WHO
Core Componenents of Infection Prevention and Control Programmes

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UNIVERSITÉ DE GENÈVE
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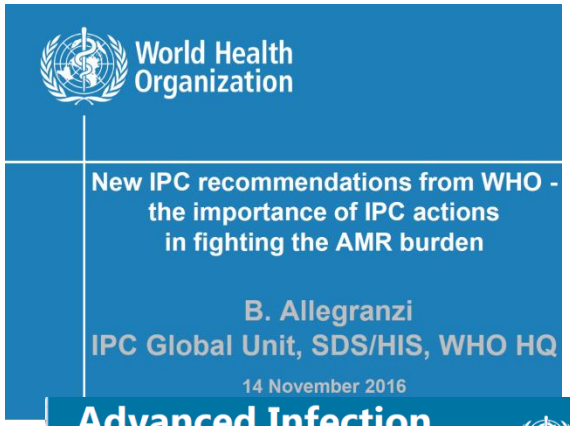
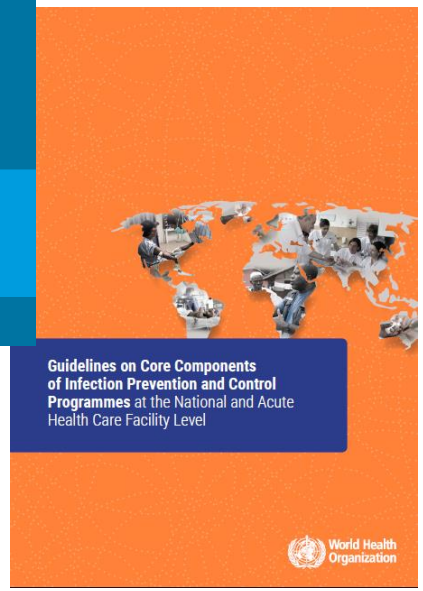

World Health Organization
New IPC recommendations from WHO - the importance of IPC actions in fighting the AMR burden
B. Allegranzi
IPC Global Unit, SDS/HIS, WHO HQ
14 November 2016


Advanced Infection Prevention and Control Training
World Health Organization
Leadership and programme management in infection prevention and control
2018
WHO Global Unit 2017


Guidelines on Core Components of Infection Prevention and Control Programmes at the National and Acute Health Care Facility Level
World Health Organization

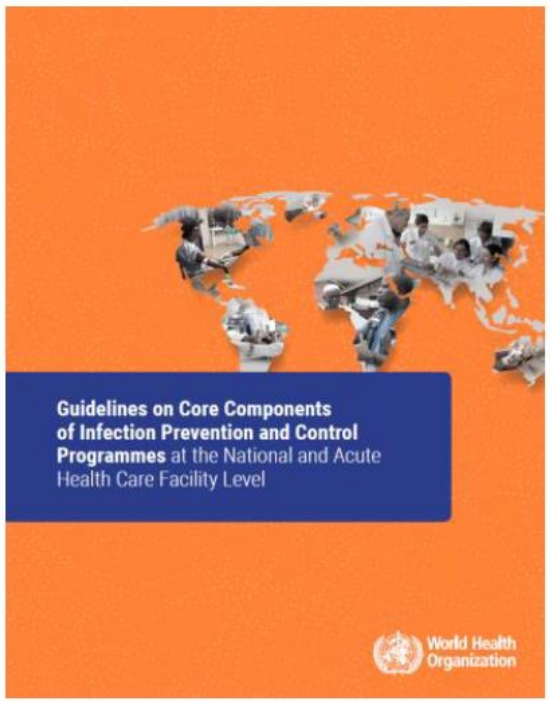

Health care without avoidable infections
The critical role of infection prevention and control
World Health Organization
http://www.who.int/gpsc/en/
World Health Organization

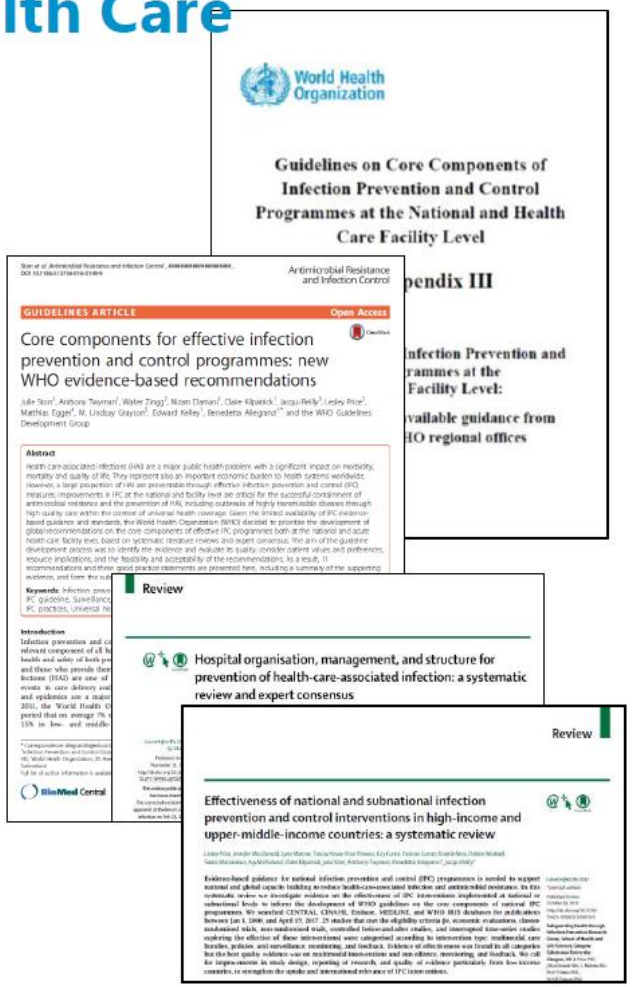
WHO Guidelines on Core Components of IPC Programmes
at the National and Acute Health Care Facility Level

World Health Organization

HEALTH CARE WITHOUT AVOIDABLE INFECTIONS

Focus on *preventing HAIs* and *combating AMR*



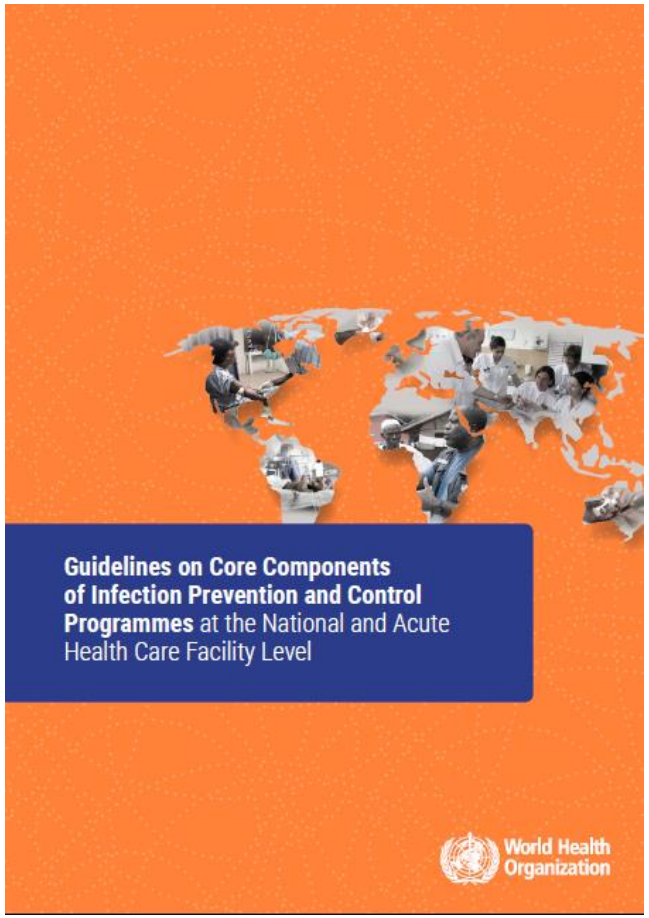


Sources:

- http://www.who.int/infection-prevention/publications/ipc-components-guidelines/en/
- Zingg W et al. TLID 2015
- Storr J et al. ARIC 2017
- Presley L et al. TLID 2017

