Global strategy on infection prevention and control

World Health Organization

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Foreword

No patient seeking care should be infected while receiving it, just as no health worker should risk infection while caring for their patients. Infection prevention and control is one of the cornerstones of quality of care; the embodiment of the Hippocratic entreaty to "first do no harm".

The COVID-19 pandemic laid bare the profound gaps in infection prevention and control in countries at all income levels, including some of the very richest. Of course, the problem pre-dates the pandemic. More than 150 years after the death of the IPC pioneer Dr Ignaz Semmelweis, hand hygiene remains a struggle in health facilities around the globe. In fact, less than half of the world's health facilities have services for hand hygiene.

The result is immense, in terms of the human suffering resulting from infections in health care settings, as well as the spread of antimicrobial resistance, which is associated with nearly five million deaths per year. Infections acquired in health care settings not only cause avoidable death and disability, they also badly undermine the public's faith in health systems. As we have seen with COVID-19, Ebola virus disease, resistant bacteria and fungi, and other pathogens, a lack of well-implemented infection prevention and control procedures in health care settings can also fan the flames of an outbreak.

This global strategy on infection prevention and control addresses the needs of people, patients, families and health and care workers. It was developed through a consultative process taking in contributions from WHO Member States, health care institutions and researchers, and was adopted by the World Health Assembly (WHA) in May 2023. The strategy provides the business case, strategic directions and effective approaches for establishing or bolstering IPC programmes and plans in the context of health systems strengthening and the implementation of the International Health Regulations (2005).

The strategy lays out three key objectives: to Prevent infections in health care, to Act to ensure IPC programmes are in place and implemented, and to Coordinate IPC activities with other complementary areas (such as antimicrobial resistance, and water, sanitation and hygiene). Eight strategic directions - in line with the key principles articulated in the WHA resolution and WHO recommendations on the core components for infection prevention and control programmes - are proposed to help Member States achieve these three objectives.

I urge all parties to vigorously absorb all the guidance in this strategy and develop and implement IPC improvement plans for the benefit of everyone and move us rapidly and decisively towards a world of safer health care for all.

Dr Tedros Adhanom Ghebreyesus
Director-General, World Health Organization

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Abbreviations

AIDS	acquired immunodeficiency syndrome
AMR	antimicrobial resistance
COVID-19	coronavirus disease 2019
GNI	gross national income
GSIPC	global strategy on infection prevention and control
HAI	health care-associated infection
HIV	human immunodeficiency virus
ILO	International Labour Organization
IPC	infection prevention and control
MERS-CoV	Middle East respiratory syndrome coronavirus
OECD	Organisation for Economic Co-operation and Development
SARS-CoV-2	severe acute respiratory syndrome coronavirus 2
SDG	Sustainable Development Goals
TrACCS	Tripartite AMR Country Self-assessment Survey
UNICEF	United Nations Children's Fund
WASH	water, sanitation and hygiene
WASH-FIT	Water and Sanitation for Health Facilities Improvement Tool
WHO	World Health Organization

Executive summary

Executive summary

Introduction

Over the last decade, the global community has experienced several major outbreaks such as Ebola virus disease and the Middle East respiratory syndrome coronavirus (MERS-CoV) and, more recently, the Sudan virus disease outbreak in Uganda and the coronavirus disease 2019 (COVID-19) pandemic. These have well demonstrated how outbreaks can both spread rapidly through the community and be significantly amplified in health care settings. Notably, these events have exposed the gaps in infection prevention and control (IPC) programmes that exist in all countries, although they are more serious in low- and middle-income countries *(1)*. In addition, the increasing endemic burden of health care-associated infections (HAIs) and antimicrobial resistance (AMR), which harm patients every day across health care systems in all countries and can spread to the community, is a less visible but equally compelling reason to address gaps in IPC *(2)*.

HAIs are among the most frequent adverse events occurring in the context of health service delivery. These infections, many of which are caused by multidrug-resistant organisms, harm patients, visitors and health workers and place a significant burden on health systems, including the associated increased costs.

Having active IPC programmes in place is a proven effective approach to protect patients, health workers and visitors to health care facilities by preventing avoidable infections acquired during care provision, including those caused by antimicrobial-resistant and epidemic- and pandemic-prone pathogens.

Taking all these aspects into consideration and recognizing the gaps in IPC programmes and practices shown by the devastating impact of the COVID-19 pandemic and the increasing burden of infection and AMR associated with health care delivery, a resolution on IPC was presented and adopted by consensus at the Seventy-fifth World Health Assembly (resolution WHA 75.13). The resolution included 13 calls to Member States for improving IPC at the national, subnational and facility levels, in line with the World Health Organization (WHO) recommended core components for IPC programmes. It also requested the Director-General to develop a global strategy on IPC (GSIPC), a global action plan, and a monitoring framework in consultation with Member States and regional economic integration organizations.

The GSIPC was developed under the leadership of the IPC Hub team at WHO headquarters, in close consultation with focal points responsible for IPC across all three levels of the Organization (that is, headquarters, country offices and regional offices) and with the IPC Taskforce, including those responsible for AMR, health emergencies, health work force, patient safety, primary health care, quality of care, water, sanitation and hygiene (WASH), and occupational health and safety, as well as with Member States' national IPC focal points and/or country delegates. Members of the Global IPC Network and civil society, together with other international experts, were also consulted.

The GSIPC is country- and stakeholder-driven, with a focus on IPC in any setting where health care is delivered across the continuum of the health system.

Furthermore, the guiding principles underpinning the GSIPC include a people-centred approach that emphasizes health workers' protection and patient safety and compassion, while also highlighting the central role of IPC in combating AMR and in outbreak preparedness, readiness and response. The GSIPC is based on the principles of clean and safe care as a fundamental component of the right to health, is equity driven, and should ensure accountability and sustainability.

Importantly, IPC interventions are known to be effective and highly cost-effective and a "best buy" approach to reducing infections and AMR in health care that provides a high return on investment.

Furthermore, these interventions have clearly defined implementation strategies with readily available support aids and a proven track record in being scalable and adaptable to local settings, contexts, and conditions.

The GSIPC outlines a clear vision and objectives and identifies a target audience including a wide range of key players for strategy adoption and implementation.

It also provides Member States with strategic directions to achieve measurable improvements and to substantially reduce the ongoing risk of HAIs (including those that exhibit AMR) and limit infectious disease outbreaks by 2030. Importantly, preventing infections contributes to improving other critical health outcomes addressed by the Sustainable Development Goals, with potential huge benefits in reducing health costs and providing safer health care.

Vision of the GSIPC

The **vision** proposed for the GSIPC is:

> By 2030, everyone accessing or providing health care is safe from associated infections.

Target audience

The following target audiences were identified for the GSIPC, with an involvement at global, national, sub-national and health care facility levels across both the public and private sectors:

1. Leaders – political and government and health care leaders;
2. IPC and other focal points/leaders;
3. All health and care workers;
4. Educational institutions and professional and scientific organizations, societies, unions;
5. General population and the community;
6. Key stakeholders and donors;
7. Media and communication professionals and bodies.

GSIPC objectives

The GSIPC has three key objectives, which can be summarized as:

Prevent, Act, Coordinate

1. Prevent infection in health care

To substantially improve health care quality and safety by reducing the frequency of infection and AMR acquired during health care delivery, and their burden on those who access and provide health care, including in the context of health emergencies.

2. Act to ensure IPC programmes are in place and implemented

To provide strategic directions and catalyze political commitment to enable active IPC programmes for HAI and AMR reduction and prevention and control of outbreaks, through:

- leadership engagement and stakeholder support,
- financing and legal frameworks, and
- according to the WHO IPC core components.

3. Coordinate IPC activities with other areas and sectors and vice-versa

To transform health care systems and service delivery in a way that IPC is implemented in clinical practice and within an enabling environment through WASH, and coordinating with public health emergencies, universal health coverage, patient safety, quality of care, AMR (in particular, antimicrobial stewardship and monitoring, and AMR surveillance), occupational health, health promotion, immunization, biosafety and biosecurity, and other public health-related programmes, and vice-versa.

Eight strategic directions

Eight strategic directions provide the overall guiding framework for country actions to implement the GSIPC.

1. Political commitment and policies

a. Demonstrate visible leadership engagement and action-oriented political commitment, such that:

   i. policies are in place that require the scale-up and enforcement of the core components for IPC programmes, including through legal and accountability frameworks, regulations and accreditation systems; and

   ii. resources are mobilized for the sustained financing of IPC programmes and based on the local situation analysis.

2. Active IPC programmes

a. Establish active and sustainable IPC programmes supported by an enabling environment;

b. ensure that at least the minimum requirements for IPC programmes are in place in all countries at all levels of the health system, including in primary and long-term care, and that progress is made towards meeting all requirements of the IPC core components' recommendations;

c. implement IPC interventions using behavioural change and multimodal strategies, including in the context of implementing national action plans on AMR; and

d. strengthen and maintain IPC in the context of preparedness, operational readiness and response for public health emergencies (such as, disease outbreaks, conflict and fragile settings, disasters and humanitarian crises) at the national and health facility levels.

3. IPC integration and coordination

a. Consistently coordinate IPC with other health priorities and programmes, including those on: AMR (in particular, antimicrobial stewardship and monitoring, and AMR surveillance, including through the 'One Health' approach); patient safety and quality of care; WASH; occupational health and safety; health emergencies; biosafety and biosecurity; and other programmes (including immunization, human immunodeficiency virus [HIV], tuberculosis, malaria, hepatitis, and maternal, newborn and child health); and

b. integrate IPC measures into patient pathways and clinical care delivery at the point of care across health services at all health system levels, including primary care, and with adaptation for fragile and low-resource settings.

4. IPC knowledge of health and care workers and career pathways for IPC professionals

a. Develop IPC curricula (for pre- and postgraduate and in-service training) for health and care workers and link to other associated areas (for example, water safety and occupational health and safety in health care facilities);

b. provide IPC education across the entire health education system (pre- and postgraduate training);

c. ensure in-service training for all health and care workers on IPC standards and practices, and specific training for IPC professionals, according to WHO-recommended competencies;

d. ensure a recognized career pathway for IPC professionals and job opportunities empowering their role; and

e. develop approaches and resources for the education and orientation of patients and families.

5. Data for action

a. Establish and/or better utilize systems for regular data collection (including high-quality laboratory data) and feedback on IPC and WASH indicators (particularly for hand hygiene) and HAI surveillance (including for epidemic/pandemic-prone diseases and health and care workers' infections);

b. ensure training and expertise for data collection, analysis, interpretation and quality control;

c. ensure integration of IPC and HAI data into national health information and accreditation systems, and provide regular feedback on key IPC performance indicators to relevant audiences and stakeholders;

d. establish mechanisms for accountability based on IPC and HAI data;

e. use these data for action in a spirit of safety and quality improvement and not for punishment or penalties; and

f. develop, implement, measure, and regularly update locally tailored and actionable improvement plans.

6. Advocacy and communications

a. Organize and implement campaigns to promote and raise awareness of IPC themes and targets and support social mobilization, including through patient and community engagement;

b. provide tailored and consistent communications from authoritative sources, based on science and adapted for different audiences; and

c. provide innovative advocacy approaches through a range of communication channels.

7. Research and development

a. Identify research gaps for IPC;

b. fund and facilitate good quality research, answering key questions and developing innovations in IPC;

c. include a focus on local settings, with adaptation of IPC for fragile countries and/or countries with limited resources; and

d. support data sharing, collaborative research and research capacity-building.

8. Collaboration and stakeholders' support

a. Strengthen collaboration and alignment among partners and stakeholders to synergistically support countries to improve IPC according to their priorities and plans; and

b. support networking and partnerships between facilities, institutions and countries and internationally to share IPC experiences and expertise, in particular by fostering South-South and North-South cooperation.

Conclusions

Implementation of the GSIPC will require prioritization of IPC and domestic financial resource mobilization, as well as strong donor support, especially in low-resource settings, to ensure sustainability.

The GSIPC will be associated with a suggested monitoring and evaluation framework that will aim to be aligned with the monitoring matrix of other relevant existing WHO programmes to avoid duplication of reporting. Where evaluation gaps are identified, new outcome metrics will be developed following detailed consultations with relevant IPC experts, stakeholders and Member States' focal points.

In summary, the GSIPC is intended to be an aspirational, strategic and programmatic initiative that will be complemented by, and used in conjunction with, an associated action plan and monitoring framework that will be developed in 2023–2024.

