

### What is a core competency?

The EU-JAMRAI uses the [ECDC's definition](#) of a core competency referring to “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” that should be a minimum pre-requisite. These core competencies should guide the design of undergraduate and postgraduate training of these professionals.

### Objectives

Antimicrobial resistance (AMR) is a major public health issue that impacts all health professionals' practices on a daily basis. As overuse and misuse of antibiotics is a key driver of AMR, antimicrobial stewardship programmes, which have been defined by WHO<sup>1</sup>, as a “coherent set of actions which promote the responsible use of antimicrobials”, should be implemented in human health. The same is true for Infection Prevention and Control programmes.

The training of nurses on infection prevention and control (IPC) and antimicrobial stewardship (AMS) thus constitutes a major element to act on in order to prevent Healthcare-Associated Infections (HAI) and AMR. However, training and curricula are very heterogeneous across Europe. Therefore, designing a list of common core competencies, which could be used as a reference for the undergraduate and postgraduate training of nurses across Europe, would be very useful. Such a list would provide a standardisation of the competencies at the European level that could be beneficial on several aspects, such as a better recognition of nurses' training among European countries, an improvement of best practices' exchange, among others.

### Core competencies' unmet needs and examples of existing core competencies

The 2019 Council Conclusions on the next steps towards making the EU a best practice region in combatting antimicrobial resistance encourage the development of common guidelines on IPC and AMS that should be included in the training of the healthcare workforce<sup>2</sup>. In 2013, the ECDC developed [a list](#) of core competencies for hospital-based IPC professionals in the European Union according to their career level (introductory or expert levels). Classified into four areas (programme management, quality improvement, surveillance and investigation of HAIs, infection control activities) that are divided into 16 domains gathering detailed core competencies, this list provides a common reference aiming to create a European training strategy for IPC teams (see annex 1).

However, to the best of our knowledge, such core competencies are not available in Europe for all the other healthcare professionals. Indeed, the EU-JAMRAI highlighted [gaps](#) in the training of healthcare professionals on IPC. Thus, it was recommended that “an initial and continuous training on IPC should be in place for all health care professionals involved in patient care” at the national and the facility levels. The training strategy should target all professionals involved in health service delivery, including hospital administrators, clinical department supervisors and health care workers directly involved in patient care. In addition, training opportunities on IPC should also be available to other professionals who support health service delivery (e.g. cleaners, auxiliary service staff).

In 2018, WHO published [a competency framework](#) for health workers' education and training on antimicrobial resistance based on the mapping of training and education resources around the world and then refined by a WHO expert consultation group. Classified into four domains and targeting four categories of health workers, this framework provides a reference tool that can be used all over the world.

Regarding AMS, the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) generic competencies working group developed [a consensus-based set of generic competencies](#) focusing on antimicrobial prescribing and stewardship for European prescribers through a structured consensus procedure (RAND-modified Delphi procedure with two questionnaire rounds, a meeting in between, and a final review) (see annex 2). No such international work has been done for non-prescribers, to the best of our knowledge.

### How could ESNO develop such core competencies for nurses?

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<sup>1</sup> WHO (2019). Antimicrobial stewardship programmes in health-care facilities in low and middle income countries - a WHO practical toolkit, <https://www.who.int/publications/i/item/9789241515481>.

<sup>2</sup> Council Conclusions on the next steps towards making the EU a best practice region in combatting antimicrobial resistance, 14 June 2019, n°31, 36, 37, <https://data.consilium.europa.eu/doc/document/ST-9765-2019-INIT/en/pdf>

Based on ESNO's experience, partnerships and network, ESNO would be ideally placed (in collaboration with relevant partners) to lead a work to design a list of core competencies on AMS and IPC targeting the training of nurses.

These core competencies, based on the example described above, could be identified by ESNO thanks to the following methodology:

- In collaboration with its partners, ESNO uses the EU-JAMRAI's outputs and prepares a review of the existing published and grey literature and existing guidance / recommendations to assess the training needs for nurses in Europe.
- Then, it will be followed by a structured consensus procedure involving all the EU Member States in order to list these core competencies on AMS and IPC as a frame of reference for the training of nurses across the European Union.