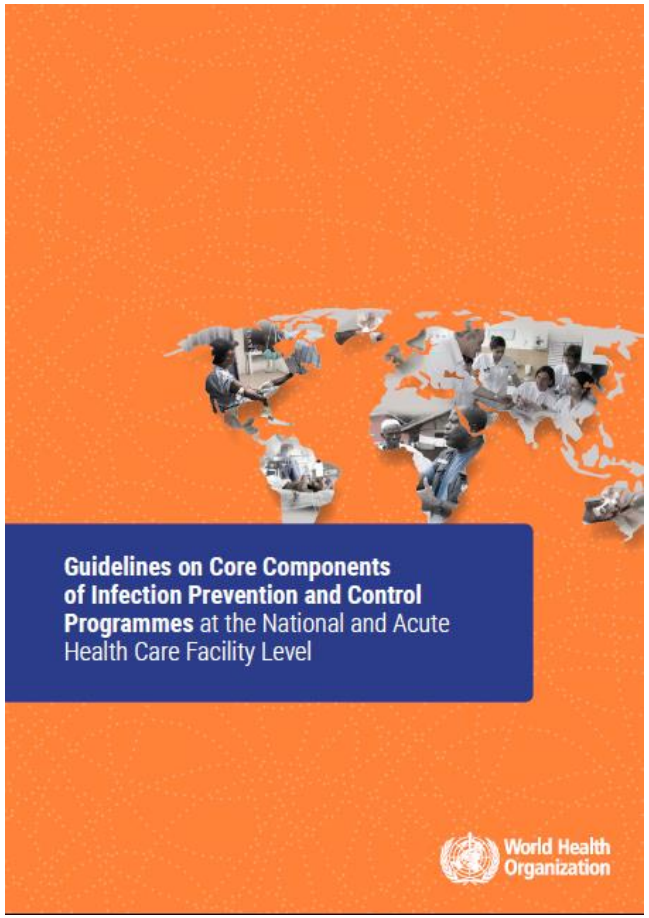
- WHO Global Unit calls on countries and health care facilities to strengthen IPC programs to achieve resilient health systems

- Implement - Guidelines on core components of IPC programs at national and acute health care facility level

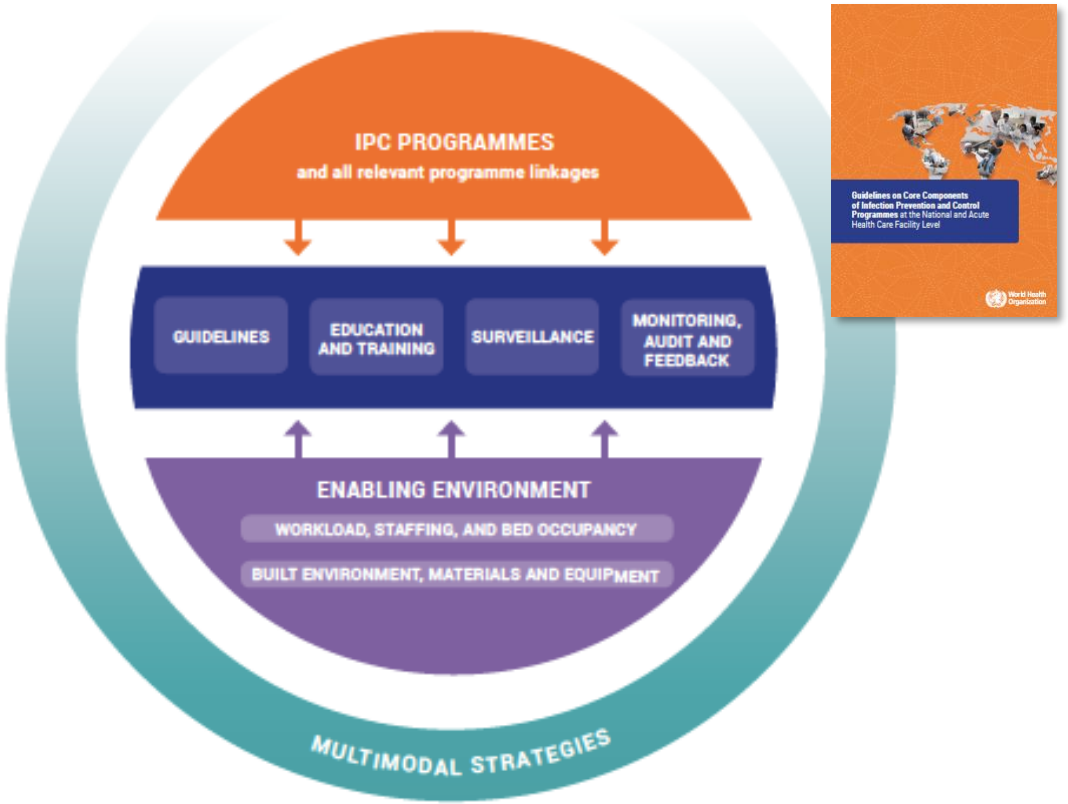


- This will contribute to achieve Sustainable Development Goals
  - Universal access to **Wa**ter, **S**anitation and **H**ygiene (WASH)
  - Quality health service delivery in the context of universal health coverage
  - Reduction of neonatal and maternal mortality

- The WHO core components are a road map for how IPC can prevent harm due to health care-associated infection (HAI) and antimicrobial resistance (AMR)



IPC core components



New WHO core components for IPC programmes

1	IPC programmes	R1a Strong 1b GPS	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. Stand-alone, active **national** IPC programmes with clearly defined objectives, functions and activities for the purpose of preventing HAI and combating AMR through IPC good practices should be established. National IPC programmes should be linked to other relevant national programmes and professional organizations.
2	Evidence-based guidelines	R2 Strong	Evidence-based guidelines should be developed and implemented for the purpose of reducing HAI and AMR. Education and training of the relevant health care workers on guideline recommendations and monitoring of adherence with guideline recommendations should be undertaken to achieve successful implementation.
3	Education & training	R3a Strong 3b GPS	At the **facility** level, IPC education should be in place for all health care workers by utilizing team- and task-based strategies that are participatory and include bedside and simulation training to reduce the risk of HAI and AMR. The **national** IPC programme should support education and training of the health workforce as one of its core functions.
4	Surveillance	R4a Strong R4b Strong	**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. **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.
5 NEW	Multimodal Strategies	R5a Strong R5b Strong	At the **facility** level, IPC activities should be implemented using multimodal strategies to improve practices and reduce HAI and AMR. **National** IPC programmes should coordinate and facilitate the implementation of IPC activities through multimodal strategies at the national or sub-national level.
6 NEW	Monitoring, audit & feedback	R6a Strong R6b Strong	Regular monitoring/audit and timely feedback of health care practices should be undertaken according to IPC standards to prevent and control HAIs and AMR at the health care **facility** level. Feedback should be provided to all audited persons and relevant staff. 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.
7 NEW	Workload, staffing & bed occupancy	R7 Strong	In order to reduce the risk of HAI and the spread of AMR, the following should be addressed: (1) bed occupancy should not exceed the standard capacity of the facility; (2) health care worker staffing levels should be adequately assigned according to patient workload.
8 NEW	Built environment, materials & equipment	8a GPS R8b Strong	At the **facility** level, patient care activities should be undertaken in a clean and/or hygienic environment that facilitates practices related to the prevention and control of HAI, as well as AMR, including all elements around the WASH infrastructure and services and the availability of appropriate IPC materials and equipment. At the **facility** level, materials and equipment to perform appropriate hand hygiene should be readily available at the point of care.

- **8 Core components**
- 11 evidence based recommendations
- 3 good practice statements

R= recommendation; GPS: good practice statement

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Guideline Recommendations (R) & Good Practice Statements (GPS)