1. Introduction

1. Introduction

Why we need a global strategy on infection prevention and control (GSIPC)

Over the last decade, the global community has experienced several major outbreaks such as Ebola virus disease and the Middle East respiratory syndrome coronavirus (MERS-CoV) and, more recently, the Sudan virus disease outbreak in Uganda and the coronavirus disease 2019 (COVID-19) pandemic. These have well demonstrated how outbreaks can both spread rapidly through the community and be significantly amplified in health care settings. Notably, these events have exposed the gaps in infection prevention and control (IPC) programmes that exist in all countries, regardless of their level of development, although they have a more serious impact in low- and middle-income countries *(1)*. In addition, the continuous and increasing endemic burden of health care-associated infections (HAIs) and antimicrobial resistance (AMR), which harm patients every day across health care systems worldwide and can spread to the community, is a less visible but equally compelling reason to address gaps in IPC. Finally, gaps in the provision of safe water, sanitation, hygiene (WASH), and cleaning and waste services in health care facilities, including the threats posed by climate change globally, require health actors to invest in such services in order to strengthen all aspects of IPC *(2)*.

HAIs are among the most frequent adverse events occurring in the context of health service delivery. These infections, many of which are caused by multidrug-resistant organisms, harm patients, visitors and health workers and place a significant burden on health systems, including the associated increased costs.

Having active IPC programmes in place is a proven effective approach to protect patients, health and care workers and visitors to health care facilities by preventing avoidable infections acquired during the provision of health services, including those caused by antimicrobial-resistant and epidemic- and pandemic-prone pathogens.

> “No country or health system, however sophisticated, can claim to be free of HAIs.”

A recent World Health Organization (WHO) report on IPC *(1)* highlighted the burden of HAIs and AMR and the related harm to both patients and health workers in health care settings. It presented a global situation analysis of the implementation of IPC programmes by collating data from different global surveys and data sources. In summary, the emerging picture is that IPC programme implementation is currently extremely patchy at the national level and, although IPC capacities varies among regions, it largely mirrors a country's income level. Based on 2021–2022 data among 166 countries globally, approximately one in 10 countries do not have any national IPC programme or operational plan, and one in four countries has a programme, but not fully implemented. Only 38% of countries reported having an IPC programme fully implemented at national as well as at health care facility level nationwide, with the vast majority representing high-income countries *(3)*. Furthermore, a 2019 WHO global survey revealed that only 16% of health care facilities met all minimum requirements for IPC programmes and none of them was in a low-income country *(4)*.

While identifying these key gaps and also common challenges encountered by countries in all regions, the WHO global report on IPC highlighted how much more could and should be done across all WHO regions not only to ensure the reliable implementation of IPC recommendations and strategies, but also to realize the potential cost- and life-saving benefits to be reaped from such an approach *(1)*. To support this perspective, the report provided an overview of the strategies and resources that are available to improve the situation within countries, as well as some directions and priorities for countries' consideration. The report also highlighted some achievements at country and global levels and featured examples of some countries that have prioritized IPC and succeeded in making progress, despite the challenges.

Taking all these aspects into consideration and recognizing the gaps in IPC programmes and practices revealed by the devastating impact of the COVID-19 pandemic and the increasing burden of infection and AMR associated with health care delivery *(1)*, in May 2022 a resolution on IPC was presented and adopted by consensus at the Seventy-fifth World Health Assembly (resolution WHA75.13) *(5)*. The resolution includes 13 calls to Member States for improving IPC at the national, subnational and facility levels, in line with WHO-recommended core components for IPC programmes. In addition, it requests the Director-General to develop a global strategy on IPC, a global action plan and a monitoring framework, in consultation with Member States and regional economic integration organizations.

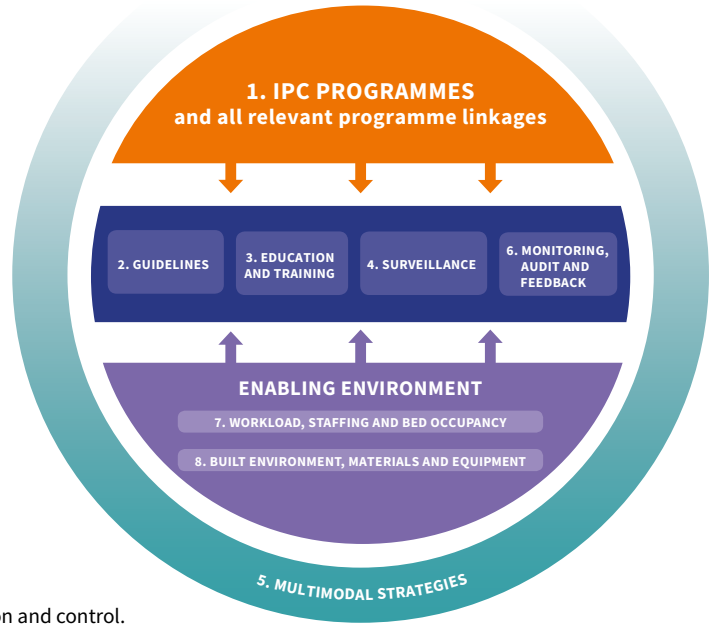
Building on solid foundations

The GSIPC builds on almost a two-decade effort led by WHO to highlight the importance of key IPC measures, in collaboration with partner organizations and Member States. This included making available a range of guidelines and implementation tools on priority areas based on country requests, scientific evidence, and the most impactful types of HAIs to Member States.

2016 – WHO defined the core components for effective IPC programmes at the national and facility level and developed comprehensive, evidence-based and consensus-based guidelines *(6)* (Fig. 1), with the support of many IPC stakeholders and field implementers.

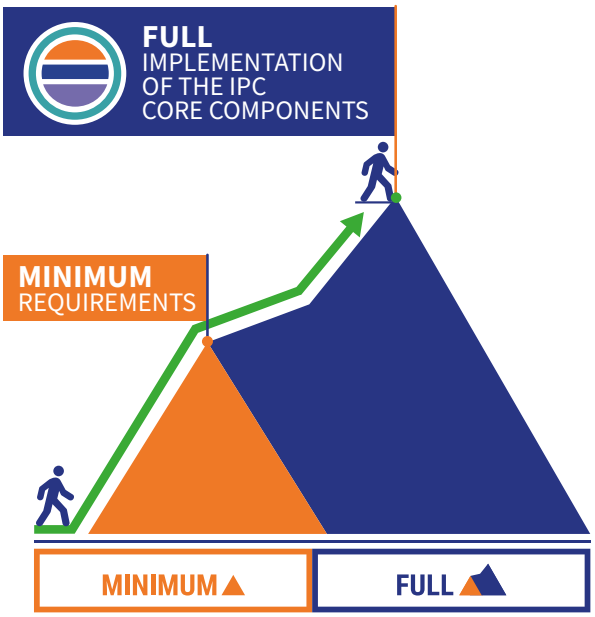
2019 – Recognizing that the fulfilment of all IPC core components takes time and that countries may be at different stages of progress, with different capacities, available opportunities and resources, WHO identified the IPC "minimum requirements" *(7)* (Annex 2). These represent the starting point for undertaking the journey to build strong and effective IPC programmes (Fig. 2).

Fig. 1. Core components for effective IPC programmes at the national and facility level *(6)*



IPC: infection prevention and control.

Fig. 2. A stepwise approach from minimum requirements to full achievement of all requirements of the IPC core components *(7)*



These were directly derived from the IPC core components through a consensus-building process involving IPC stakeholders, experts and field implementers from around the world. Core component 8 refers to the built environment, materials and equipment for IPC at the facility level, including WASH standards and improvement strategies *(6, 8-10)*.

2021–2022 – Based upon the IPC core components and minimum requirements as the "building blocks", WHO subsequently developed operational frameworks and toolkits for IPC for enabling adequate outbreak preparedness, readiness and response at the national and health care facility level *(11, 12)*.

To support the implementation of IPC programmes, WHO has made available a range of resources *(13, 14)*. Specific guidelines, implementation manuals and tools are also available for the prevention of particular infections, such as those occurring at the surgical site or due to carbapenem-resistant organisms *(15-17)*. Basic and advanced online training modules are available on all these topics among others *(17)*. A range of IPC assessment tools are available and a WHO IPC Global Portal offers the opportunity to undertake IPC data collection using these tools in a protected confidential space *(18-21)*. Additional resources with adaptation of IPC for primary and long-term care settings have been developed and more are in preparation *(19-21)*. Furthermore, the new WASH (health) facility improvement tool (WASH FIT V 2.0) provides the opportunity to strengthen IPC core component 8 in greater detail *(10)*.

How the global strategy was developed

The GSIPC was developed under the leadership of the IPC Hub team at WHO headquarters, in close consultation with Member States' national focal points and/or country delegates responsible for IPC across all three levels of the Organization (that is, headquarters, country and regional offices) and with the IPC Taskforce, including those responsible for AMR, health emergencies, the health work force, patient safety, primary health care, quality of care, WASH, and occupational health and safety. Members of the Global IPC Network and civil society, together with other international experts, were also consulted.

Two global meetings with these stakeholders and three additional global consultations with Member States were held between June and October 2022. All regional offices gathered specific input from Member States through either bilateral meetings or regional consultations (four regional consultations were held).

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2.
The context of the GSIPC

2. The context of the GSIPC

How does this strategy relate to other WHO strategies?

Although the GSIPC has many new elements, it also builds upon a number of existing WHO resolutions, global strategies, and action plans related to specific areas that are relevant for IPC and have IPC as a core element (Table 1).

Table 1. Specific areas relevant for IPC and with IPC as a core element of resolutions, global strategies and action plans

AMR
• Resolution WHA58.27 (Improving the containment of antimicrobial resistance) *(22)* • Global action plan to combat AMR (objective 3 encompasses IPC) *(23)*
Emergency response
• Resolution WHA48.7 (revision of the International Health Regulations) *(24)* • Resolution WHA73.1 (COVID-19 response) *(25)* • Resolution WHA73.8 (Strengthening preparedness for health emergencies: implementation of the International Health Regulations (2005)) *(26)* • Resolution WHA74.7 (Strengthening WHO preparedness for and response to health emergencies) *(27)* • Resolution WHA75.20 (Strengthening the global architecture for health emergency preparedness, response and resilience) *(28)* • Strengthening the global architecture for health emergency preparedness, response and resilience. Concept note for the consultation process: 24 March 2022 *(29)* • 10 proposals to build a safer world together – strengthening the global architecture for health emergency preparedness, response and resilience: draft for consultation *(30)*

Health and care workforce protection and occupational health
• Resolution WHA74.14 (Protecting, safeguarding and investing in the health and care workforce) • Global health and care workers compact (adopted within WHA75.17) *(31)* • WHO/ILO guide for the development and implementation of occupational health and safety programmes for health workers *(32)*
Maternal and neonatal care
• The global strategy for women's, children's and adolescents' health (2016–2030) *(33)* • WHO global strategic directions for nursing and midwifery 2021–2025 *(34)* • Strategies toward ending preventable maternal mortality *(35)*
Patient safety
• Resolution WHA72.6 (Global action on patient safety) *(36)* • Global patient safety action plan (strategic objective 3.3 focuses on IPC) *(37)*
Quality of care in the context of universal health coverage
• Resolution WHA69.1 (Strengthening essential public health functions in support of the achievement of universal health coverage) *(38)* • Operational framework for primary health care *(39)*
Sepsis
• Resolution WHA70.7 (Improving the prevention, diagnosis and clinical management of sepsis) *(40)*
WASH
• Resolution WHA72.7 (WASH in health care facilities) *(41)* • WHO WASH strategy 2018-2025 *(42)* • WASH in health care facilities: practical steps to achieve universal access to quality care *(43)*

IPC: infection prevention and control; WHA: World Health Assembly; WASH: water, sanitation and hygiene.

Guiding principles for the GSIPC

Some key guiding principles underpinned the development of the GSIPC and constitute the foundations for its content.

1. IPC across the continuum of the health system

In resolution WHA75.13 *(5)*, Member States requested a global strategy with a focus on health and long-term care settings *(43)*. This implied that the strategy would not specifically cover infection prevention in the community (for example, in schools and workplaces), which is addressed by other strategies developed by WHO, the United Nations Children's Fund (UNICEF), and the International Labour Organization (ILO). However, given that an increasing amount of health care is delivered in the community and that many key IPC measures are equally applicable to routine disease prevention within households and institutions, the GSIPC is likely to have a much broader relevance and impact than solely that mentioned in resolution WHA75.13 *(5)*.

