-JAMRAI 2 project has been completed by 31 December 2027.

Information

1.Name and Surname *

2.Country *

3.Institution *

4.Role/position in your organisation/institution *

ECDC technical document

The following questions concerns the knowledge and use of the ECDC technical document from 2013 "Core competencies for infection control and hospital hygiene professionals in the European Union" (Core competencies for infection control and hospital hygiene professionals in the European Union (europa.eu)

5**.Does your institution have knowlegde of the ECDC technical guidance document**
yes
No

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6.**If yes, to what degree does your institution use it?**
central document in your institution
complimentary document to the guidance you use
dont use
other

7.**If yes, for what purpose do you use the document?**

8.**If yes, what is your opinion of the document?**
Example: Is it easy to use? Is the structured in a way that makes sense for your use? Is it missing importantcontext that you believe important when discussing IPC core competencies (Please unfold your answer)

9.**What specific changes do you wish to add to the document to make it more useable when implementing?**

10.**If no, what do you use instead? Nationally made IPC core competency guidelines or other international guidelines, such as the WHO guideline from 2020 (Core competencies for infection prevention and control professionals (who.int)**
Please specify and add links to any guidelines in the 'specify here' box

National guidelines (specify below)
Local/regional guidelines (specify below)
WHO guidelines (specify below)
Websites (please specify below)

Other international guidelines (please specify below)

11.**Please specify here**

IPC legislation and training

12.**Are there national and/or regional legislation in regards to IPC in your country ?**
Yes
No
Other

13.**How is IPC training organized in your country?**
Nationally
Regionally
Locally
Not organised

14.**please specify (is it part of the curriculums, is there specialized training, is there further IPC training (diploma) etc.)**

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15.**How is IPC training financed?**
Nationally
Locally/regionally
Other

16.**Please specify if IPC training is financed as part of further education (part of the curriculum and how further IPC training (diploma etc.) is financed.**

Challenges and needs

Below a preliminary list of factors which have an impact on ensuring IPC core competencies in the institution. These themes are chosen based on the current knowledge made available from reports, surveys, etc. This is not a finalized list.

1. **Lack of workforce in healthcare**. This is a multifaceted problem in todays healthcare system. It covers the shortage of healthcare workers due to an intermix of reasons. Globally the shortage of healthcare workers has been identified as one of the most critical constraints to healthcare. This factor is not only about the number of healthcare workers, but also lack of healthcare workers with the needed competencies.

2. **Specialized care moving out of the hospital to other sectors**. Healthcare is moving more and more away from specialized care being received only at hospitals. Increasingly the patient care is being moved to other sectors of healthcare and as well into people's homes. This increase in outpatient care requires further competencies among the staff which needs to be taken into consideration in regards of the expected core competencies among outpatient staff. Taking into consideration this document is expected to be used by healthcare facilities it should be able to be used in primary-, secondary and tertiary care sector, as well as cross-sectoral.

3. **Legal prerequisite**. EU countries have different legal prerequisites regarding IPC which results in different conditions for IPC education in the EU due to the legal prerequisite.

4. **Financial resources**. The financial resources the countries/institutions have available to IPC and developing IPC organization(s).

17.**Following the themes and explanation above, what challenges and/or opportunities are there in your country?**

18. **Are there themes/challenges you believe important that is not mentioned in the four themes above?**

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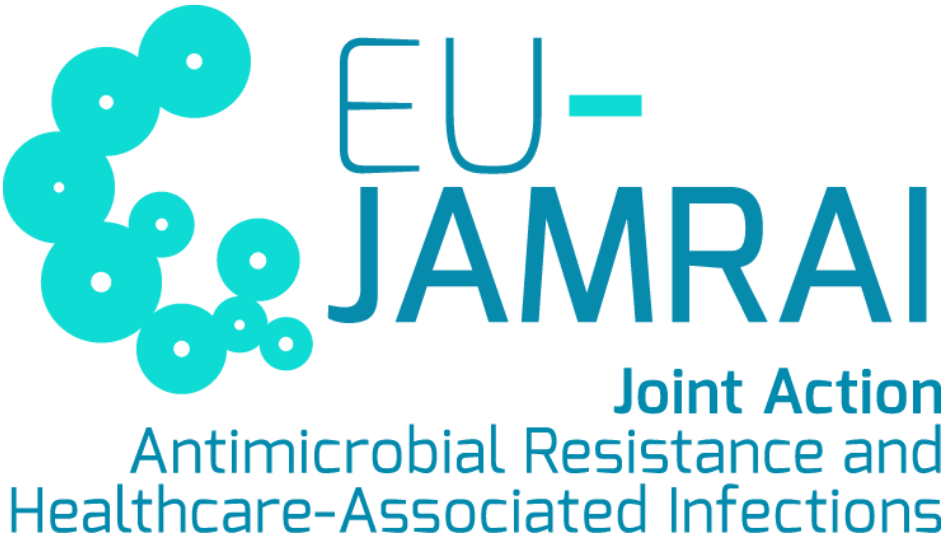

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