1	IPC programmes	R1a *Strong* 1b *GPS*	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. Stand-alone, active **national** IPC programmes with clearly defined objectives, functions and activities for the purpose of preventing HAI and combating AMR through IPC good practices should be established. National IPC programmes should be linked to other relevant national programmes and professional organizations.
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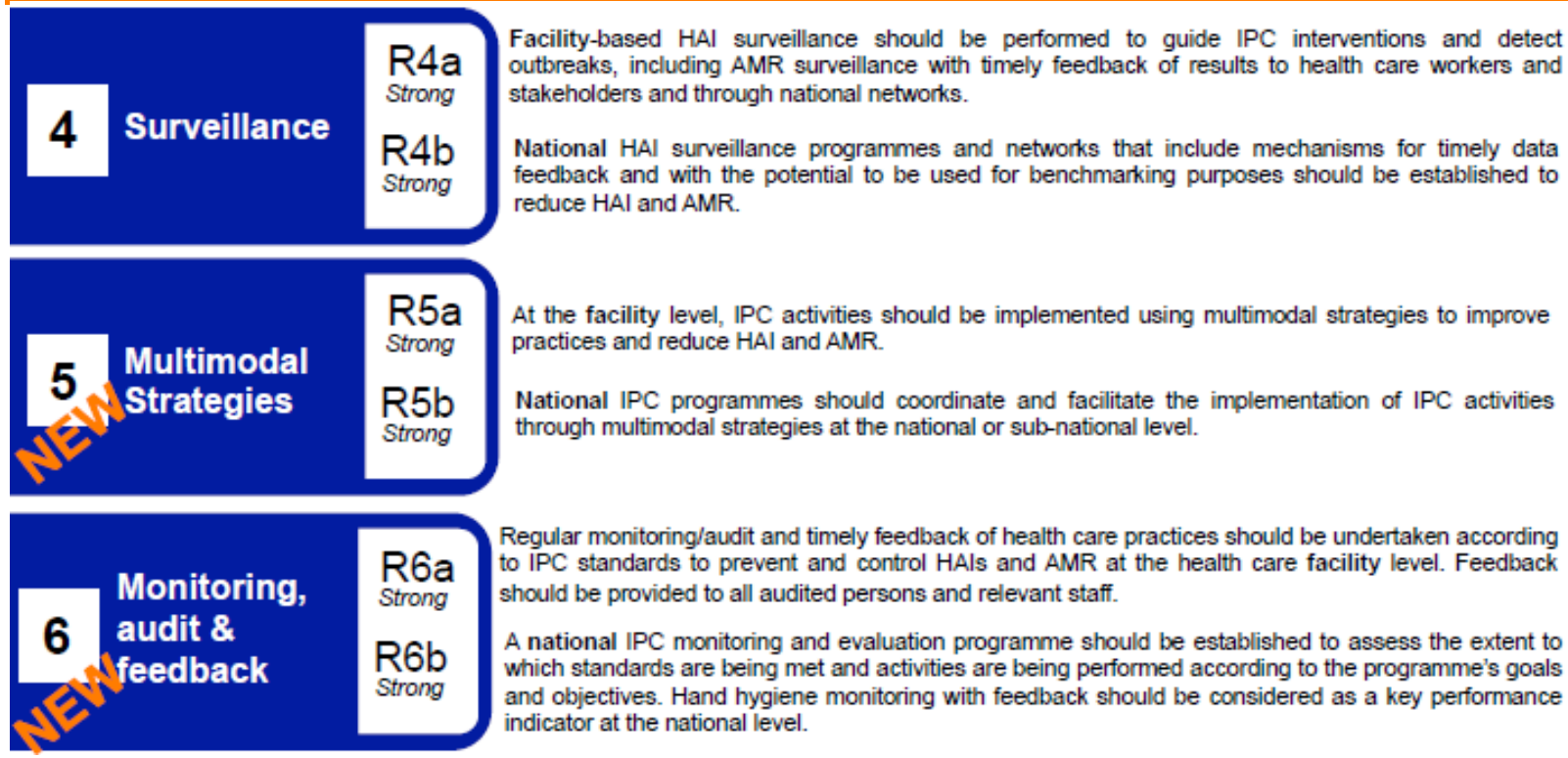
Guideline Recommendations (R) & Good Practice Statements (GPS)



Guideline Recommendations (R) & Good Practice Statements (GPS)

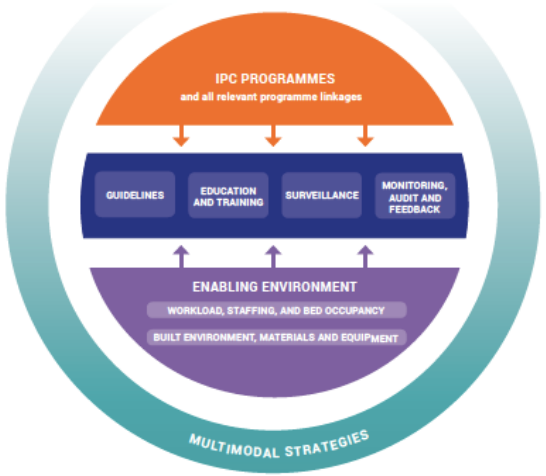
7 NEW	Workload, staffing & bed occupancy	R7 *Strong*
8 NEW	Built environment, materials & equipment	8a *GPS* R8b *Strong*

In order to reduce the risk of HAI and the spread of AMR, the following should be addressed: (1) bed occupancy should not exceed the standard capacity of the facility; (2) health care worker staffing levels should be adequately assigned according to patient workload.

At the facility level, patient care activities should be undertaken in a clean and/or hygienic environment that facilitates practices related to the prevention and control of HAI, as well as AMR, including all elements around the WASH infrastructure and services and the availability of appropriate IPC materials and equipment.

At the facility level, materials and equipment to perform appropriate hand hygiene should be readily available at the point of care.

The core components at-a-glance



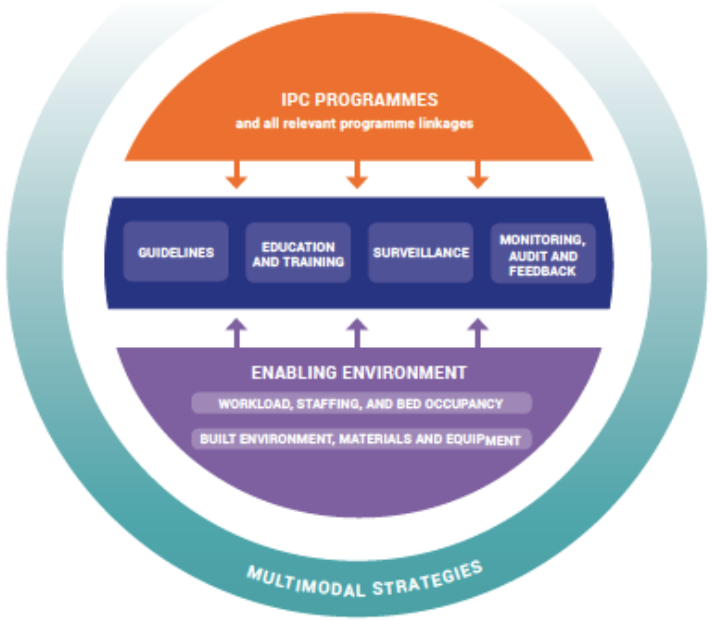
Resources are available to support implementation

Implementation resources

Practical manual to support implementing the core components	Assessment tools to support baseline and follow-up assessment	Academic publications to convince senior managers and leaders	Videos explaining the core components and leadership in IPC	Advocacy video on IPC, HAI and AMR

http://www.who.int/infection-prevention/tools/core-components/en/

Project management – an important skill



Understand the role of project management in IPC programme

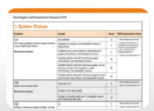
Assessments and situation analysis as a key step of project management (steps 2 and 4)

Infection prevention and control assessment tool (IPCAT2)

- National-level assessment tool.
- Provides baseline and ongoing data for improvement.

Infection prevention and control assessment framework (IPCAF)

- Facility-level assessment tool.
- Provides baseline and ongoing data for improvement.



Hand hygiene self-assessment framework (HHSAF)

- Diagnostic tool for health care facilities.
- Provides baseline and ongoing data for improvement.

07/03/2018 http://who.int/infection-prevention/tools/core-components/en/ 32

Implement intervention

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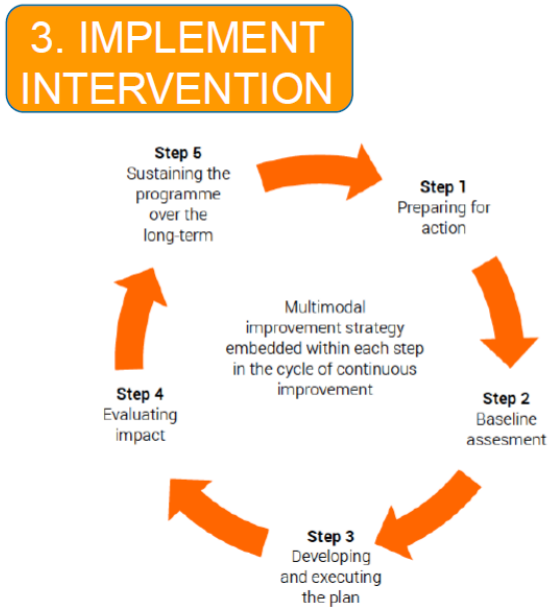
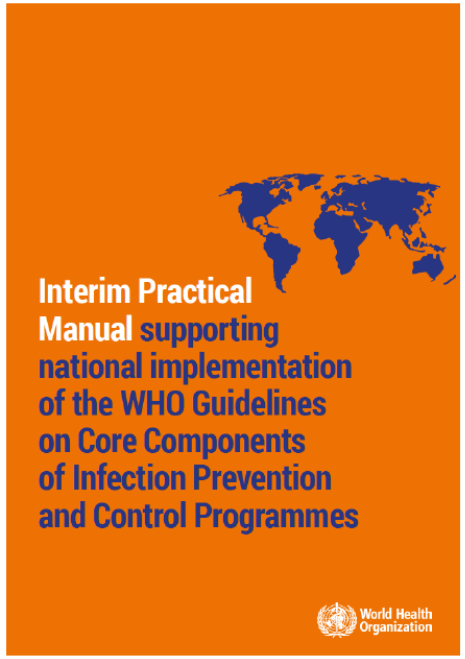
The WHO five-step cycle





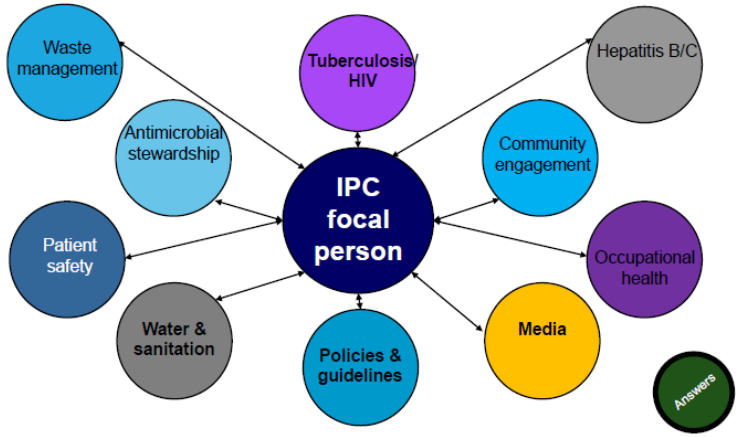
Based on the validated approach to implementation developed in relation to the WHO guidelines on hand hygiene in health care (2009)

IPC relevant programme interlinkages

Who should IPC link with?