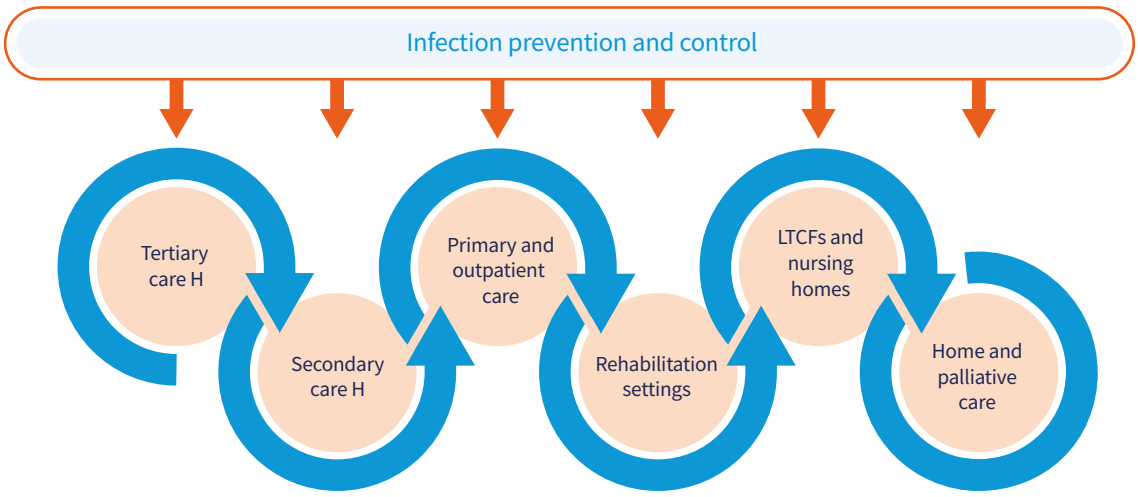
The importance of these IPC principles are particularly evident during (and in between) epidemics, such as during the height of the Ebola outbreaks and the COVID-19 pandemic. In this respect, investments in IPC may also be instrumental in reducing "silos" in public health and supporting the adoption of a One Health approach and the commensurate implementation of public health and social measures. In many situations, there is a strong interconnection between the implementation of IPC messages and measures in health care settings and the adoption of hygiene-related behaviour by the community. For example, in the general community, the adoption of routine IPC initiatives measures such as mask wearing, physical distancing, adequate indoor ventilation, and the regular use of alcohol-based handrub has been associated with a marked reduction in disease transmission and slowing of the COVID-19 pandemic. Furthermore, having safe health care facilities for both patients and health workers, especially during epidemics, is critical to maintain community trust in the health system and continuous access to essential health services.

Importantly, IPC makes a difference for health and care workers' and patient safety when embedded within service delivery at the point of care.

Therefore, this strategy aims to address IPC programmes and measures in any setting where care is delivered across the health system.

These range from various levels of acute health care facilities to primary and outpatient care facilities, rehabilitation settings, home and palliative care, long-term care facilities and nursing homes, and community settings, such as those used for vaccination or promotional campaigns (Fig. 3). These settings can be part of both the public and the private sector, as well as traditional medicine settings. Improving IPC in primary and long-term care facilities is a high priority as they are special settings that require an adaptation of IPC strategies. Serious IPC gaps have frequently been identified in these settings, leading to poor quality of care. Primary care settings are the first point of entry of the patient journey into the health system; thus, preventing the spread of infection and AMR, as well as protecting health and care workers on the front line, is particularly important. Long-term care facilities and nursing homes host fragile, highly susceptible individuals at a greater risk of death and severe complications if they acquire an infection.

Fig. 3. IPC implementation across the continuum of the health system



H: hospitals; LTCFs: long-term care facilities.

2. People-centred approach

The global strategy aims to drive improvement of IPC at any clinical encounter.

Therefore, it is centred on the needs of people, patients, health and care workers, families and visitors when accessing care, while taking into account their perspectives and contributions as participants in, and beneficiaries of health care delivery, and also respecting social preferences.

3. Using the lens of health and care workers' protection, patient safety, and compassion

IPC occupies a unique position in the field of patient and health workers' safety and quality of care as it is universally relevant to every health worker and patient at every health care interaction *(37, 44)*.

The critical importance of health and care workers' protection has become increasingly clear amidst the COIVID-19 pandemic. IPC includes administrative, environmental and engineering controls, as well as procurement of personal protective equipment and products aimed at ensuring the prevention of occupational infections. The application of a precautionary approach may be considered within methodological standardized processes to identify IPC measures when scientific evidence about a pathogen is only emerging or uncertain. The rationale for these measures should be transparently stated and revised as soon as new evidence becomes available.

IPC measures are essential to ensure patient safety. Thus, IPC is identified as one of the strategic approaches to achieve the safety of clinical processes within the global patient safety action plan 2021–2030 *(37)*.

The costs of HAI can extend beyond both the physical and financial aspects to the psychosocial context. This is because HAIs can cause anxiety and suffering in addition to the initial reason for seeking health care. Awareness of this potential suffering, together with action to alleviate it, is where compassion becomes extremely relevant, especially in the context of HAI. One illustration of this was the need to consider how to minimize the mental and physical health impact of restrictions and IPC precautions implemented in the context of COVID-19 in long- term care facilities. Important learning from this period can be built upon in the future to strengthen IPC as a speciality that values the role of compassion and recognizes its influence on health outcomes *(45)*.

4. Preparedness, readiness and response

The COVID-19 pandemic and other public health emergencies have exposed many challenges and gaps in IPC in all regions and countries, including those that had the most advanced IPC programmes. They also demonstrated not only the importance of protecting health workers, caregivers and patients through IPC, but also the central role of health care facilities in the mitigation and control of emerging infectious diseases.

The GSIPC will help Member States to build better health systems that are prepared and ready to promptly respond with impactful IPC interventions in the event of a new health emergency, or a resurgence in cases.

5. A fundamental component of the right to health

High-quality services and care, and thus clean and safe care are a fundamental component of the right to health *(1)*. No one receiving or providing health care should be exposed to the risk of being harmed by preventable infections.

In some countries, this concept has been enforced within the law that regulates patients' rights and, based on this, it is mandatory for every facility to establish and implement IPC programmes and practices and ensure basic water and sanitation services *(1)*. All workers, including health workers have the right to safe and healthy working environments *(46)*.

6. Equity-driven

Equity is a fundamental principle that underpins the global strategy on IPC.

Member States' efforts to embed this principle in their own health contexts are guided by Principle 8 of this global strategy, "country led". In the United Nations General Assembly resolution A/RES/74/2, Member States committed to scale up their efforts and "implement the most effective, high-impact, quality-assured, people-centred, gender- and disability-responsive and evidence-based interventions to meet the health needs of all throughout the life course, and in particular those who are vulnerable or in vulnerable situations, ensuring universal access to nationally determined sets of integrated quality health services at all levels of care for prevention, diagnosis, treatment and care in a timely manner."[1] Both the COVID-19 pandemic and the global response to it have revealed and compounded many inequities *(1)*. One of these is the recognition that countries do not have the same IPC capacity and means, and thus the ability to prevent HAIs and demonstrate readiness to rapidly identify and respond to outbreaks. Inequalities in health care access and in the quality of health care should be recognized and addressed for specific populations and/or household income levels in any country *(47)*. Of note, across all surveys and datasets mentioned in the WHO global report on IPC *(1, 4, 48)*, there is a significant positive association between the World Bank income level of a country and the implementation of IPC at the national level, consistently showing a dramatically lower level of progress of IPC programmes in low-income and lower-middle-income countries.

The GSIPC aims to eliminate these differences by supporting IPC improvements, especially in countries and settings with limited resources.

7. Evidence-informed

Resolution WHA75.13 *(5)* requesting the GSIPC strongly reflects the WHO core components for IPC, which were deeply rooted in the scientific evidence or, where lacking, the best available clinical opinion from experts in the field, being mindful of the relevant clinical context.

Similarly, this global strategy is based on scientific evidence related to the effectiveness and return on investment of IPC and an understanding of what has worked in countries in order to show actual and sustainable progress.

[1] United Nations General Assembly resolution A/RES/74/2: Political declaration of the high-level meeting on universal health coverage, paragraph 25.

8. Country-led

This global strategy has been developed in close consultation with Member States and reflects their views and experiences.

While the GSIPC aims to provide a supportive practical framework for action, it will need to be adapted, adopted and owned by countries and its effective implementation will need to be country-led and locally administered and delivered in the national context.

9. Partnership-driven

The delivery of good health care is always dependent on collaborative partnerships, which are respectful, energizing, empowering and equitable.

This global strategy includes the views and input by stakeholders and partners who support countries in IPC implementation and who therefore have a clear understanding of their needs and gaps, as well as feasibility and acceptability aspects.

10. Accountable

Accountability is fundamental to effective implementation as it underpins respect, engagement and transparency of actions.

Processes to develop national strategies for health services should ensure accountability to local stakeholders and especially to local users, including disadvantaged populations.

11. Sustainable

The lessons of history need to be acknowledged. There is a phenomenon of memory loss after every outbreak, as well for every case of HAI occurring every day in any country. In the context of public health emergencies, major efforts for rapidly scaling-up IPC measures are made every time they occur. However, such efforts are usually related to procurement of commodities and training and are financed through specified emergency funds. Unfortunately, these efforts are often inappropriately dismantled as soon as the status of emergency is downgraded and investments and improvements are usually short-lived.

To make a real and meaningful difference in health care standards, changes that the GSIPC will hopefully induce must be sustainable in a practical, financial and environmental manner to ensure that its actions and interventions remain relevant and useful to those implementing the strategy.

WHO/Didier Pittet

3.
High returns from investing in IPC

3. High returns from investing in IPC

The business case

> *Prevention is better than cure*
>
> **Desiderius Erasmus (~ 1500)**
> Dutch philosopher

Infection and AMR spread in health care settings leads to an incalculable burden in terms of human suffering, health impact and economic losses *(1, 49)*. Thus, preventing infection and its spread has potentially huge benefits in reducing this impact and producing economic advantages. In summary, there are at least five reasons for investing in IPC (Fig.4).

1. Prevention is crucial to providing safe, high-quality health care. Hygiene and cleanliness provide dignity and are a sign of respect to those who are seeking care and facilitate the work of those delivering it.

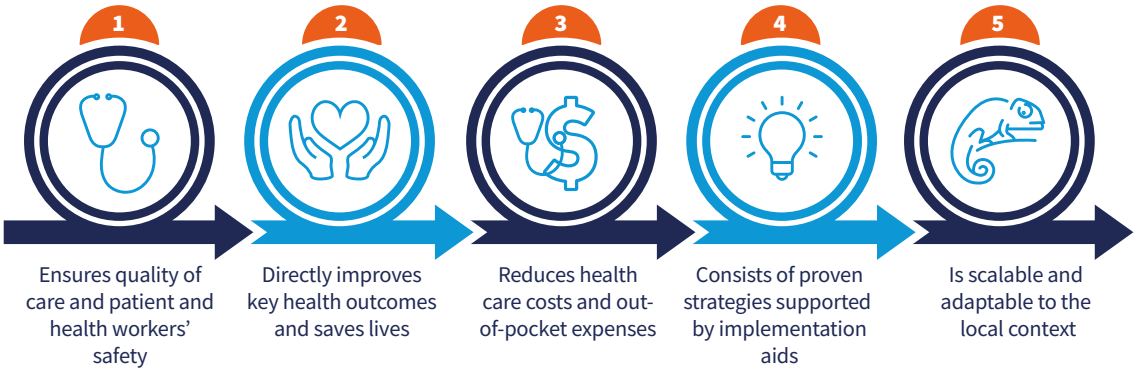
2. Scientific evidence shows that IPC interventions are highly effective in preventing the spread of antimicrobial-resistant and epidemic-prone pathogens and infection in health care *(1)*. Furthermore, beyond their impact on HAIs and AMR, upscaling investments on IPC interventions would help to advance other critical priority health outcome, including the prevention and control of other infectious diseases such as maternal and neonatal sepsis, tuberculosis, human immunodeficiency virus (HIV), malaria, and neglected tropical diseases.

3. Reduced rates of HAIs not only mean reduced patient and family suffering, but also a reduced need for hospitalization and treatment, resulting in savings of health care costs, out-of-pocket expenses, and the reduced societal impact of illness, thus allowing for sustained productivity *(1, 50)*.

4. Unlike some other health care initiatives, most IPC strategies have a long history of use and are generally well understood by health workers and the wider community. Importantly, they are already proven to be effective and have a clearly defined implementation process with existing support aids immediately available if needed *(1, 20)*.

5. Many IPC approaches have a proven track record in being scalable and adaptable to local settings, context and conditions. Although strategies such as multimodal hand hygiene and IPC improvement strategies are valid for any settings *(51, 52)*, special attention and more implementation research is needed for their adaptation to low-resource settings *(53)*.

Fig. 4. Five reasons to invest in IPC *(1)*



> *"IPC interventions are highly effective in preventing HAIs and AMR"*

Analyses pooling together the results of studies from systematic reviews indicate that IPC interventions can achieve 35–70% reduction in HAI rates *(54-56)*. This impact has been observed especially for surgical site infections and infections associated with invasive devices, such as vascular and urinary catheters and mechanical ventilation systems, irrespective of a country income level

Whether implemented as a stand-alone intervention or integrated into multifaceted interventions, hand hygiene has been shown to be a highly effective and essential measure for reducing the transmission of microorganisms and infection in health care settings *(57-59)*.