## Annex – Examples of core competencies on AMS and IPC

**Annex 1:** European Centre for Disease Prevention and Control. Core competencies for infection control and hospital hygiene professionals in the European Union. Stockholm: ECDC; 2013

<https://www.ecdc.europa.eu/sites/default/files/media/en/publications/Publications/infection-control-core-competencies.pdf>

**Table A2. Areas, domains and competencies in infection control and hospital hygiene for junior and senior specialists (introductory and expert levels)**

### Area 1. Programme management

Domain	Competencies for a junior specialist – introductory level	Competencies for a senior specialist – expert level
<b>Elaborating and advocating an infection control programme</b>	<ul style="list-style-type: none"> <li>Advocate the importance of healthcare-associated infections (HAIs) as a crucial element of patient safety and highlight their potential human, economic and reputational burden to the decision-makers of the healthcare organisation</li> <li>Contribute to the development of the infection control programme</li> <li>Contribute in involving identified stakeholders in the infection control programme</li> <li>Identify needs for the protection of healthcare workers in their respective healthcare organisations</li> <li>Take a lead role as appropriate for the healthcare organisation to formulate, propose and liaise with other key players to produce appropriate indicators in relation to the control of healthcare-associated infections, taking into account the official policy on internal transfer of information and public health disclosure of information</li> <li>Foster and promote team work in infection control</li> <li>Lead the team to ensure that it has shared vision and works cohesively</li> </ul>	<ul style="list-style-type: none"> <li>Advocate the importance of healthcare-associated infections (HAIs) as a crucial element of patient safety and highlight their potential human, economic and reputational burden to the decision-makers of the healthcare organisation</li> <li>Prepare and present an outline of an infection control programme focusing on key elements: mission statement, description of objectives and indicators, presentation of action plan, including outcomes, success measures, rules for the functioning of the infection control committee, operating manual, links to other patient safety and healthcare organisation programmes</li> <li>Identify and communicate the requirements of an infection control programme to relevant internal and external stakeholders (including patient advocates) and develop strategies for involving them in the infection control programme</li> <li>Establish priorities for infection control according to the characteristics of an individual healthcare organisation, including the safety of healthcare workers internal transfer of information and public disclosure of information, respecting ethical standards for patient protection</li> <li>Take a lead role as appropriate for the healthcare organisation to formulate, propose and liaise with other key players to produce appropriate indicators in relation to the control of healthcare-associated infections, taking into account the official policy on internal transfer of information and public health disclosure of information</li> <li>Foster and promote team work in infection control</li> <li>Lead the team to ensure that it has shared vision and works cohesively</li> </ul>
<b>Management of an infection control programme, work plan and projects</b>	<ul style="list-style-type: none"> <li>Contribute to the management of an infection control programme or other programmes on adverse events (from conception to impact evaluation, including budgeting) according to EU, national or local regulations and healthcare organisation policies</li> <li>Participate in the formulation of an organisational structure for controlling HAIs</li> <li>Collate data regarding the infrastructure in</li> </ul>	<ul style="list-style-type: none"> <li>Manage an infection control programme or other programmes on adverse events (from conception to impact evaluation, including budgeting) according to EU, national or local regulations and healthcare organisation policies</li> <li>Play a key role in formulating an organisational structure for controlling HAIs and antimicrobial resistance (AMR) in the healthcare organisation – while interacting</li> </ul>

**Box 2**

ESCMID generic competencies in antimicrobial prescribing and stewardship.

**Section 1: core concepts in microbiology, pathogenesis and diagnosing infections**

- 1 Every independent prescriber must understand:
  - 1.1 The nature and classification of microorganisms that commonly cause infections in humans
  - 1.2 The common microbiological aetiology of human infections, and the ways in which microorganisms are commonly acquired in community and hospital settings
  - 1.3 The differences between colonization (e.g. isolation of bacteria from a venous leg ulcer with no signs of inflammation) and infection
  - 1.4 That an inflammatory response can be due to both infectious and non-infectious causes (e.g. acute pancreatitis)
- 2 Every independent prescriber must know how to:
  - 2.1 Take a thorough history and perform a physical examination to diagnose common infections and to assess their severity
  - 2.2 Use and interpret investigations that can help in informing diagnosis of an infection and in monitoring the response to treatment (e.g. microbiological investigations, biomarkers, point-of-care tests)