Linkages with other programmes

IPC focal person advocates for IPC across programmes



Core components and the principles of adult learning

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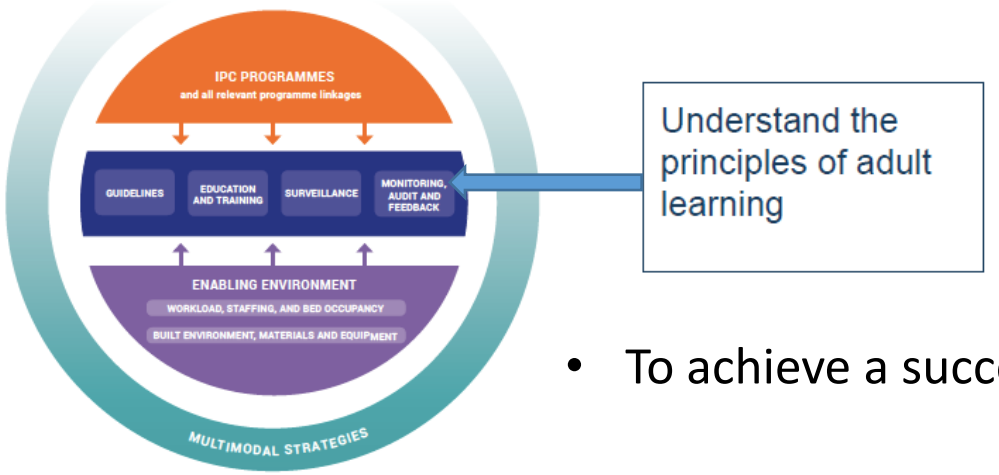


Understand the principles of adult learning

- To achieve a successful surveillance program:

- HCWs should learn appropriate case definitions, reporting mechanisms, sources of bias and error

- IPC focal persons not only need to support this learning, but also the learning of those who are teaching how to learn the core components

Hand hygiene multimodal improvement strategy

World Health Organization

Supporting implementation

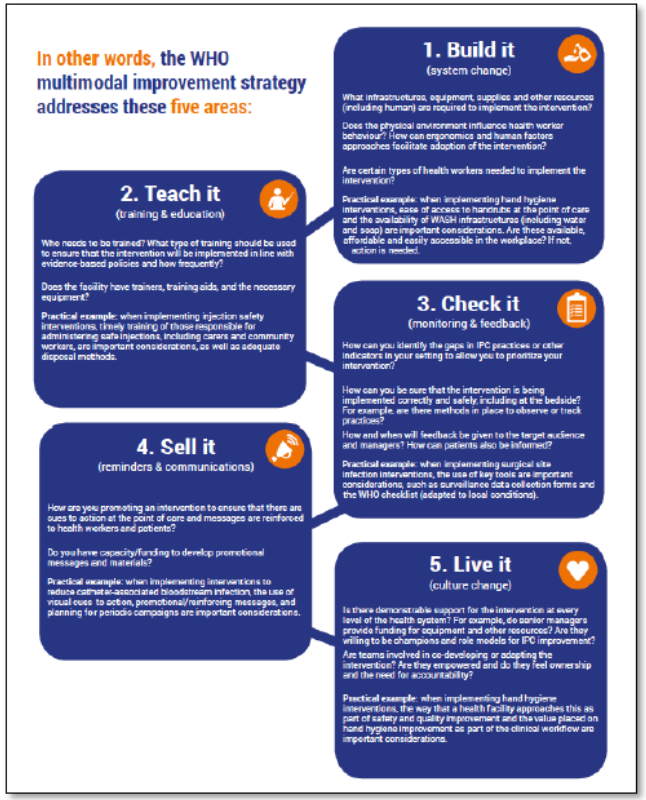
ONE System change
Alcohol-based handrubs at point of care
and access to safe continuous water supply, soap and towels

TWO Training and education
Providing regular training to all health-care workers

THREE Evaluation and feedback
Monitoring hand hygiene practices, infrastructure, perceptions, & knowledge, while providing results feedback to health-care workers

FOUR Reminders in the workplace
Prompting and reminding health-care workers

FIVE Institutional safety climate
Individual active participation, institutional support, patient participation



New IPC core components: implications for low and middle income countries (1)

- Limited access to qualified and trained IPC professionals
- Limited human resources
- Inadequate budgets
- Implementation challenges
- Need for adaptation or tailoring to the cultural setting and local context, and according to available resources
- Availability of human resources and training, quality microbiological/laboratory support, information technology, and data management systems are requirements for surveillance and auditing; in their absence, surveillance based on clinical data could be considered.

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New IPC core components: implications for low and middle income countries (2)

However:

- Resources invested are worth the net gain, irrespective of the context and despite the costs incurred
- Not all solutions require additional resources and
- Some solutions can likely be low cost and local production (e.g. alcohol-based hand rubs) should be encouraged
- Partnerships or partners' collaborations could assist in the achievement of the core components delivery and funding

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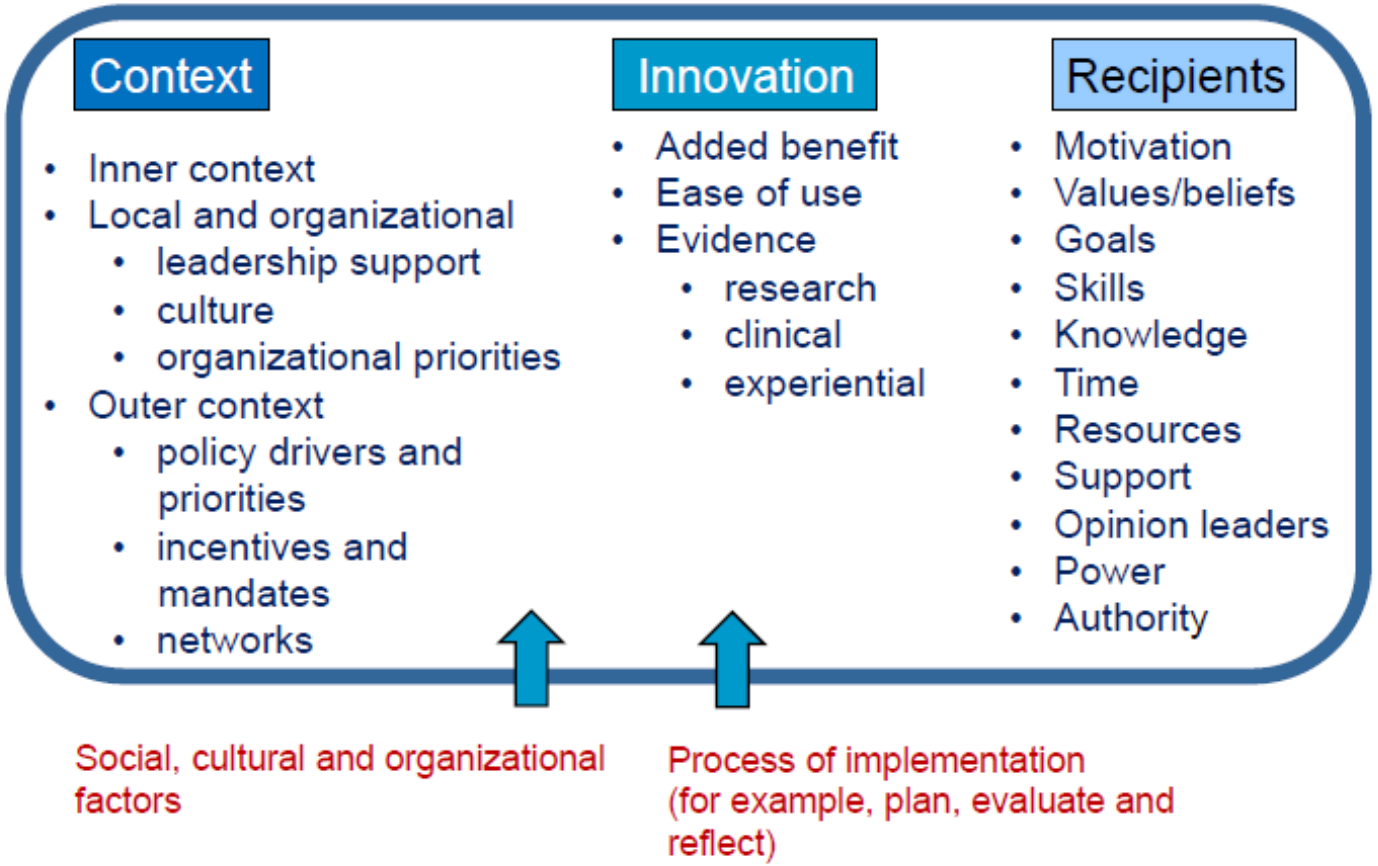
Making improvement with limited resources

World Health Organization

- Damani highlights three approaches to improve IPC in settings with limited resources:
  - focus on improving **no-cost** practices
  - focus on improving **low-cost** practices
  - **stop wasteful and unnecessary** practices.
- These three approaches have the potential to save money, time and improve the quality and safety of health care.