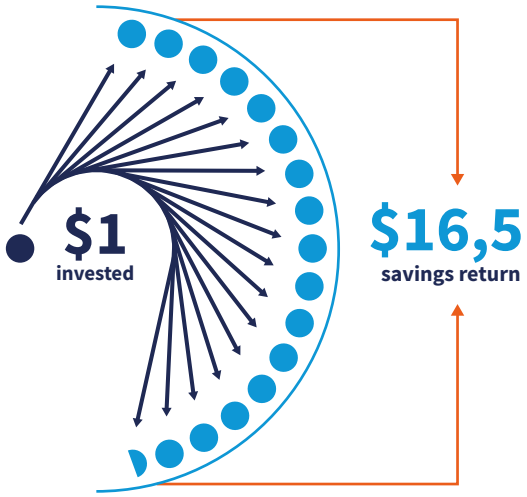
IPC has a critical role in combating AMR, essentially through two means: 1) by stopping the spread of antimicrobial-resistant microorganisms; and 2) by reducing the frequency of infection and thus the need for using antimicrobials that inevitably drive AMR *(60)*.

The rational and appropriate use of antimicrobials (so-called "antimicrobial stewardship"), as well as the use and access to quality laboratory diagnostics for early detection and targeted treatment, are also essential to reduce AMR, especially in health care settings. However, much more impactful results are achieved in reducing the prevalence of multidrug-resistant infections when antimicrobial stewardship is combined with IPC interventions *(61, 62)*.

> *"IPC is a highly cost-effective and "best buy" approach to reducing infections and AMR in health care"*

Landmark institutional reports, such as those of the World Bank and the Organisation for Economic Co-operation and Development (OECD), confirmed the positive return on investment from implementation and enforcement of appropriate IPC measures. Improving hand hygiene in health care settings could save approximately US$ 16.5 in health care expenditure for every US$ invested (Fig. 5) *(58, 63)*.

Fig.5. Health care cost-savings associated with hand hygiene and IPC programmes



In particular, improving hand hygiene in health care settings could save approximately US$ 16.5 in health care expenditure for every US$ invested *(58)*.

Hand hygiene and environmental hygiene in health care facilities were found to be the most cost-saving interventions. Notably, implementing these in combination would more than halve the risk of dying as a result of infections with AMR pathogens, as well as decrease the associated long-term complications and health burden by at least 40%. Furthermore, an intervention package integrating hand hygiene, antibiotic stewardship programmes, and enhanced environmental hygiene in hospitals would lead to an 85% reduction in the AMR health burden and to savings of € 2 per capita per year *(58)*. In addition, with 50% of health care facilities in the least developed countries lacking an even basic water supply, it is important to invest in such services *(64)*. According to a recent pricing analysis, investing in WASH services in health care facilities would incur only modest funding (3% of current government health spending in the least developed countries) and result in large gains *(65)*. Such gains extend beyond preventing infections to an increased uptake of services, increased staff morale, and improved efficiency in delivering health services *(66)*.

A recent study by the OECD and WHO indicated that the access to appropriate personal protective equipment, combined with health workers' training on IPC, would have averted many severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections and related deaths among health workers globally during the first six months of the COVID-19 pandemic, while generating substantial net savings in all regions, independent of the country income level *(1)*.

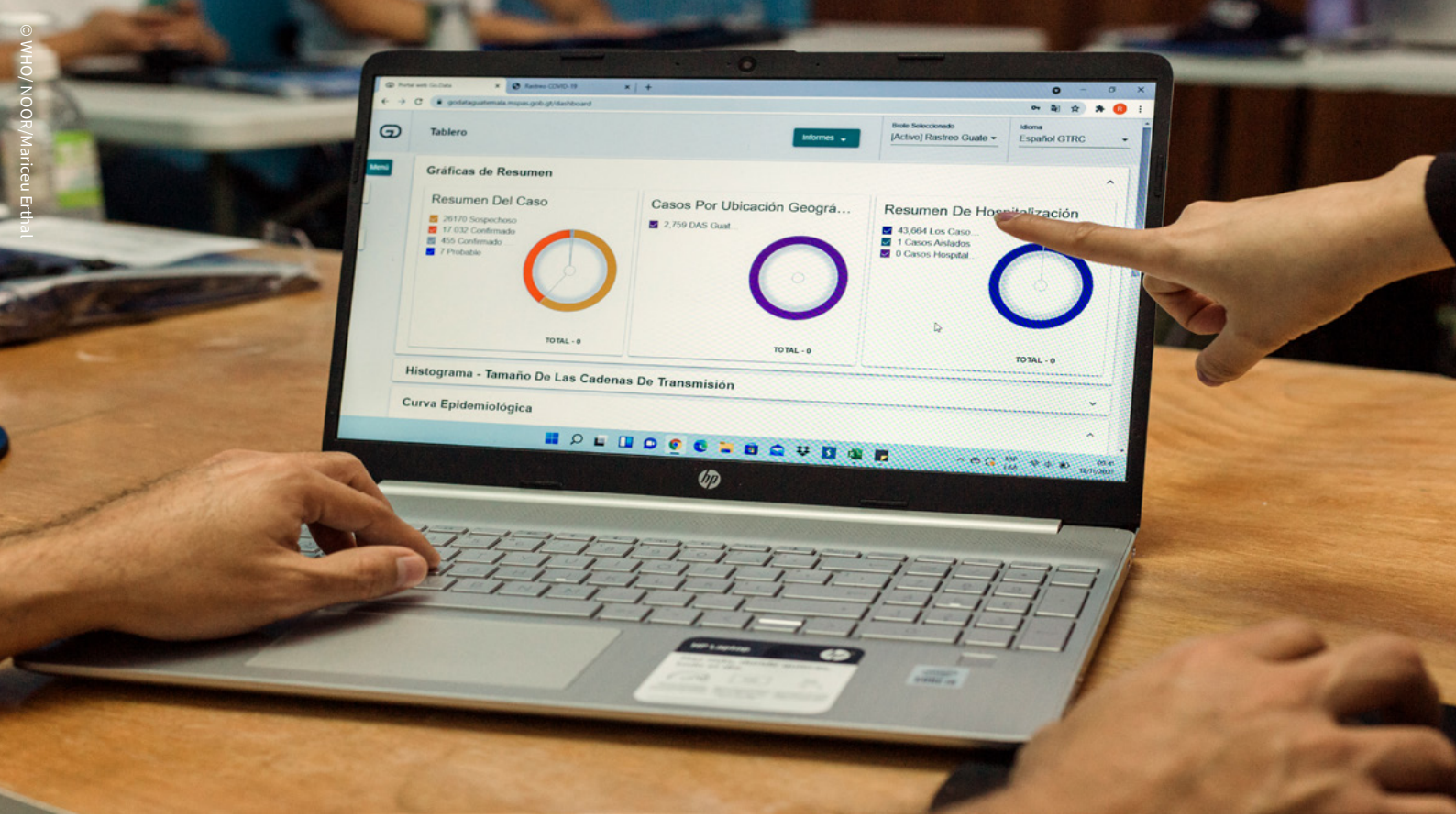
> *"The cost of inaction also needs to be considered"*

While the costing of initiatives, such as IPC, are often considered through the lens of "cost-benefit" or "cost-effectiveness", the potential cost if IPC initiatives are not implemented needs to be considered. In other words, what will be the consequences of inaction in terms of the health and associated financial and organizational impact on the health system, the general community, and on the work force (both health workers and the working public). As the recent Ebola outbreaks and COVID-19 pandemic have shown, gaps in public health, social measures and IPC have led to a devastating spread of infection with a massive societal impact that has been financially crippling for many Member States and regions with consequences that extend well beyond health care.

IPC training and implementation (for example, personal protective equipment, hand hygiene, patient isolation) have been shown to exert a great protective effect in preventing COVID-19 transmission in health care settings among health and care workers, as well as patients and visitors *(1)*.

In summary, IPC interventions are massively cost beneficial both in monetary terms and in the prevention of infection – resulting in reduced human suffering, morbidity and mortality.

However, as with many health initiatives that target disease prevention (for example, vaccines, smoking cessation, etc.), implementation rates and intensity are suboptimal or incomplete in most countries. Hence, the need for a GSIPC to guide future action and progress.



4.
A global strategy to lead us to 2030

4. A global strategy to lead us to 2030

What's new in this global strategy?

The GSIPC outlines a clear vision with accompanying objectives. It also identifies a target audience including a wide range of key players for the strategy adoption and implementation. Furthermore, for the first time, the strategy provides Member States with strategic directions to achieve measurable improvement and to substantially reduce the ongoing risk of HAIs (including those that exhibit antimicrobial resistance) and limit infectious disease outbreaks by 2030.

Vision

In developing this vision, consultation with Member States, multiple experts and stakeholders came to the consensus that the vision should be aspirational and ambitious, but also sufficiently realistic and measurable in terms of outcomes and impact. It should be clear, simple and understandable by all target audiences and provide a clear basis for advocacy. Importantly, the vision should align with the agenda and timeline of the Sustainable Development Goals (particularly goals 3.1–3.3, 3.8, 3.d.2, and 6) *(67)*.

The vision of the GSIPC is:

> By 2030, everyone accessing or providing health care is safe from associated infections.

This vision should be valid regardless of the:

- *reason* why care is delivered – whether for prevention, diagnosis, treatment, rehabilitation or palliative care;
- *epidemiological context* – public health epidemic event or endemic burden of HAIs and AMR;
- *setting* – across the continuum of the health system, including primary and long-term care facilities, home care and health care delivered in other community settings.

Target audience

The global strategy is primarily intended to inspire and motivate political leaders and policy-makers to prioritize and support IPC in the global and national health agendas, and to guide IPC and other focal points and leaders to accelerate their work to implement IPC. It is also intended to engage all those who can play a role in practising, promoting and adopting IPC strategies and drive change – as well as allowing citizens to claim their rights and hold leaders to account.

1. Leaders – political and government and health care leaders

- Government officials, political and health care leaders and policy makers at ministries of health (and other relevant ministries and entities providing health care delivery), ministries of finance, labour, environment, and education; accreditation and health regulatory bodies; and senior managers and administrators responsible for planning and budgets.

> The infectious hazard risk and IPC implementation need to be elevated to the same level of political commitment as is now occurring for action on climate change

that is, where there is a clear commitment to the concept that health care should be safe at all times and that HAIs are unacceptable. Not only health leaders need to be engaged, but also policy-makers in the ministries of environment and education in order to lead and facilitate action in some specific strategic directions. Most importantly, ministries of finance play a critical role in allocating a dedicated budget to IPC programmes and initiatives.

2. IPC and other focal points/leaders

- IPC focal points (ministry of health, public health and other national institutes);
- Focal points responsible for patient safety and quality of care, AMR, occupational health, WASH, International Health Regulations, and One Health.

IPC focal points at national and facility level play a critical role in providing technical expertise and support to political, government and health care leaders to adopt and adapt GSIPC and take the necessary action to implement it. The GSIPC should be closely coordinated with activities led by those responsible for other complementary areas of work.

3. All health and care workers

- All health and care workers

should commit and be supported to implement IPC practices as part of their daily work in a climate of safety and transparency that encourages open reporting of clinical outcomes and fresh approaches to improving IPC and health care delivery.

4. Educational institutions and professional and scientific organizations, societies, unions

- All entities and organizations that have a mandate and/or activities in the field of education, training and professional development,

including promoting the rights and career pathways of the health workforce, play a critical role to create expertise and capacity in IPC.

5. General population and the community

- Civil society, patient and family networks, labour unions and advocacy groups.

  The GSIPC should engage the whole community, such that key policy-makers and those responsible for health budgets appreciate the general support for action and the need to ensure integration and compliance in all elements of health care delivery. It is critical to engage the community and civil society in asking for and participating in safe health care delivery to accelerate IPC improvement. The voice of patients and families, supported by their networks and advocacy groups, is critical to raise attention around the harm caused by HAIs and the lack of IPC practices and to ask for clean care.

6. Key stakeholders and donors

- United Nations agencies, GIPCN members, partners, nongovernmental organizations, faith-based organizations, and others.

  Key stakeholders and donors at international, national and local level are in a critical position to influence the adoption of GSIPC and to support its implementation. This is especially important for effective control during and in between outbreaks and pandemics in which the infectious pathogen affects the whole community, as well as health care facilities (for example, COVID-19).

7. Media and communication professionals and bodies

- Communication professionals and bodies and media

  need to be aware of the GSIPC and facilitate the understanding of its content and principles. If transparently and fairly delivered, they can also have a critical role in holding policy- and decision-makers accountable to support IPC initiatives – thereby facilitating the development of overall health care resilience.

Objectives

Prevent, Act, Coordinate

Prevent infection in health care

Act to ensure IPC programmes are in place and implemented

Coordinate IPC activities with other areas and vice-versa

1. Prevent infection in health care

To substantially improve health care quality and safety by reducing the frequency of infection and AMR acquired during health care delivery, and their burden on those who access and provide health care, including in the context of health emergencies.