**Section 2: antimicrobial prescribing**

- 1 Every independent prescriber must understand:
  - 1.1 How and where to access relevant guidance on antimicrobial prescribing and stewardship
  - 1.2 When not to prescribe antimicrobials (e.g. antibiotics for viral infections, or when there is bacterial colonization)
  - 1.3 That best practices for some infections may not include antimicrobial treatment (e.g. incision and drainage of abscesses, removal of foreign material)
- 2 Every independent prescriber must understand how to select the appropriate antimicrobial, using relevant guidance when possible, as well as the key elements of initiating prescribing an antimicrobial:
  - Obtaining relevant microbiological cultures or relevant tests before commencing treatment
  - The timing of antimicrobial administration in different situations (e.g. as soon as possible for life-threatening infections, less urgently for chronic bone infections)
  - The choice and dose of agent, and the route of administration
  - The duration of treatment, review dates and stop dates
- 3 Every independent prescriber must understand the key elements of continuing and rationalizing antimicrobial therapy:
  - Monitoring antimicrobial levels when indicated, and adjusting doses (e.g. for patients with renal impairment)
  - Changing antibiotics according to microbiology results and clinical condition, ideally to a narrower spectrum (de-escalation), or if needed to a broader spectrum (escalation)
  - Reviewing antibiotic therapy at 48–72 hours and regularly thereafter in hospitalized patients, and in appropriate situations in the community
  - Switching antibiotics from intravenous to oral administration as soon as possible when indicated (according to guidelines)
  - Stopping antimicrobials if there is no evidence of infection based on clinical findings and investigations (e.g. negative microbial cultures, imaging reports)
- 4 Every independent prescriber must understand the need to document the important details of the antimicrobial treatment plan (e.g. agent, dosing, administration route, clinical indication, duration and review dates) in the prescription chart, medical records and transfer notes to other healthcare institutions
- 5 Every independent prescriber must understand:
  - 5.1 That empirical treatment should be guided by local antimicrobial susceptibility patterns
  - 5.2 The clinically relevant spectrum of activity for commonly prescribed antimicrobials
  - 5.3 The basic principles of pharmacokinetics and pharmacodynamics
- 6 When prescribing an antimicrobial, every independent prescriber must know:
  - 6.1 The antimicrobial class that the agent belongs to, and the contraindications to its use
  - 6.2 The name and class of antimicrobial being prescribed, if prescribing by trade name
- 7 Every independent prescriber must understand single prophylactic dosing for surgical and other procedures for which prophylaxis has been shown to be effective, and that additional prophylactic antimicrobial doses can occasionally be needed (e.g. when the duration of the operation/procedure is prolonged)
- 8 Every independent prescriber must know:
  - 8.1 Common antimicrobial and drug/food interactions
  - 8.2 Common side-effects of antimicrobials, including allergy, how to monitor for them, and what to do when they are suspected (e.g. documenting allergic reactions in patient records, reporting side-effects)
- 9 Every independent prescriber must understand any legal requirements for prescribing antimicrobials in their country, and comply with these when prescribing

**Section 3: antimicrobial stewardship**

- 1 Every independent prescriber must understand that:
  - 1.1 Antimicrobials need to be used responsibly to prevent the emergence and spread of antimicrobial resistance
  - 1.2 Optimizing antimicrobial use can limit the common side-effects and collateral damage related to treatment (e.g. their disruptive effects on the normal host flora, which may lead to *Clostridium difficile* infection, super-infection with *Candida* spp.)
  - 1.3 It is important to avoid unnecessary uses of antimicrobials, especially those with a broad spectrum
  - 1.4 Transmission of microorganisms in community and hospital settings can significantly amplify antimicrobial resistance
- 2 Every independent prescriber must understand local stewardship policies based on national (or international where these do not exist) evidence-based guidelines
- 3 Every independent prescriber must understand and engage with any locally or nationally agreed quality measures for assessing antimicrobial prescriptions (e.g. compliance with guidance, adverse events, reviews of antibiotic therapy at 48–72 hours in hospitalized patients)
- 4 Every independent prescriber must know how to communicate with patients and their carers, nurses, pharmacists and other healthcare professionals about:
  - 4.1 When antimicrobials are not needed
  - 4.2 Complying with the duration and frequency of administration of their prescribed antimicrobials
- 5 Every independent prescriber must recognize that it is a duty of care to co-operate with others more expert than oneself, such as the antimicrobial stewardship team, when such expertise is needed