Damani N. Simple measures save lives: an approach to infection control in countries with limited resources. J Hosp Infect. 2007;65(Suppl. 2):151-154

What is required for successful implementation?



81 indicators for 8 WHO IPC core components (CC)

Introduction and user instructions

The Infection Prevention and Control (IPC) Assessment Framework (IPCAF) is a tool to support the implementation of the World Health Organization (WHO) *Guidelines on core components of IPC programmes*[1] at the acute health care facility level. The user should be familiar with the contents of these guidelines, including the *Interim practical manual* supporting the implementation of the IPC core components at the facility level[2] before using this tool. The IPCAF is a systematic tool that can provide a baseline assessment of the IPC programme and activities within a health care facility, as well as ongoing evaluations through repeated administration to document progress over time and facilitate improvement.

What is its purpose?

The IPCAF is a structured, closed-formatted questionnaire with an associated scoring system. It is primarily intended to be self-administered (that is, a *self-assessment* tool), but it can also be used for joint assessments, through careful discussions between external assessors (for example, from the Ministry of Health, WHO or other stakeholders) and facility staff. The framework is intended for acute health care facilities, but it can be used in other inpatient health care settings. Although

https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.9

INFECTION PREVENTION AND CONTROL ASSESSMENT FRAMEWORK AT THE FACILITY LEVEL 3

Core component 1: Infection Prevention and Control (IPC) programme

Question	Answer	Score
1. Do you have an IPC programme?[2] Choose one answer	☐ No	0
	☐ Yes, without clearly defined objectives	5
	☐ Yes, with clearly defined objectives and annual activity plan	10
2. Is the IPC programme supported by an IPC team comprising of IPC professionals?[3] Choose one answer		
3. Does the IPC team have at least one full-time IPC professional or equivalent (nurse or doctor working 100% in IPC) available? Choose one answer		
4. Does the IPC team or focal person have dedicated time for IPC activities?		
5. Does the IPC team include both doctors and nurses?		
6. Do you have an IPC committee[4] **actively supporting the IPC**		
7. Are any of the following professional groups represented/in		
Senior facility leadership (for example, administrative director, chief executive officer [CEO], medical director)		
Senior clinical staff (for example, physician, nurse)		
Facility management (for example, biosafety, waste, and those with addressing water, sanitation, and hygiene [WASH])		
8. Do you have clearly defined IPC objectives (that is, in specific critical areas)? Choose one answer		
9. Does the senior facility leadership show clear commitment		
By an allocated budget specifically for the IPC programme (that covering IPC activities, including salaries)?		
By demonstrable support for IPC objectives and indicators with facility (for example, at executive level meetings, executive rou participation in morbidity and mortality meetings)?		
10. Does your facility have microbiological laboratory support (either present on or off site) for routine day-to-day use? Choose one answer		
Subtotal score		

2 IPC programmes should have clearly defined objectives based on local epidemiology, prevention of health care-associated infections and antimicrobial resistance in health programmes at the national and acute health care facility level for more information see
3 IPC professional: medical or nursing staff trained in a certified IPC course.
4 An IPC committee is a multidisciplinary group with interested stakeholders across responsible for the IPC programme.

4 INFECTION PREVENTION AND CONTROL ASSESSMENT FRAMEWORK AT THE FACILITY LEVEL

Core component 2: Infection Prevention and Control (IPC) guidelines

Question	Answer	Score
1. Does your facility have the expertise (in IPC and/or infectious diseases) for developing or adapting guidelines?	☐ No	0
	☐ Yes	7.5
2. Does your facility have guidelines available for:		
Standard precautions?	☐ No	0
	☐ Yes	2.5
Hand hygiene?	☐ No	0
Transmission-based precautions?[6]		
Outbreak management and preparedness?		
Prevention of surgical site infection?[7]		
Prevention of vascular catheter-associated bloo		
Prevention of hospital-acquired pneumonia (@ pneumonia)?		
Prevention of catheter-associated urinary tract		
Prevention of transmission of multidrug-resista		
Disinfection and sterilization?		
Health care worker protection and safety?		
Injection safety?		
Waste management?		
Antibiotic stewardship?[8]		

6 Transmission-based Precautions are to be used in addition to to prevent infection transmission. They are based on the route Disease Control and Prevention Guidelines for Isolation Precau
7 If no surgical interventions are undertaken at your facility, cho
8 Includes aspects of improving working conditions, detection of Refers to the appropriate use of antimicrobials to improve ac

6 INFECTION PREVENTION AND CONTROL ASSESSMENT FRAMEWORK AT THE FACILITY LEVEL

Core component 3: Infection Prevention and Control (IPC) education and training

Question	Answer	Score
1. Are there personnel with the IPC expertise (in IPC and/or infectious diseases) to lead IPC training?	☐ No	0
	☐ Yes	10
2. Are there additional non-IPC personnel with adequate skills to serve as trainers and mentors (for example, link nurses or doctors, champions)? Choose one answer	☐ No	0
	☐ Yes	
3. How frequently do health care workers receive training regarding IPC in your facility? Choose one answer	☐ Never	
	☐ New st	
	☐ New st training fo	
	☐ New st mandatory	
4. How frequently do cleaners and other personnel directly involved in patient care receive training regarding IPC in your facility? Choose one answer	☐ Never	
	☐ New st	
	☐ New st for other g	
	☐ New st mandatory	
5. Does administrative and managerial staff receive general training regarding IPC in your facility? Choose one answer	☐ No	
	☐ Yes	
6. How are health care workers and other personnel trained? Choose one answer	☐ No trai	
	☐ Using e-learning	
	☐ Includ simulation	
7. Are there periodic evaluations of the effectiveness of training programmes (for example, hand hygiene audits, other checks on knowledge)? Choose one answer	☐ No	
	☐ Yes, bu	
	☐ Yes, re	
8. Is IPC training integrated in the clinical practice and training of other specialties (for example, training of surgeons involves aspects of IPC)? Choose one answer	☐ No	
	☐ Yes, in	
	☐ Yes, in	
9. Is there specific IPC training for patients or family members to minimize the potential for health care-associated infections (for example, immunosuppressed patients, patients with invasive devices, patients with multidrug-resistant infections)?	☐ No	
	☐ Yes	
10. Is ongoing development/education offered for IPC staff (for example, by regularly attending conferences, courses)?	☐ No	
	☐ Yes	
Subtotal score		

Core component 4: Health care-associated infection (HAI) surveillance

Question	Answer	Score
Organization of surveillance		
1. Is surveillance a defined component of your IPC programme?	☐ No	0
	☐ Yes	5
2. Do you have personnel responsible for surveillance activities?	☐ No	0
	☐ Yes	5
3. Have the professionals responsible for surveillance act been trained in basic epidemiology, surveillance and IPC capacity to oversee surveillance methods, data managem interpretation)?		
4. Do you have informatics/IT support to conduct your sur (for example, equipment, mobile technologies, electronic records)?		
Priorities for surveillance - defined according to the scope		
5. Do you go through a prioritization exercise to determin to be targeted for surveillance according to the local cont is, identifying infections that are major causes of morbidi mortality in the facility?[11]		
6. In your facility is surveillance conducted for:		
Surgical site infections?[12]		
Device-associated infections (for example, catheter-associ tract infections, central line-associated bloodstream infecti peripheral-line associated bloodstream infections, ventilato pneumonia)?		
Clinically-defined infections (for example, definitions based clinical signs or symptoms in the absence of microbiologic		
Colonization or infections caused by multidrug-resistant[13] according to your local epidemiological situation?		
Local priority epidemic-prone infections (for example, noro influenza, tuberculosis [TB], severe acute respiratory syndr Ebola, Lassa fever)?		
Infections in vulnerable populations (for example, neonates care unit, immunocompromised, burn patients)?[14]		
Infections that may affect health care workers in clinical, la other settings (for example, hepatitis B or C, human immu virus [HIV], influenza)?		
7. Do you regularly evaluate if your surveillance is in line current needs and priorities of your facility?		