2. Act to ensure IPC programmes are in place and implemented

To provide strategic directions and catalyze political commitment to enable active IPC programmes for HAI and AMR reduction and prevention and control of outbreaks, through:

- leadership engagement and stakeholder support,
- financing and legal frameworks, and
- according to the WHO IPC core components.

3. Coordinate IPC activities with other areas and sectors and vice-versa

To transform health care systems and service delivery in a way that IPC is implemented in clinical practice and within an enabling environment through WASH, and coordinating with public health emergencies, universal health coverage, patient safety, quality of care, AMR (in particular, antimicrobial stewardship and monitoring, and AMR surveillance), occupational health, health promotion, immunization, biosafety and biosecurity, and other public health-related programmes, and vice-versa.

WHO/Pierre Albouy

5. Strategic directions

5. Strategic directions

Eight strategic directions provide the overall guiding framework for country actions to implement the GSIPC

1 Political commitment and policies

2 Active IPC programmes

3 IPC integration and coordination

4 IPC knowledge of health and care workers and career pathways for IPC professionals

5 Data for action

6 Advocacy and communications

7 Research and development

8 Collaboration and stakeholders' support

1 Political commitment and policies

a Demonstrate visible leadership engagement and action-oriented political commitment, such that:

i policies are in place that require the scale-up and enforcement of the core components for IPC programmes, including through legal and accountability frameworks, regulations and accreditation systems; and

ii resources are mobilized for the sustained financing of IPC programmes and based on the local situation analysis.

This strategic direction is fundamental to enable investment in and achievement of all the other directions.

> Decisive and visible political commitment and leadership engagement at the highest levels are needed to take strategic decisions to improve and sustain the implementation of functional IPC programmes at the national, sub-national and facility levels.

This should be reflected in the enforcement of IPC programmes through health systems' regulations, and legal frameworks and Acts, as well as the allocation of national and local health budgets for IPC. Several countries (mainly high-income) already have laws regulating the implementation of IPC programmes. An excellent example of a legal framework for IPC was recently proposed by the Africa Centres for Disease Control and Prevention in collaboration with WHO and other partners and backed by the African Union's Heads of State[2]. This tool is based on the core components of IPC programmes and can be used by Member States to develop legal instruments or amend existing ones in order to increase support for IPC programmes at national, sub-national and facility level.

Member States, WHO and other global partners should identify targets for IPC investment. For example, these targets could be formulated as a percentage of overall health care expenditure, establishing what is a reasonable amount to commit for the safe, sustainable and clean provision of quality care. Information about progress towards achieving these targets should be made publicly available through accountability frameworks requiring reporting of key IPC performance indicators and targets. National and sub-national IPC committees should also be established to oversee and provide directions for the implementation of legal frameworks and the IPC programmes.

Key players

Among the global strategy audiences, audience no. 1 "political and government and health care leaders" is the driving force for this strategic direction. IPC focal points are also critical, for example, to provide technical input into policies, legislation, and budget development at national, sub-national and facility levels. All the other audiences will also have a key role of advocacy and support.

[2] Through the Executive Council Decision EX. CL/Dec.1168-1188 (XLI) that adopted the STC health, drug control and population decision on the IPC legal framework and the Government's African Common Position on AMR.

2 Active IPC programmes

a Establish active and sustainable IPC programmes supported by an enabling environment (e.g. WASH);

b ensure that at least the minimum requirements for IPC programmes are in place in all countries at all levels of the health system, including in primary and long-term care *(7)*, and that progress is made towards meeting all requirements of the IPC core components' recommendations *(6)*;

c implement IPC interventions using behavioural change and multimodal strategies[3] *(52)*, including in the context of implementing national action plans on AMR; and

d strengthen and maintain IPC in the context of preparedness, operational readiness and response for public health emergencies (such as, disease outbreaks, conflict and fragile settings *(68)*, disasters and humanitarian crises) at the national and health facility levels.

[3] A multimodal strategy comprises several components or elements (three or more, usually five) implemented in an integrated way with the aim of improving an outcome and changing behaviour. It includes tools, such as bundles and checklists, developed by multidisciplinary teams that take into account local conditions. The five most common elements are: (i) system change (availability of the appropriate infrastructure and supplies to enable infection prevention and control good practices); (ii) education and training of health care workers and key players (for example, managers); (iii) monitoring infrastructures, practices, processes, outcomes and providing data feedback; (iv) reminders in the workplace/communications; and (v) culture change within the establishment or the strengthening of a safety climate.

All countries should ensure the existence of active IPC programmes at the national and health care facility levels in both the public and private sectors.

These programmes should have annual plans and dedicated IPC trained professionals and budgets, although they can be located in different departments, depending on the local structure. They should be given the mandate to implement the IPC core components and the power to convene and make executive decisions. IPC programmes should meet at least the minimum requirements identified by WHO (Annex 2) *(7)*, but the full achievement of the WHO core components' recommendations (Fig. 1) *(6)* should be a target for all countries through a stepwise approach, based on the local situation.

The enabling environment and the multimodal strategies represent three IPC core components (Fig. 1) that are critical to allow and facilitate the implementation of IPC interventions *(52)*. Securing a strong enabling environment for IPC means:

- to ensure adequate staffing levels and workload according to international and national standards, both for all health and care workers and for IPC professionals;
- to put in place and maintain appropriate and sustainable infrastructure for IPC, including ensuring adequate bed occupancy and isolation in single rooms if necessary, and ventilation systems, waste management, decontamination and sterilization, and WASH services and activities; and
- to establish and continuously maintain actions to procure, distribute and facilitate the use of equipment and supplies to support IPC.

Multimodal strategies are based on behavioural change theories in order to understand health and care workers' behaviours relating to IPC practices and how to change these in such a way as to achieve a measurable impact that benefits the system, the institutional safety climate, patients and health professionals *(44)*. They are considered to be the gold standard approach to effectively operationalize IPC interventions, as demonstrated by evidence and experience from the field *(55, 57)*.

For all Member States, some critical capacities will need to be addressed to achieve and/or strengthen IPC preparedness, operational readiness, and the response to public health emergencies at national and health care facility levels.

Important factors in achieving these capacities include the following elements:

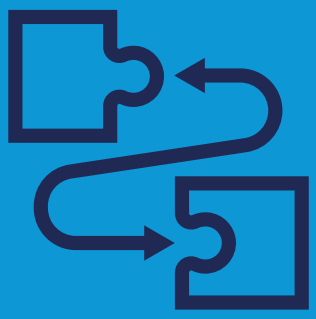
- having an IPC emergency coordination mechanism in place to develop or review and update policies, national preparedness and response plans, IPC guidance and manage partner engagement;
- ensuring surge capacity, including adequate finance, rapidly scalable infrastructural capacity, efficient supply chain and logistics, and sufficient trained human resources;
- having active surveillance systems for the rapid detection of emerging pathogens (including those that display AMR) and epidemic- and pandemic-prone pathogens; this is especially important in health care facilities given their potentially vulnerable patient population and the risk to amplify outbreaks;
- protecting the health care workforce and having accurate and efficient systems and policies for preventing, reporting, and managing exposures and infections among health workers.

To best achieve this, messaging and communication about potential IPC risks and safety among health and care workers need a particular focus at both the national and health care facility level, in close collaboration with risk communication and occupational health and safety programmes.

Key players

Similar to strategic objective no. 1, political and government and health care leaders at the highest levels and in the ministries of health and the environment have a critical decision-making role for this strategic direction. Thus, IPC focal points are the driving force for the development and implementation of IPC programmes at national, sub-national and facility levels. Key stakeholders and donors play a critical role to support countries in implementing this strategic direction, but they should base their decisions upon country needs and action plans. All the other audiences also have a key role of advocacy and support.

3 IPC integration and coordination



a Consistently coordinate IPC with other health priorities and programmes and vice-versa, including those on AMR (in particular, antimicrobial stewardship and monitoring and AMR surveillance, including through the One Health approach), patient safety and quality of care, WASH, occupational health and safety, health emergencies, biosafety and biosecurity and other programmes (including immunization, HIV, tuberculosis, malaria, hepatitis, and maternal, newborn and child health); and

b integrate IPC measures into patient pathways and clinical care delivery at the point of care across health services at all health system levels, including primary care, with adaptation for fragile and low-resource settings.

This strategic direction specifically supports the achievement of the GSIPC objective no. 3. IPC principles are a key component of many health initiatives and the related global, regional and national strategies and action plans, but massive improvements in efficiency and sustainability are gained when there is a system of coordination and integration between these various programmes in IPC implementation.

Thus, while it is necessary to establish specific IPC programmes supported by dedicated trained IPC professionals and a dedicated budget, IPC activities must be integrated and aligned with those of other programmes and vice-versa.

This helps to emphasize the cross-cutting, horizontal nature of IPC and avoid any duplication of effort and reporting.

Programmes such as those dedicated to AMR, patient safety, quality of care, WASH, and occupational health and safety are naturally complementary to IPC programmes and may be located in the same structure within ministries of health or health facilities. Health emergencies and biosafety and biosecurity programmes require embedded expertise in IPC in order to enable adequate preparedness, readiness and response, as well as joint work with the IPC programme to ensure the alignment, cross-fertilization and operationalization of IPC principles. The connection to occupational health programmes is essential to ensure the adequate protection of health and care workers through the provision of necessary protective equipment and vaccines and the adoption of appropriate behaviours. Standardized IPC principles and practices are necessary to deliver safe services within a number of vertical programmes such as immunization, tuberculosis, HIV, malaria and hepatitis, as well as non-communicable diseases.

As HAI transmission among patients is almost always at the point of care, IPC needs to be understood and practised by all those providing services at the point of care.

For example, to save lives lost to maternal and neonatal sepsis, IPC must be consistently and accurately implemented. Tools and standard operating procedures are needed to embed IPC practices within patient pathways and adapt them within different clinical care areas, taking workflow, human factors and ergonomics into account. Efforts to improve IPC practices should also be associated with quality improvement and the spirit of the safety climate that should be fostered in all facilities.

Key players

Among the GSIPC audiences, the key players for this strategic direction are IPC focal points and leaders and those responsible for all above-mentioned complementary programmes. Political and government and health care leaders in the ministries of health and the environment and other sectors (such as those involved in One Health matters), as well as senior managers at the sub-national and facility level, are important for advocating and enabling integration and collaboration between IPC and other areas of work.

4 IPC knowledge of health and care workers and career pathways for IPC professionals

a. Develop IPC curricula (for pre- and postgraduate and in-service training) for health and care workers and link to other associated areas (for example, water safety and occupational health and safety in health care facilities);

b. provide IPC education across the entire health education system (pre- and postgraduate training);

c. ensure in-service training for all health and care workers on IPC standards and practices, and specific training for IPC professionals, according to WHO-recommended competencies *(69)*;

d. ensure a recognized career pathway for IPC professionals and job opportunities empowering their role; and

e. develop approaches and resources for the education and orientation of patients and families.

The IPC core components cannot be implemented without competent IPC professionals and health and care workers understanding IPC principles and practices.

However, multiple global surveys demonstrated that IPC training and education is the core component that countries implement in the weakest way *(1)*. Thus, the creation and implementation of accredited IPC curricula within pre-graduate health courses and in-service continuous education is essential. Similarly, IPC postgraduate curricula and courses are needed to create and maintain local IPC expertise; the WHO core competencies for IPC professionals can be used as a solid basis *(69)*.

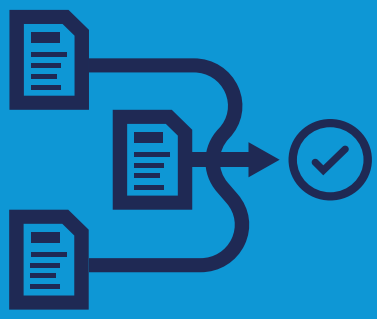
For most countries, there is currently a lack of human resources dedicated to IPC as well as inadequate overall health care staffing at the facility level to consistently implement good IPC practices – this needs to be urgently addressed. Inclusion of basic IPC principles should be embedded in any pre-graduate curriculum of all health-related disciplines as awareness of the problem and learning the solutions at an early stage is paramount to create a sense of ownership of IPC, while developing the foundational knowledge and mission of health professionals. At a practical clinical level, specific curricula to support in-service training and the continuous education of health and care workers (for example, nurses, doctors, allied health, cleaners) massively improves implementation efficiency and cost-effectiveness. However, training should be adapted to health professional roles and offered to all health and care workers, including patient carers and those hired through external companies.

Only a few countries have specific certificates for IPC professionals and there is an urgent need for a standardized curriculum that can be adapted locally, as well as short- and long-term planning and political will, to establish recognized educational pathways to facilitate development of a sustainable expert workforce. This curriculum should include not only the skills and competencies that are typical of an IPC professional, including the ability to provide training, supervision and joint assessments, but also basic education in other areas, such as health economics, implementation science and quality improvement. Having curricula and certificates is not sufficient and qualified national institutions and training centres are needed with the right expertise and the mandate to train IPC professionals. Finally, IPC professionals should be offered a recognized career pathway and empowered 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.

Key players

Among the GSIPC audiences, the primary actors for this strategic direction are policy- and decision-makers in the ministries of health and education. Educational institutions and organizations with the mandate and/or activities in the field of education, training and professional development, as well as the promotion of the rights and career pathways of the health workforce, have a key role in curricula development and implementation. IPC focal points and leaders are those who contribute to curricula development and lead on IPC training coordination, roll-out and evaluation at the national, sub-national and facility level, especially for in-service training. Professional and scientific organizations and societies can also contribute to curricula development and support training. Professional unions, members of the civil society, and all health and care workers can strongly advocate for and request the creation of stronger IPC knowledge, expertise and capacity, as well as career pathways.

5 Data for action



a. Establish and/or better utilize systems for regular data collection (including high-quality laboratory data) and feedback on IPC and WASH indicators (particularly for hand hygiene) and HAI surveillance (including for epidemic-/pandemic-prone diseases and health and care workers' infections);

b. ensure training and expertise for data collection, analysis, interpretation and quality control;

c. ensure integration of IPC and HAI data into national health information and accreditation systems, and provide regular feedback on key IPC performance indicators to relevant audiences and stakeholders;

d. establish mechanisms for accountability based on IPC and HAI data;

e. use these data for action in a spirit of safety and quality improvement and not for punishment or penalties; and

f. develop, implement, measure, and regularly update locally tailored and actionable improvement plans.

Data need to be accurate and efficiently collected so that they can be used for action and to improve health outcomes.

Integrating IPC monitoring and evaluation into national planning and review processes can help to ensure this happens. Mechanisms to ensure data quality, including for laboratory data, should be embedded within data collection and analysis systems. Ideally, IPC and HAI data should be included in or aligned with existing databases (for example, District Health Information Management Systems; the WHO/UNICEF Joint Monitoring Programme global database on WASH in health care facilities *(70)*) and/or other infectious diseases surveillance systems. Harmonization of IPC indicators within accreditation systems is also needed, in line with national and international standards.

IPC monitoring results and surveillance data should be interpreted and used locally, sub-nationally and nationally to identify existing strengths and critical gaps. This process should be used to recognize and reward progress and target achievements and also to collectively develop targeted and feasible improvement plans to bridge the gaps. Thus, evaluation feedback to all key players involved should be ensured, that is, from senior manager level to all concerned staff, including the use of technologies that facilitate automatic reporting and point-of-care feedback.

Establishing the local epidemiology of HAIs and promptly detecting potential problems are critical functions to address possible patient harm and health worker infection risks. This is especially important when it involves emerging AMR pathogens and epidemic-/pandemic-prone microorganisms, given their potential for a huge health impact and disruption to society, not just health care. Thus, national IPC programmes should establish functioning and quality-controlled systems for HAI and AMR surveillance, according to the global AMR and antimicrobial use surveillance system or other standardized HAI and AMR surveillance systems (for example, the system coordinated by the European Centre for Disease Prevention and Control). The use of standardized surveillance systems facilitates inter-country comparisons and benchmarking, but these also need to be practical and useful within an individual country so that the data can be used to optimize local improvements in IPC implementation.

Key players

Among the GSIPC audiences, key players in this strategic direction are IPC and WASH focal points and leaders, supported by IPC committees and technical expert working groups. However, to establish and institutionalize IPC monitoring and HAI and AMR surveillance systems, political will and financial and human resources are also critical. Educational institutions and scientific societies also play a role because IPC monitoring and HAI and AMR surveillance require specific knowledge and expertise.

6 Advocacy and communications

a Organize and implement campaigns to promote and raise awareness of IPC themes and targets and support social mobilization, including through patient and community engagement;

b provide tailored and consistent communications on IPC from authoritative sources, based on science and adapted for different audiences; and

c provide innovative advocacy approaches through a range of communication channels.

Consistent communications regarding IPC matters are crucial to effective training, understanding and implementation. This is especially true during outbreaks, but also important at all times.

Communication messages and channels should be carefully tailored and adapted to different audiences, including the general community. It is important that they come from authoritative sources and are based on science. As IPC communications often involve a complex messaging matrix of describing a disease or outbreak, the prevention actions to contain or restrict its spread, plus the basic IPC initiatives and actions that should be routinely undertaken as part of good standard IPC practice, imply the need for the careful development and focus of IPC communication strategies. Thus, innovative communication methods should be used and trialled, with professional and corporate approaches to the use of social media. Organizing campaigns or participating in international events, such as the World Antimicrobial Awareness Week or the World Hand Hygiene Day, is an effective approach to create awareness of the importance of IPC and appropriate IPC practices and interventions among different target audiences. It is a way to build a bridge between IPC in health care settings and infection prevention in the community and to actively engage the public.

Key players

All target audiences of the GSIPC are relevant to implement this strategic direction, with the media and communication professionals and bodies as the driving force. IPC focal points and leaders also play a critical role in communicating with the public and other interlocutors by identifying key IPC messages to be conveyed depending on the situation and working with communication professionals to develop risk communications and translate technical concepts into plain language. Specific skills need to be developed for this role.

7 Research and development

a Identify research gaps for IPC;

b fund and facilitate good quality research, answering key questions and developing innovations in IPC;

c include a focus on local settings, with adaptation of IPC for fragile countries and/or countries with limited resources; and

d support data sharing, collaborative research, and research capacity-building.

While the key principles of IPC are well established, the practical implementation of IPC initiatives can vary between countries, based on the health structure and resourcing. Major research questions, particularly regarding the most effective and practical modes of IPC practices implementation in various resource settings as well as how to prevent resistance to antimicrobials and disinfectants, require particular attention.

More support and incentives for research in the field of IPC are needed as the quality and scope of the currently available evidence is relatively limited and expertise is lacking.

Most studies on the effectiveness and cost-effectiveness of IPC interventions have been undertaken in high-income countries and relate to only a limited number of specific infections and outcomes. Ideally, dedicated national and international funding streams should be established to address these issues to ensure that the findings are broadly applicable across a variety of health care settings. Operational research embedded within existing practices and data collection systems should be prioritized; qualitative studies to understand how and why specific IPC interventions succeed or fail are also of the utmost importance for the sustainability and applicability of methods and findings to a broad range of settings. Data sharing, collaborative research, and research capacity-building should be strongly encouraged.

Key players

Among the target audiences of the GSIPC, academic institutions and scientific organizations play a leading role for this strategic direction. Key stakeholder and donor commitment to support research is paramount. Notably, they should be oriented in their investments by a research agenda and the needs of countries and local settings to respond to specific questions and/or find suitable IPC solutions. IPC leaders play an important role in providing technical expertise to inform research protocols and to implement research in the field.

8 Collaboration and stakeholders' support

a Strengthen collaboration and alignment among partners and stakeholders to synergistically support countries to improve IPC according to their priorities and plans; and

b support networking and partnerships between facilities, institutions and countries and internationally to share IPC experiences and expertise, in particular by fostering South-South and North-South cooperation.

Collaboration and alignment among partners and stakeholders on IPC issues, implementation strategies/programmes, and research are critical to avoid duplication of efforts and a waste of resources and should rather complement and enhance each other.

They also make economic sense in terms of funding and the generalizability of research outputs and findings. Collaboration is also necessary between all countries, but finding IPC solutions that are practical and readily implementable in low- and middle-income countries is currently particularly important currently. The challenges of IPC in terms of disease prevention and control of outbreaks are a global issue as these diseases spread without regard for national borders. Thus, the required response needs to be coordinated, uniform and collaborative both within countries and across borders to maximize efficiency and effectiveness. The establishment of international and especially national and sub-national IPC collaborative networks has been shown to have a significantly positive impact on the success of IPC activities, such as HAI surveillance.

Key players

This particular strategic direction is the prerogative of those listed among key stakeholders and donors at national and international level. Government officials, political and health care leaders and policy-makers at the ministry of health and other relevant ministries also play a critical role in establishing and supporting collaborations and networking in the field of IPC. IPC professionals at national and sub-national level play a leading role in ensuring collaboration, alignment and networking with and among partners and stakeholders.

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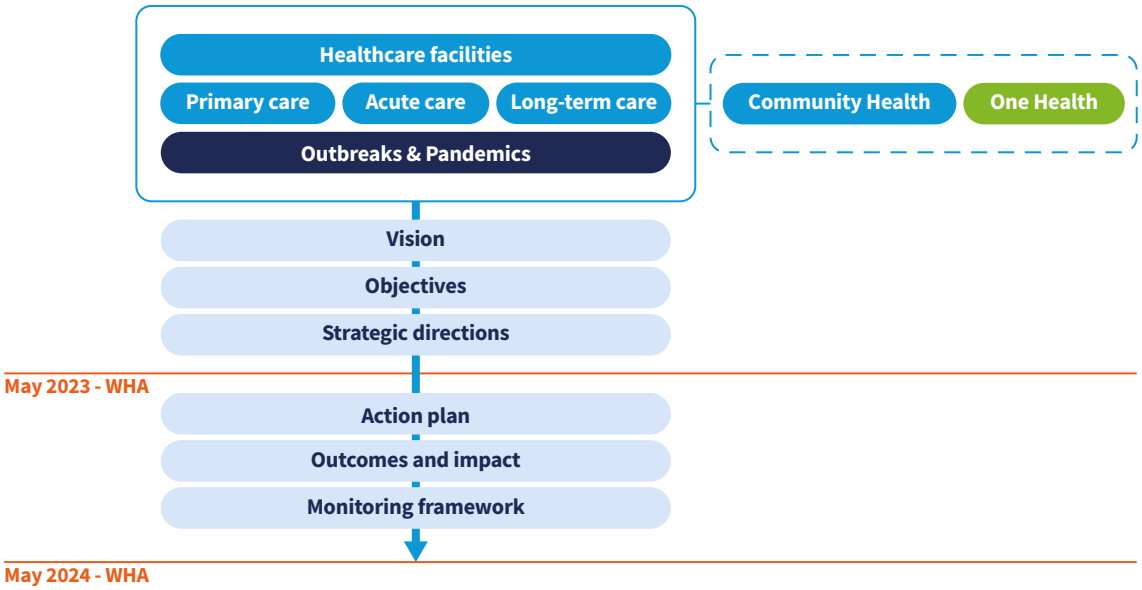
6. Implementation – “IPC is everybody’s business”

6. Implementation – "IPC is everybody's business"

Implementation of the GSIPC will require prioritization of IPC and domestic financial resource mobilization, as well as strong donor support, to ensure sustainability, especially in low-resource settings.

Following adoption of the GSIPC by the World Health Assembly, in response to the request to the Director-General through resolution WHA75.13 *(5)*, a detailed global action plan will be developed for consideration by the Seventy-seventh World Health Assembly in May 2024. This will include a suggested monitoring and evaluation framework, including outcome and impact targets and a timeframe (Fig.6). The framework will have to be aligned with the monitoring matrix of other relevant existing WHO programmes to avoid duplication of reporting.

Fig. 6. Overview of the IPC global strategy, action plan and monitoring framework and their timetable



WHA: World Health Assembly.

Key overarching principles for these action steps include essential fundamentals for success.

1. GSIPC implementation needs to be practical, feasible and mindful of local conditions and abilities.

2. A practical and clinically-useful IPC monitoring framework will be developed, with timely feedback of results to key user groups and stakeholders considered a priority. This is crucial if the GSIPC is to achieve meaningful change in clinical health outcomes, rather than simply bureaucratic reports.

3. The starting point for the identification of indicators, measures and targets for the IPC monitoring framework will be the existing indicators relevant for IPC, integrated in other monitoring systems (Annex 3).

4. Outcome measures should be clinically meaningful in terms of health metrics and should be ones that can be legitimately associated with a true health impact(s).

5. Existing outcome measures currently being used by other WHO programmes in which IPC is integrated will be prioritized to maximize operational and reporting efficiency, while reducing reporting burden. Support, enhancement and expansion of these systems will be key.

6. Where outcome reporting gaps are identified, new outcome metrics and systems will be developed or adapted from existing elements, following detailed consultations with relevant IPC experts, stakeholders and Member States' focal points.

7. The monitoring framework will also include other important non-clinical measures, such as financial targets to demonstrate investments in IPC.

8. The key target timeframe for the GSIPC is 2030, given the terms of the WHA75.13 resolution *(5)* and, importantly, to align with the timetable of the WHO Sustainable Development Goals.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Annex 1. Glossary

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Antimicrobial resistance (AMR) and use: AMR threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses and fungi. AMR occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines, making infections harder to treat and increasing the risk of disease spread, severe illness and death. As a result, the medicines become ineffective and infections persist in the body, increasing the risk of spread to others. Antimicrobials - including antibiotics, antivirals, antifungals and antiparasitics - are medicines used to prevent and treat infections in humans, animals and plants. Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs" *(1)*.