11 A prioritization exercise should be undertaken to determine which HAIs to s resources (see interim practical manual supporting implementation of the prevention/burden-surveillance.html, accessed 3 May 2018)
12 If no surgical interventions are undertaken at your facility, choose answer "N
13 Multidrug-resistant: Non-susceptibility to at least one agent in three or more
14 If vulnerable patient populations are not treated at your facility, choose answ

INFECTION PREVENTION AND CONTROL ASSESSMENT FRAMEWORK AT THE FACILITY LEVEL 9

Core component 5: Multimodal strategies[16] for implementation of infection prevention and control (IPC) interventions

Question	Answer	Score
1. Do you use multimodal strategies[16] to implement IPC interventions?	☐ No	0
	☐ Yes	15
2. Do your multimodal strategies include any or all of the following elements: Choose one answer (the most accurate) per element		

Core component 6: Monitoring/audit of IPC practices and feedback

Question	Answer	Score
1. Do you have trained personnel responsible for monitoring/audit of IPC practices and feedback?	☐ No	0
	☐ Yes	10
2. Do you have a well-defined monitoring plan with clear goals, targets and activities (including tools to collect data in a systematic way)?	☐ No	0
	☐ Yes	7.5
3. Which processes and indicators do you monitor in your facility? Tick all that apply	☐ Nor	
	☐ Hai observ	
	☐ Infe	
	☐ Wo	
	☐ Tra spread	
	☐ Cle	
	☐ Dis	
	☐ Cor	
	☐ Cor	
	☐ Was	
4. How frequently is the *WHO Hand Hygiene Self-Assessment Framework Survey*[21] undertaken? Choose one answer	☐ Nev	
	☐ Per	
	☐ At l	
5. Do you feedback auditing reports (for example, feedback on hand hygiene compliance data or other processes) on the state of the IPC activities/performance? Tick all that apply	☐ No	
	☐ Yes	
	☐ Yes audited	
	☐ Yes	
	☐ Yes equival	
	☐ Yes	
6. Is the reporting of monitoring data undertaken regularly (at least annually)?	☐ No	
	☐ Yes	
7. Are monitoring and feedback of IPC processes and indicators performed in a "blame-free" institutional culture aimed at improvement and behavioural change?	☐ No	
	☐ Yes	
8. Do you assess safety cultural factors in your facility (for example, by using other surveys such as HSOPSC, SAQ, PSCHO, HSC[23])	☐ No	
	☐ Yes	
Subtotal score		

16 See definition at: http://www.who.int/infection-prevention/publications/ba based approach to achieve sustained system and behavioural change fo Disease Control and Prevention. Multimodal hand hygiene improvement st human resources available), (ii) education and training of health care work feedback, (iv) reminders in the workplace/communications; and (v) culture developed by multidisciplinary teams that take into account local condition assessments. Lessons from the field of implementation science suggest t are short-lived and not sustainable.
For more information, please see http://www.who.int/infection-prevention WHO Guidelines on Core Components of Infection Prevention and Control
17 Ergonomic: human factors or an understanding of interactions among hu information at: http://www.iea.cc/whats/index.html
18 Adaptive approaches consider the behavioural, organizational and cultural c best practices by shaping attitudes, beliefs, and values of clinicians. The More information at: https://www.ahrq.gov/professionals/education/curric
20 WHO hand hygiene monitoring and feedback tools can be found here: http://www.who.int/infection-preve
21 WHO Hand Hygiene Self-Assessment Framework can be found here: http://www.who.int/gpsc/country_work
22 HSOPSC: Hospital survey on patient safety culture; SAQ: Safety attitudes questionnaire; PSCHO: Patient sa surveys can be found at: Colla JB, et al. Measuring patient safety climate: a review of survey. Qual Saf Heal 2016).

12 INFECTION PREVENTION AND CONTROL ASSESSMENT FRAMEWORK AT THE FACILITY LEVEL

Core component 7: Workload, staffing and bed occupancy[23]

Question	Answer	Score
Staffing		
1. Are appropriate staffing levels assessed in your facility according to patient workload using national standards or a standard staffing needs assessment tool such as the *WHO Workload indicators of staffing need*[24] method?	☐ No	0
	☐ Yes	5
2. Is an agreed (that is, WHO or national) ratio of health care workers to patients[25] maintained across your facility? Choose one answer	☐ No	0
3. Is a system in place in your facility to act on staffing needs assessments when staffing leve too low?		
Bed occupancy		
4. Is the design of wards in your facility in acco international standards[26] regarding bed capaci Choose one answer		
5. Is bed occupancy in your facility kept to one Choose one answer		
6. Are patients in your facility placed in beds s outside of the room (including beds in the eme Choose one answer		
7. Is adequate spacing of > 1 meter between pa in your facility? Choose one answer		
8. Is a system in place in your facility to asses adequate bed capacity is exceeded? Choose one answer		
Subtotal score		

23 Particularly for these questions, the IPC team may need to co
24 The WHO Workload indicators of staffing need method provides a given health facility and aid decision-making (http://www.wh
25 Taking into account all health care workers involved in servic care workers (for example, cleaners).
26 The WHO Essential environmental health standards in health care for use by health managers and planners, architects, other pla water_sanitation_health/publications/who_hcwec/ accessed

Core component 8: Built environment, materials and equipment for IPC at the facility level[27]

Question	Answer	Score
Water		
1. Are water services available at all times and of sufficient quantity for all uses (for example, hand washing, drinking, personal hygiene, medical activities, sterilization, decontamination, cleaning and laundry)? Choose one answer	☐ No, available on average < 5 days per week	0
	☐ Yes, available on average ≥ 5 days per week or every day but not of sufficient quantity	2.5
	☐ Yes, every day and of sufficient quantity	7.5
2. Is a reliable safe drinking water station present and accessible for staff, patients and families at all times and in all locations/wards? Choose one answer	☐ No, not available	0
	☐ Sometimes, or only in some places or not available for all users	2.5
	☐ Yes, accessible at all times and for all wards/groups	7.5
Hand hygiene and sanitation facilities		
3. Are functioning hand hygiene stations (that is, alcohol-based handrub solution or soap and water and clean single-use towels) available at all points of care? Choose one answer	☐ No, not present	0
	☐ Yes, stations present, but supplies are not reliably available	2.5
	☐ Yes, with reliably available supplies	7.5
4. In your facility, are ≥ 4 toilets or improved latrines[28] available for outpatient settings or ≥ 1 per 20 users for inpatient settings? Choose one answer	☐ Less than required number of toilets or latrines available and functioning	0
	☐ Sufficient number present but not all functioning	2.5
	☐ Sufficient number present and functioning	7.5
Power supply, ventilation and cleaning		
5. In your health care facility, is sufficient energy/power supply available at day and night for all uses (for example, pumping and boiling water, sterilization and decontamination, incineration or alternative treatment technologies, electronic medical devices, general lighting of areas where health care procedures are performed to ensure safe provision of health care and lighting of toilet facilities and showers)? Choose one answer	☐ No	0
	☐ Yes, sometimes or only in some of the mentioned areas	2.5
	☐ Yes, always and in all mentioned areas	5
6. Is functioning environmental ventilation (natural or mechanical[29]) available in patient care areas?	☐ No	0
	☐ Yes	5
7. For floors and horizontal work surfaces, is there an accessible record of cleaning, signed by the cleaners each day? Choose one answer	☐ No record of floors and surfaces being cleaned	0
	☐ Record exists, but is not completed and signed daily or is outdated	2.5
	☐ Yes, record completed and signed daily	5
8. Are appropriate and well-maintained materials for cleaning (for example, detergent, mops, buckets, etc.) available? Choose one answer	☐ No materials available	0
	☐ Yes, available but not well maintained	2.5
	☐ Yes, available and well-maintained	5

27 This component can be assessed in more detail using the *WHO Water and sanitation for health facility improvement tool* (WASH FIT) (http://www.who.int/water_sanitation_health/publications/water-and-sanitation-for-health-facility-improvement-tool/en/ accessed 13 April 2018). Particularly for these questions, the IPC team may need to consult with other relevant teams in the facility to be able to respond to questions accordingly and accurately.
28 Improved sanitation facilities include flush toilets into a managed sewer or septic tank and vault sewer pit, VIP latrines, pit latrines with slab and composting toilets. To be considered usable, a toilet/latrine should be private, safe, hygienic and functional. It must be available at any time and can be locked from the inside during use. There should be no major holes or cracks or leaks in the toilet structure, the hole or pit should not be blocked, water should be available for flush your flush toilets. It should be within the grounds of the facility and it should be clean as noted by absence of waste, visible dirt and excreta and insects.
29 Natural ventilation: outdoor air driven by natural forces (for example, winds) through building purpose-built openings, including windows, doors, solar chimneys, wind towers and trickle ventilators. Mechanical ventilation: air driven by mechanical vans installed directly in windows or walls or in air ducts for supplying air into, or exhausting air from, a room. More information at: http://www.who.int/water_sanitation_health/publications/natural_ventilation/en/ accessed 13 April 2018).