Care workers: Care workers provide direct personal care services in the home, in health care and residential settings, assisting with routine tasks of daily life, and performing a variety of other tasks of a simple and routine nature *(2)*.

Country designations: WHO Member States are grouped into four income groups (low, lower-middle, upper-middle and high) according to the World Bank's analytical classification of economies calculated using the World Bank Atlas method and based on the gross national income (GNI) per capita of each country. For the 2022 fiscal year, low-income countries are defined as those with a gross national income (GNI) per capita of $1045 or less in 2020; lower-middle-income countries are those with a GNI per capita between $1046 and $4095; upper-middle-income countries are those with a GNI per capita between $4096 and $12 695; and high-income countries are those with a GNI per capita of $12 696 or more. We use low- and middle-income countries to refer to a grouping of the first three income levels (that is, low-income, lower-middle-income and upper-middle-income countries) *(3)*.

Hand hygiene: A general term referring to any action of hand cleansing, that is, the action of performing hand hygiene for the purpose of physically or mechanically removing dirt, organic material, and/or microorganisms *(4)*.

Health care-associated infection (HAIs) (also referred to as "nosocomial" or "hospital-acquired infection"): An infection acquired by a patient during the process of care (including preventive, diagnostic and treatment services) in a hospital or other health care facility, which was not present or incubating at the time of admission; HAIs can also appear after discharge. HAIs are also acquired by health workers during health care delivery and by visitors *(5)*.

Health workers: Health workers are all people primarily engaged in actions with the primary intent of enhancing health *(6)*.

Infection prevention and control (IPC) minimum requirements: IPC standards that should be in place at both national and health facility level to provide minimum protection and safety to patients, health care workers and visitors, based on the WHO core components for IPC programmes. The existence of these requirements constitutes the initial starting point for building additional critical elements of the IPC core components according to a stepwise approach based on assessments of the local situation *(7)*.

IPC committee: A multidisciplinary group with interested stakeholders across the facility, which interacts with and advises the IPC team. For example, the IPC committee could include senior facility leadership, senior clinical staff, leads of other relevant complementary areas (such as biosafety, pharmacy, microbiology or clinical laboratory), waste management, WASH services and quality and safety, where in place *(7)*.

IPC focal point: IPC professional (according to the above definition) appointed to be in charge of IPC at the national, sub-national or facility/organization level *(8)*.

IPC professional: Health care professional (medical doctor, nurse, or other health-related professional) who has completed a certified postgraduate IPC training course, or a nationally or internationally recognized postgraduate course on IPC, or another core discipline including IPC as a core part of the curriculum as well as IPC practical and clinical training *(8)*.

People-centred care: An approach to care that consciously adopts the perspectives of individuals, carers, families and communities as participants in, and beneficiaries of trusted health systems organized around the comprehensive needs of people rather than individual diseases, and respects social preferences. People-centred care also requires that patients have the education and support they need to make decisions and participate in their own care and that carers are able to attain maximal function within a supportive working environment. People-centred care is broader than patient and person-centred care, encompassing not only clinical encounters, but also including attention to the health of people in their communities and their crucial role in shaping health policy and health services *(9)*.

Point of care: The place where three elements come together: the patient, the health care worker and care or treatment involving contact with the patient or his/her surroundings (within the patient zone) *(4)*.

Primary health care facilities: Facilities that provide outpatient services, family planning, antenatal care, maternal, newborn and child health services (including delivery), for example, health centres, health posts and small district hospitals *(10)*.

Universal health coverage: Universal health coverage means that all individuals and communities receive the health services they need without suffering financial hardship. It includes the full spectrum of essential, quality health services, from health promotion to prevention, treatment, rehabilitation, and palliative care across the life course *(11)*.

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Annex 2.

Minimum requirements for IPC programmes according to the related core component at national and health care facility levels

Annex 2. Minimum requirements for IPC programmes according to the related core component at national and health care facility levels

<table>
<tr><td>Recommendations for Core Component 1: IPC programmes</td><td>National level
Active, stand-alone, national IPC programmes with clearly defined objectives, functions and activities should be established for the purpose of preventing HAI, promoting patient safety and combating AMR through IPC good practices.
National IPC programmes should be linked with other relevant national programmes and professional organizations.</td><td>Facility level
An IPC programme with a dedicated, trained team should be in place in each acute health care facility for the purpose of preventing HAI and combating AMR through IPC good practices.</td></tr>
<tr><td rowspan="3">Minimum requirements</td><td rowspan="3">A functional IPC programme should be in place, including at least:
• one full-time focal point trained in IPC; and
• a dedicated budget for implementing IPC strategies/plans.</td><td>Primary care: IPC trained health care officer
• A trained IPC link person, with dedicated (part-) time in each primary health care facility
• One IPC-trained health care officer at the next administrative level (for example, district) to supervise the IPC link professionals in primary health care facilities</td></tr>
<tr><td>Secondary care: functional IPC programme
• A trained IPC focal point (one full-time trained IPC Officer [nurse or doctor]) at the recommended ratio of 1:250 beds with dedicated time to carry out IPC activities in all facilities (for example, if the facility has 120 beds, one 50% full-time equivalent dedicated officer)
• Dedicated budget for IPC implementation</td></tr>
<tr><td>Tertiary care: functional IPC programme
• At least one full-time trained IPC officer (nurse or doctor) with dedicated time per 250 beds
• IPC programme aligned with the national programme and with a dedicated budget
• Multidisciplinary committee/team
• Access to microbiology laboratory</td></tr>
</table>

<table>
<tr><td>Recommendations for Core Component 2: National and facility level IPC guidelines</td><td colspan="2">National and facility level
Evidence-based guidelines should be developed and implemented for the purpose of reducing HAI and AMR. The education and training of relevant health care workers on the guideline recommendations and the monitoring of adherence with guideline recommendations should be undertaken to achieve successful implementation.</td></tr>
<tr><td rowspan="2">Minimum requirements</td><td rowspan="2">National IPC guidelines
• Evidence-based, ministry-approved guidelines adapted to the local context and reviewed at least every five years</td><td>Primary care: facility-adapted standard operating procedures (SOPs) and their monitoring
• Evidence-based facility-adapted SOPs based on the national IPC guidelines
• As a minimum, the facility SOPs should include:
  ○ hand hygiene;
  ○ decontamination of medical devices and patient care equipment;
  ○ environmental cleaning;
  ○ health care waste management;
  ○ injection safety;
  ○ health care worker protection (for example, at least post-exposure prophylaxis, vaccinations);
  ○ aseptic techniques;
  ○ triage of infectious patients; and
  ○ basic principles of standard and transmission-based precautions.
• Routine monitoring of the implementation of at least some of the IPC guidelines/SOPs</td></tr>
<tr><td>Secondary and tertiary care: all requirements as for the primary health care facility level, with additional SOPs on:
• standard and transmission-based precautions (for example, detailed, specific SOPs for the prevention of airborne pathogen transmission);
• septic technique for invasive procedures, including surgery;
• specific SOPs to prevent the most prevalent HAIs based on the local context/epidemiology; and
• occupational health (detailed).</td></tr>
</table>

<table>
<tr><td>Recommendations for Core Component 3: IPC education and training</td><td>National level
The national IPC programme should support education and training of the health workforce as one of its core functions.</td><td>Facility level
IPC education should be in place for all health care workers by using team- and task-based strategies that are participatory and include bedside and simulation training to reduce the risk of HAI and AMR.</td></tr>
<tr><td rowspan="3">Minimum requirements</td><td rowspan="3">National training policy and curriculum
• National policy that all health care workers are trained in IPC (in-service training)
• An approved IPC national curriculum aligned with national guidelines and endorsed by the appropriate body
• National system and schedule of monitoring and evaluation to check on the effectiveness of IPC training and education (at least annually)</td><td>Primary care: IPC training for all front-line clinical staff and cleaners upon hire
• All front-line clinical staff and cleaners must receive education and training on the facility IPC guidelines/SOPs upon employment.
• All IPC link persons in primary care facilities and IPC officers at the district level (or other administrative level) need to receive specific IPC training.</td></tr>
<tr><td>Secondary care: IPC training for all front-line clinical staff and cleaners upon hire
• All front-line clinical staff and cleaners must receive education and training on the facility IPC guidelines/SOPs upon employment.
• All IPC staff need to receive specific IPC training.</td></tr>
<tr><td>Tertiary care: IPC training for all front-line clinical staff and cleaners upon hire and annually:
• All front-line clinical staff and cleaners must receive education and training on the facility IPC guidelines/SOPs upon employment and annually.
• All IPC staff need to receive specific IPC training.</td></tr>
</table>

<table>
<tr><td>Recommendations for Core Component 4: HAI surveillance</td><td colspan="2">National level
National HAI surveillance programmes and networks that include mechanisms for timely data feedback and with the potential to be used for benchmarking purposes should be established to reduce HAI and AMR.</td><td>Facility level
Facility-based HAI surveillance should be performed to guide IPC interventions and detect outbreaks, including AMR surveillance, with timely feedback of results to health care workers and stakeholders and through national networks.</td></tr>
<tr><td rowspan="3">Minimum requirements</td><td colspan="2" rowspan="3">IPC surveillance and a monitoring technical group
• Establishment by the national IPC focal point of a technical group for HAI surveillance and IPC monitoring that:
  ○ is multidisciplinary; and
  ○ develops a national strategic plan for HAI surveillance (with a focus on priority infections based on the local context) and IPC monitoring.</td><td>Primary care
• HAI surveillance is not required as a minimum requirement at the primary facility level, but should follow national or sub-national plans, if available (for example, detection and reporting of outbreaks affecting the community is usually included in national plans).</td></tr>
<tr><td>Secondary care
• HAI surveillance should follow national or subnational plans.</td></tr>
<tr><td>Tertiary care: functional HAI surveillance
• Active HAI surveillance should be conducted and include information on AMR:
  ○ enabling structures and supporting resources need to be in place (for example, dependable laboratories, medical records, trained staff), directed by an appropriate method of surveillance; and
  ○ the method of surveillance should be directed by the priorities/plans of the facility and/or country.
• Timely and regular feedback needs to be provided to key stakeholders in order to lead to appropriate action, in particular to the hospital administration.</td></tr>
</table>

<table>
<tr><td>Recommendations for Core Component 5: Multimodal improvement strategies for implementing IPC activities</td><td>National level
National IPC programmes should coordinate and facilitate the implementation of IPC activities through multimodal strategies on a nationwide or subnational level.</td><td>Facility level
IPC activities using multimodal strategies should be implemented to improve practices and reduce HAI and AMR.</td></tr>
<tr><td rowspan="3">Minimum requirements</td><td rowspan="3">Multimodal improvement strategies for IPC interventions
Multimodal strategies should be used to implement IPC interventions according to national guidelines/SOPs under the coordination of the national IPC focal point (or team, if existing).</td><td>Primary care: multimodal strategies for priority IPC interventions
Use of multimodal strategies – at the very least to implement interventions to improve hand hygiene, safe injection practices, decontamination of medical instruments and devices and environmental cleaning.</td></tr>
<tr><td>Secondary care: multimodal strategies for priority IPC interventions
Use of multimodal strategies – at the very least to implement interventions to improve each one of the standard and transmission-based precautions, and triage.</td></tr>
<tr><td>Tertiary care: multimodal strategies for all IPC interventions
Use of multimodal strategies to implement interventions to improve each one of the standard and transmission-based precautions, triage, and those targeted at the reduction of specific infections (for example, surgical site infections or catheter-associated infections) in high-risk areas/patient groups, in line with local priorities.</td></tr>
</table>

<table>
<tr>
<td>Recommendations for Core Component 6: IPC monitoring, evaluation and feedback</td>
<td colspan="2">National level
A national IPC monitoring and evaluation programme should be established to assess the extent to which standards are being met and activities are being performed according to the programme's goals and objectives. Hand hygiene monitoring with feedback should be considered as a key performance indicator at the national level.
Presence and adequacy of national IPC policies and strategies should be monitored regularly using an integrated Governance and Policies Progress Matrix tool.</td>
<td>Facility level
Regular monitoring/audit and timely feedback of health care practices according to IPC standards should be performed to prevent and control HAI and AMR at the health care facility level. Feedback should be provided to all audited persons and relevant staff.
Routine monitoring of adherence to IPC standards at facility level should be done through integrated health service delivery assessments.</td>
</tr>
<tr>
<td rowspan="2">Minimum requirements</td>
<td colspan="2" rowspan="2">IPC surveillance and a monitoring technical group
• Establishment by the national IPC focal point of a technical group for HAI surveillance and IPC monitoring that:
  ○ is multidisciplinary;
  ○ develops a national strategic plan for HAI surveillance and IPC monitoring;
  ○ develops an integrated system for the collection and analysis of data (for example, protocols and tools);
  ○ provides training at the facility level to collect and analyse these data; and
  ○ develops recommendations for minimum indicators (for example, hand hygiene).</td>
<td>Primary care
• Monitoring of IPC structural and process indicators should be put in place at primary care level, based on IPC priorities identified in the other components. This requires decisions at the national level and implementation support at the subnational level.</td>
</tr>
<tr>
<td>Secondary and tertiary care
• There should be a person responsible for the conduct of the periodic or continuous monitoring of selected indicators for process and structure, informed by the priorities of the facility or the country.
• Hand hygiene is an essential process indicator to be monitored.
• Timely and regular feedback needs to be provided to key stakeholders in order to lead to appropriate action, particularly to the hospital administration.</td>
</tr>
</table>

Recommendations for Core Component 7: Workload, staffing and bed occupancy at the facility level	**Facility level[a]** The following elements should be adhered to, in order to reduce the risk of HAI and the spread of AMR: (1) bed occupancy should not exceed the standard capacity of the facility; (2) health care worker staffing levels should be assigned according to patient workload.
Minimum requirements	**Primary care** • To reduce overcrowding: a system for patient flow, a triage system (including referral system) and a system for the management of consultations should be established according to existing guidelines, if available. • To optimize staffing levels: assess whether staffing levels are appropriate, depending on the categories identified when using WHO/national tools (national norms on patient/staff ratio), and develop an appropriate plan.

	Secondary and tertiary care
	• To standardize bed occupancy:
	  ○ establish a system to manage the use of space in the facility and to establish the standard bed capacity for the facility;
	  ○ ensure hospital administration enforcement of the system developed;
	  ○ ensure no more than one patient per bed;
	  ○ provide spacing at least one metre between the edges of beds; and
	  ○ ensure overall occupancy does not exceed the designed total bed capacity of the facility.
	• To reduce overcrowding and optimizing staffing levels: apply the same minimum requirements as for primary health care.

Recommendations for Core Component 8: Built environment, materials and equipment for infection	**Facility level[a]** Patient care activities should be undertaken in a clean and hygienic environment that facilitates practices related to the prevention and control of HAI, as well as AMR, including all elements around WASH infrastructure and services and the availability of appropriate IPC materials and equipment. Materials and equipment to perform appropriate hand hygiene should be readily available at each point of care.
Minimum requirements	**Primary care** • Water should always be available from a source on the premises (such as a deep borehole or a treated, safely managed piped water supply) to perform basic IPC measures, including hand hygiene, environmental cleaning, laundry, decontamination of medical devices and health care waste management according to national guidelines. • A minimum of two functional, improved sanitation facilities should be available on-site, one for patients and the other for staff; both should be equipped with menstrual hygiene facilities. • Functional hand hygiene facilities should always be available at points of care/toilets and include soap, water and single-use towels (or if unavailable, clean reusable towels) or ABHR at points of care and soap, water and single-use towels (or if unavailable, clean reusable towels) within five metres of toilets. • Sufficient and appropriately labelled bins to allow for health care waste segregation should be available and used (less than five metres from point of generation); waste should be treated and disposed of safely via autoclaving, high-temperature incineration, and/or buried in a lined, protected pit. • The facility layout should allow adequate natural ventilation, decontamination of reusable medical devices, triage and space for temporary cohorting/isolation/physical separation if necessary. • Sufficient and appropriate IPC supplies and equipment (for example, mops, detergent, disinfectant, personal protective equipment and sterilization) and power/energy (for example, fuel) should be available for performing all basic IPC measures according to minimum requirements/SOPs, including all standard precautions, as applicable; lighting should be available during working hours for providing care.

Minimum requirements	**Secondary and tertiary care** • A safe and sufficient quantity of water should be available for all required IPC measures and specific medical activities, including for drinking, and piped inside the facility at all times - at a minimum to high-risk wards (for example, maternity ward, operating room/s, intensive care unit). • A minimum of two functional, improved sanitation facilities that safely contain waste available for outpatient wards should be available and one per 20 beds for inpatient wards; all should be equipped with menstrual hygiene facilities. • Functional hand hygiene facilities should always be available at points of care, toilets and service areas (for example, the decontamination unit), which include ABHR and soap, water and single-use towels (or if unavailable, clean reusable towels) at points of care and service areas, and soap, water and single-use towels (or if unavailable, clean reusable towels) within 5 metres of toilets. • Sufficient and appropriately labelled bins to allow for health care waste segregation should be available and used (less than 5 metres from point of generation) and waste should be treated and disposed of safely via autoclaving, incineration (850° to 1100°C), and/or buried in a lined, protected pit. • The facility should be designed to allow adequate ventilation (natural or mechanical, as needed) to prevent transmission of pathogens. • Sufficient and appropriate supplies and equipment and reliable power/energy should be available for performing all IPC practices, including standard and transmission-based precautions, according to *minimum requirements*/SOPs; reliable electricity should be available to provide lighting to clinical areas for providing continuous and safe care, at a minimum to high-risk wards (for example, maternity ward, operating room/s, intensive care unit). • The facility should have a dedicated space/area for performing the decontamination and reprocessing of medical devices (that is, a decontamination unit) according to *minimum requirements*/SOPs. • The facility should have adequate single isolation rooms or at least one room for cohorting patients with similar pathogens or syndromes, if the number of isolation rooms is insufficient.

[a]Core components 7 and 8 apply only to the facility level.
ABHR: alcohol-based handrub; AMR: antimicrobial resistance; HAI: health care-acquired infection; IPC: infection prevention and control; SOPs: standard operating procedures; WASH: water, sanitation and hygiene.
Source: Minimum requirements for infection prevention and control programmes. Geneva: World Health Organization; 2019 (https://apps.who.int/iris/handle/10665/330080, accessed 13 April 2022).

A

Annex 3.

Existing indicators for IPC integrated in other monitoring systems

Annex 3.
Existing indicators for IPC integrated in other monitoring systems

1. Sustainable Development Goals (SDGs) and targets *(1)*

a. SDG target 3: Ensure healthy lives and promote well-being for all at all ages.

- **i.** 3.1: By 2030, reduce the global mortality ratio to less than 70 per 100 000 live births.
- **ii.** 3.2: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortality to at least as low as 25 per 1000 live births.
- **iii.** 3.3: By 2030, end the epidemics of acquired immunodeficiency syndrome (AIDS), tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases.
- **iv.** 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.
- **v.** 3.d: Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.
- **vi.** 3.d.2: Percentage of bloodstream infections due to selected antimicrobial-resistant organisms.

b. SDG target 6: Ensure the availability and sustainable management of water and sanitation for all.

- **i.** 6.1: By 2030, achieve access to safely-managed drinking water services for all.
- **ii.** 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- **iii.** The WHO/UNICEF Joint Monitoring Programme has defined global indicators for water, sanitation, hand hygiene, cleaning and health care waste for which global reports and databases are updated every 2 years *(2)*.

2. Global action plan on AMR - objective 3: Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures *(3)*

a. Potential measures of effectiveness: extent of reduction in the prevalence of preventable infections, particularly the incidence of drug-resistant infections in health care settings.

3. Global patient safety action plan 2022-2030: core indicators *(4)*

a. Strategic objective 3: Significant reduction in HAIs.

i. Incidence rates and reduction related to specific patient safety outcome measures at national, subnational and health care facility level, related to:

1. avoidable deaths due to health care-associated venous thromboembolism during or after hospitalization (up to 90 days post discharge);
2. avoidable deaths due to health care-associated sepsis;
3. missed or delayed diagnosis;
4. inappropriate polypharmacy;
5. perioperative mortality;
6. avoidable deaths due to patient falls during hospitalization;
7. severe transfusion reactions;
8. obstetric trauma during normal and caesarean section deliveries;
9. neonatal trauma;
10. in-hospital decubitus ulcer;
11. AMR transmission events;
12. ventilator-associated pneumonia incidents;
13. composite score for strategic objective 3 of the patient safety assessment tool.

4. Tracking Antimicrobial Resistance Country Self-assessment Survey (TrACCS): indicator 3.5 *(5)*

- A - No national IPC programme or operational plan is available.
- B - A national IPC programme or operational plan is available. National IPC and WASH and environmental health standards exist but are not fully implemented.
- C - A national IPC programme and operational plan are available and national guidelines for health care IPC are available and disseminated. Selected health facilities are implementing the guidelines, with monitoring and feedback in place.
- D - A national IPC programme available, according to the WHO IPC core components guidelines and IPC plans and guidelines implemented nationwide. All health care facilities have a functional built environment (including water and sanitation), and necessary materials and equipment to perform IPC, per national standards.
- E - IPC programmes are in place and functioning at national and health facility levels, according to the WHO IPC core components guidelines. Compliance and effectiveness are regularly evaluated and published. Plans and guidance are updated in response to monitoring.

5. State party self-assessment annual reporting *(6)* and joint external evaluation *(7)*

Indicators		
C9.1. IPC programmes		
Level 1	An active national IPC programme or operational plan according to the WHO minimum requirements is not available or is under development.	☐
Level 2	An active national IPC programme or operational plan according to WHO minimum requirements exists but is not fully implemented. National IPC guidelines/standards exist but are not fully implemented.	☐
Level 3	An active national IPC programme exists, and a national IPC operational plan according to the WHO minimum requirements is available. National guidelines/standards for IPC in health care are available and disseminated. Selected health facilities are implementing guidelines using multimodal strategies, including health workers' training and monitoring feedback.	☐
Level 4	An active national IPC programme is available according to WHO IPC core component guidelines and is leading implementation of the national IPC operational pland and guidelines nationwide using multimodal strategies, including health workers' training and monitoring and feedback in place. More than 75% of health care facilities meet WHO minimum requirements for IPC programmes, guidelines, training, and monitoring feedback.	☐
Level 5	IPC programmes are in place and functioning at national and health facility levels according to WHO IPC cor components and their compliance and effectiveness are exercised (as applicable), reviewed, evaluated and published. Plans and guidance are regularly updated in response to monitoring and feedback.	☐

Indicators		
C9.2. Health care-associated infections (HCAI) surveillance		
Level 1	No national HCAI surveillance programme or national strategic plan for HCAI surveillance, including pathogens that are antimicrobial resistant and/or prone to outbreaks is available or under development.	☐
Level 2	A national strategic plan for HCAI surveillance (including antimicrobial resistant pathogens that are antimicrobial resistant and/or prone to outbreaks) is available but not implemented.	☐
Level 3	A national strategic plan for HCAI surveillance (including antimicrobial resistant pathogens that are antimicrobial resistant and/or prone to outbreaks) is available and implemented through a national system. Selected secondary and tertiary health care facilities are conducting HCAI surveillance (as specified above) and provide timely and regular feedback to senior management and health workers.	☐
Level 4	A national strategic plan for HCAI surveillance (including antimicrobial resistant pathogens that are antimicrobial resistant and/or prone to outbreaks) is available and implemented nationwide in health care facilities through a national system according to WHO recommendations on IPC core components. Regular reports are available for providing feedback.	☐
Level 5	A national strategic plan for HCAI surveillance (including antimicrobial resistant pathogens that are antimicrobial resistant and/or prone to outbreaks) is available and implemented nationwide in health care facilities through a national system according to the WHO recommendations on IPC core components. Data are shared and being used continuously and in a timely manner to inform prevention efforts. The quality and impact of the system are regularly evaluated, and improvement actions are taken accordingly.	☐

Indicators		
C9.3. Safe environment in health facilities		
Level 1	National standards and resources for safe built environment, e.g., water, sanitation and hygiene (WASH) in health care facilities, including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and for optimization of staffing levels in health care facilities are not available or under development.	☐
Level 2	National standards and resources for safe built environment, e.g., WASH in health care facilities, including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and optimization of staffing levels in health care facilities, according to WHO minimum requirements, exist but they are not fully implemented through a national plan.	☐
Level 3	National standards and resources for safe built environment, e.g., WASH in health care facilities, including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and optimization of staffing levels in health care facilities, according to WHO minimum requirements, exist and are implemented in health care facilities at national level through a national plan.	☐
Level 4	National standards and resources for safe built environment, e.g., WASH in health care facilities, including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and optimization of staffing levels in health care facilities, according to WHO minimum requirements, exist and are implemented in health care facilities at national and intermediate levels according to a national plan.	☐
Level 5	National standards and resources for safe built environment, e.g., WASH in health care facilities, including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and optimization of staffing levels in health care facilities, according to WHO minimum requirements, exist and are implemented in health care facilities at national and subnational levels according to a national plan, and are regularly exercised (as applicable) and monitored and improvement actions are taken accordingly.	☐

6. WHO/UNICEF Country Tracker on the 8 practical steps to improve WASH and waste in health care facilities

a. WHO and UNICEF regularly report on the extent to which countries address planning, investments, monitoring, standards, workforce development and community engagement regarding WASH in health care facilities, based on verified information from countries and regions *(8)*.

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