Interpretation: A three-step process

1. Add up your points

	Score
Section (Core component)	**Subtotals**
1. IPC programme	45
2. IPC guidelines	60
3. IPC education and training	75
4. HAI surveillance	20
5. Multimodal strategies	45
6. Monitoring/audits of IPC practices and feedback	50
7. Workload, staffing and bed occupancy	65
8. Built environment, materials and equipment for IPC at the facility level	30
Final total score	390 /800

IPC level
Inadequate
Basic
Intermediate
Advanced

2. Determine the assigned "IPC level" in your facility using the total score from Step 1

Total score (range)	**IPC level**
0–200	Inadequate
201–400	Basic
401–600	Intermediate
601–800	Advanced

Box 8. IPCAF scoring interpretation

Score		Interpretation
0-200	Inadequate	IPC core components' implementation is deficient. Significant improvement is required.
201-400	Basic	Some aspects of the IPC core components are in place, but not sufficiently implemented. Further improvement is required.
401-600	Intermediate	Most aspects of IPC core components are appropriately implemented. Continue to improve the scope and quality of implementation and focus on the development of long-term plans to sustain and further promote the existing IPC programme.
601-800	Advanced	The IPC core components are fully implemented according to the WHO recommendations and appropriate to the needs of your facility.

IPCAF step 3 – Review the results and develop an action plan

Detailed facility assessment

World Health Organization

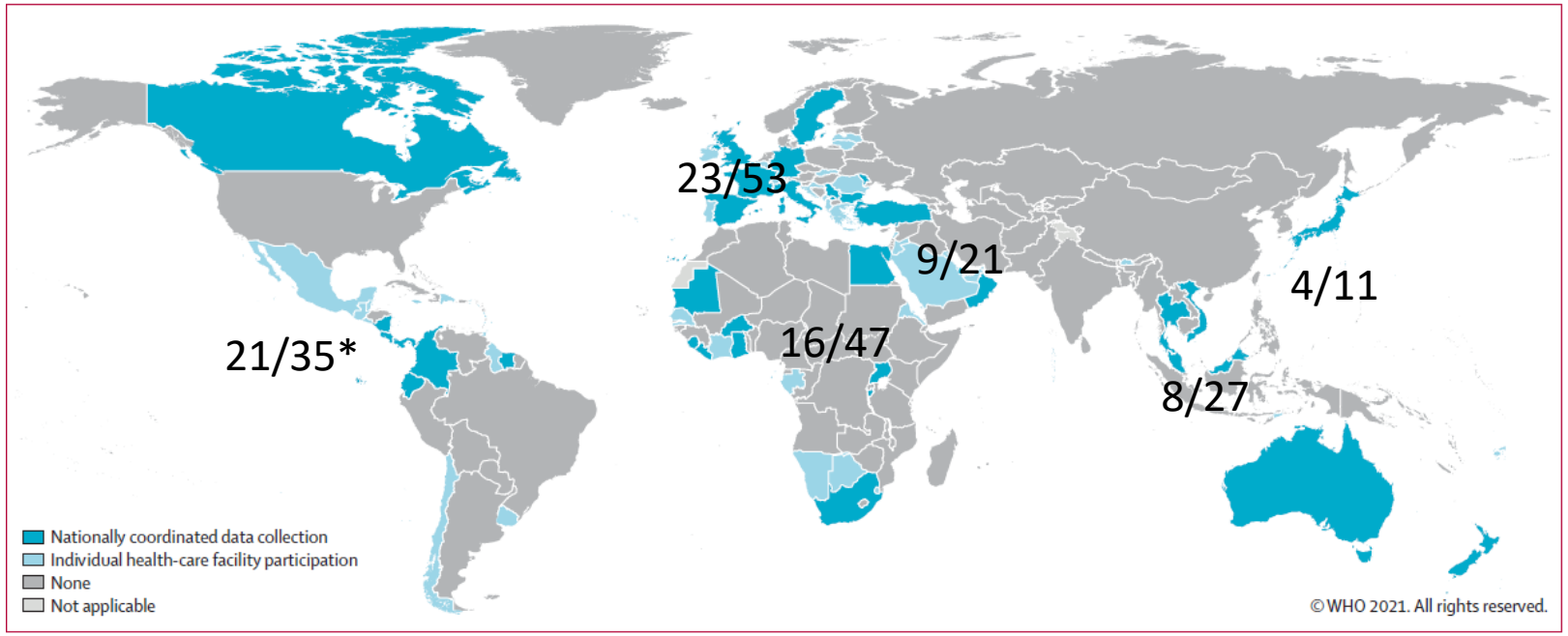
IPCAF Section	Strengths	Gaps
1. IPC programme		
2. IPC guidelines		
3. IPC education & training		
4. HAI surveillance		
5. Multimodal strategies		
6. Monitoring/audits & feedback		
7. Workload, staffing and bed occupancy		
8. Built environment		

Source: *Facility Interim Pratical Manual* https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.10

The first WHO global survey on infection prevention and control in health-care facilities

Sara Tomczyk, Anthony Twyman*, Marlieke E A de Kraker, Ana Paula Coutinho Rehse, Ermira Tartari, João Paulo Toledo, Alessandro Cassini, Didier Pittet, Benedetta Allegranzi*

4440 responses from 81 countries



*Proportion of countries responding from the region

Tomczyk S, et al. Lancet Infect Dis 2022; 22:845-56

	All selected responses (n=4440)
WHO regions	
African	698 (15·7%)
Eastern Mediterranean	523 (11·8%)
Europe	1393 (31·4%)
Americas	557 (12·5%)
South-East Asia	517 (11·6%)
Western Pacific	752 (16·9%)
World Bank income level	
Low-income	173 (3·9%)
Lower-middle-income	728 (16·4%)
Upper-middle-income	1638 (36·9%)
High-income	1901 (42·8%)

The majority of the responses came from high- and upper-middle-income countries

Tomczyk S, et al. Lancet Infect Dis 2022; 22:845-56

	Core component 1, IPC programme		Core component 2, IPC guidelines		Core component 3, IPC education		Core component 4, HAI surveillance		Core component 5, multimodal strategies		Core component 6, monitoring, audit, and feedback		Core component 7, workload, staffing, and bed occupancy		Core component 8, built environment		Total score	
	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)
Overall	4407	77·5 (57·5–90·0)	4368	87·5 (70·0–97·5)	4396	70·0 (50·0–85·0)	4331	77·5 (47·5–92·5)	4383	75·0 (45·0–85·0)	4387	72·5 (52·5–90·0)	4378	70·0 (50·0–90·0)	4347	90·0 (75·0–100·0)	4192	605·0 (450·4–705·0)
Region																		
Africa	685	55·0 (40·0–77·5)	663	67·5 (42·5–90·0)	673	57·9 (30·0–78·8)	653	32·3 (2·5–65·0)	675	60·5 (30·0–85·0)	682	50·0 (30·0–82·5)	678	60·0 (35·0–80·0)	665	75·0 (60·0–93·4)	595	415·3 (290·0–581·7)
Eastern Mediterranean	522	95·0 (82·5–100·0)	522	97·5 (90·0–100·0)	521	90·0 (70·0–95·0)	520	87·5 (75·0–100·0)	519	85·0 (80·0–95·0)	519	82·5 (70·0–90·0)	518	90·0 (70·0–100·0)	518	95·0 (90·0–100·0)	514	715·0 (632·5–740·0)
Europe	1388	82·5 (70·0–90·0)	1376	92·5 (77·5–100·0)	1388	75·0 (60·0–85·0)	1367	87·5 (71·4–95·0)	1378	75·0 (44·9–85·0)	1375	80·0 (67·5–90·0)	1374	80·0 (70·0–95·0)	1373	95·0 (90·0–100·0)	1339	650·0 (558·6–720·3)
Americas	553	75·0 (60·0–84·1)	548	85·0 (77·5–95·0)	552	65·0 (45·0–80·0)	544	80·0 (67·5–90·0)	549	65·0 (45·0–80·0)	550	70·0 (51·1–85·0)	548	70·0 (46·1–80·0)	542	82·5 (67·5–95·0)	531	567·5 (477·5–639·3)
South-East Asia	514	42·5 (27·5–77·5)	516	72·5 (42·5–85·0)	516	45·0 (15·0–70·0)	504	45·0 (22·5–81·3)	516	45·0 (20·0–75·0)	516	62·5 (35·0–87·5)	516	60·0 (35·0–70·0)	515	70·0 (67·5–87·5)	500	425 (280·0–657·5)
Western Pacific	745	75·0 (62·5–85·0)	743	90·0 (70·7–100·0)	746	75·0 (60·0–85·0)	743	67·9 (65·0–87·5)	746	70·0 (50·0–86·5)	745	75·0 (57·5–90·0)	744	72·9 (49·8–95·0)	734	95·0 (85·0–100·0)	713	636·0 (521·4–698·5)

- The overall median score indicated an ***advanced*** level of implementation (**605**, IQR 450·4–705)
- The highest scores: **Built environment** (CC 8; **90**, IQR 75·0–100·0), and **IPC guidelines** (CC 2; **87·5**, 70·0–97·5)
- The lowest scores: **Workload, staffing, and bed occupancy** (CC 7;**70**, 50–90) and **Education and training** (CC 3; **70**, 50·0–85·0)

Tomczyk S, et al. Lancet Infect Dis 2022; 22:845-56

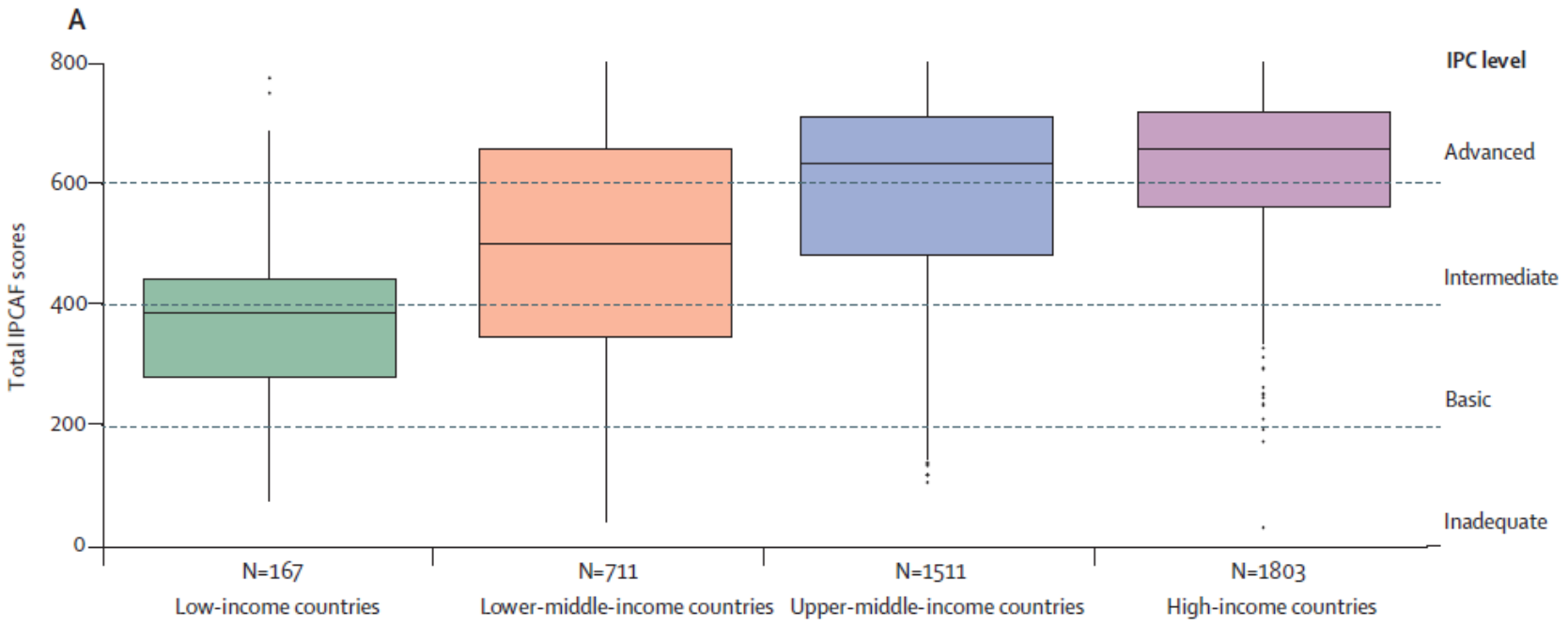


Figure 2: **Weighted IPCAF overall and core component-specific scores by income level**

Significantly lower IPCAF scores were found in low-income (385, 279·7 - 442·9), and lower-middle-income countries (500·4, 345·0–657·5)

Tomczyk S, et al. Lancet Infect Dis 2022; 22:845-56

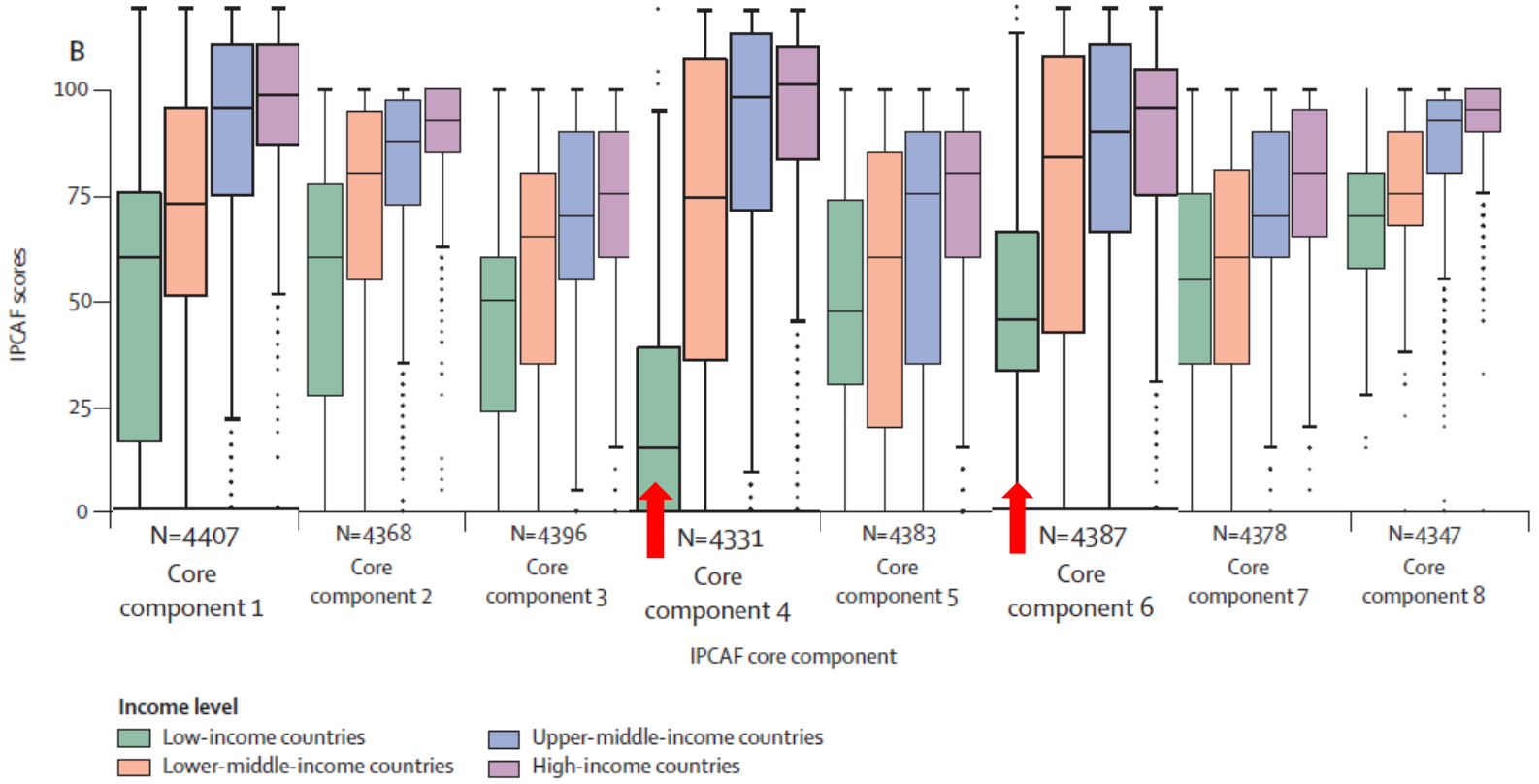


Figure 2: Weighted IPCAF overall and core component-specific scores by income level

High-income and low-income countries differed most significantly in:

- **HAI surveillance** (CC 4; **12·5** [IQR 0–32·5] *vs* **85** [70·0–92·5])
- **Monitoring, audit of IPC practices and feedback** (CC 6; **37·5** [27·5–55] *vs* **80** [62·5–87·5])
- **IPC programme** (CC 1; **50** [13·3–62·9] *vs* **82·5** [72·5–92·5])

Tomczyk S, et al. Lancet Infect Dis 2022; 22:845-56

A strong correlation was found in selected components of the IPCAF and HHSAF, and HH was identified as one of the most important predictors of the overall IPC level

Tomczyk S, et al. Lancet Infect Dis 2022; 22:845-56

Thank you