

Leadership and programme management in infection prevention and control: a student handbook

Introduction

Welcome to the *Leadership and Programme Management in Infection Prevention and Control (IPC)* module. This advanced training module is part of a package designed for advanced IPC focal persons working in low-resource settings. It is designed to support the implementation of the World Health Organization (WHO) *Guidelines on core components of IPC programmes at the national and acute health care facility level*¹ as part of a multifaceted approach to capacity building.

Who the training is aimed at

This training is designed for individuals and teams who are intending to occupy a senior leadership position in IPC at the national, sub-national or health facility level. Trainees are expected to possess at least basic experience and competence in IPC and could include (not exhaustive) IPC professionals, IPC hospital teams, facility administrators, hospital epidemiologists, microbiologists or other relevant health care professionals. The advanced training package complements a basic training package intended for all frontline health care workers.

Objectives of the module

The objectives are to equip the advanced IPC focal person to:

1. define the roles and responsibilities of an IPC focal person;
2. describe the requirements of an IPC programme according to WHO core components' guidelines;
3. demonstrate key leadership skills;
4. demonstrate conflict management and communication skills;
5. advocate for IPC as a priority in health care, as well as describing the need for synergies with other programmes;
6. foster teamwork;
7. lead project development, management, and budget planning necessary for an IPC programme;
8. describe key IPC implementation strategies, including considerations of behaviour change and the application of multimodal strategies and campaigning.

Purpose and content of the student handbook

The module comprises a blend of PowerPoint presentations, videos and group work (including case studies and interactive question and answer sessions). The student handbook contains supplementary information to support learning, handouts that will be referred to during the training, reflective reading for homework and group work instructions. Together with the PowerPoint slides, it will form a valuable resource for students.

¹ <http://www.who.int/infection-prevention/publications/ipc-components-guidelines/en/>, accessed 23 January 2018.

The table below signposts the student to the resources contained within the handbook.

Table 1. Student handbook content outline.

Session	Resource	Page
1. The role of the IPC focal person in developing and implementing IPC programmes	• Handout 1: Core components – two-pager	
	• Handout 2: Core components – visual	
	• Handout 3: Multimodal strategy – visual	
	• Adult learning – supplementary information	
2. Becoming an IPC leader – an exploration of what makes an effective leader	• Group work 1: Dramowski et al – case study	
	• Making improvement with limited resources – supplementary information	
3. Implementation strategies and behaviour change	• Handout 4 – the behaviour change wheel	
	• Group work 2: Nyiratuza et al – case study	
4. Effective communication and advocacy	• Group work 3: Communication channels	

Handout 1: Core components – two-pager

<http://www.who.int/infection-prevention/publications/ipc-cc-summary.pdf?ua=1>

Handout 2: Core components – visual

http://www.who.int/infection-prevention/tools/core-components/ipc-cc_visual.pdf?ua=1

Handout 3: Multimodal strategy – visual

<http://www.who.int/infection-prevention/publications/ipc-cc-mis.pdf?ua=1>

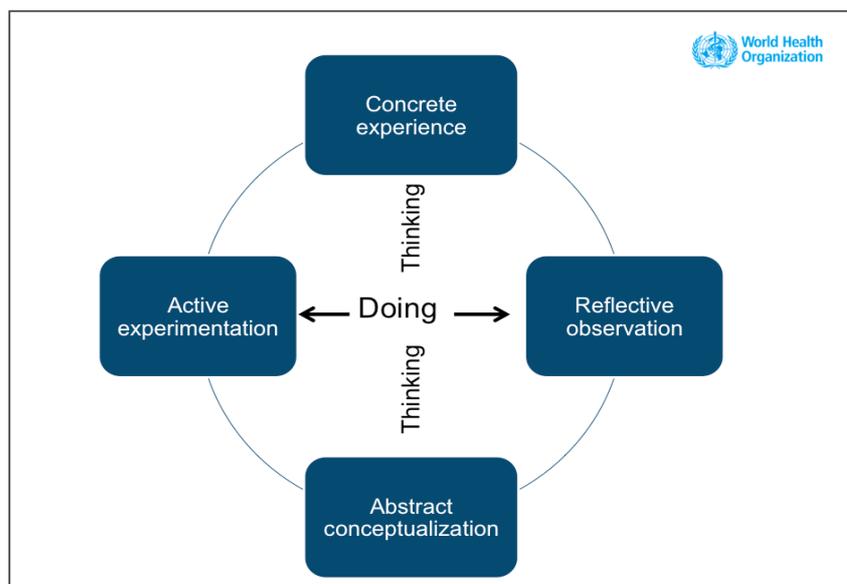
Adult learning – supplementary information

Theories of adult learning

In 1984, David Kolb suggested that adults learn through ‘experiences’ and ‘doing’, and developed a principle that included four different, sequential stages (Figure).

- In Kolb’s model, learning starts with a concrete experience: getting actively involved in a task or project. Learning is therefore a product of doing. Ask the learners to recall their medical, nursing or other training and the role of practical bedside experience in consolidating training.
- Secondly, there is a stage of reflection: thinking about what has been experienced, gathering information.
- Thirdly, there is a phase of conceptualization: establishing relations between the phenomena experienced and seen and the information obtained.
- Finally, the new knowledge is integrated in the existing skills and context of the learner.

Figure. Experiential learning model.



Kolb D. Experiential Learning: experience as the source of learning and development. Englewood Cliffs, NJ: Prentice Hall Inc.; 1984.

Tailoring your teaching to different situations - which teaching activities may be best suited for each learning situation?

Practical application: learning how to insert a urinary catheter

Concrete experience – after being exposed to the principles of catheterization in the classroom and using simulation, the learner then undertakes catheterization in the real world.

Reflective observation – based on the experience, the learner reflects on the activity.

Abstract conceptualization – the learner starts to gain insights, knowledge and skills from the experience.

Active experimentation – the learner uses everything gained so far to practice the new skill of catheterization in the real world.

We use a combination of teaching activities in IPC. Most often, we use lectures where we share the evidence on what works and then we increasingly use simulation where learners are encouraged to enact a situation and observe whether the right practices are performed. Simulation allows learners to practice in a safe space and then apply learning to the real world.

Table 2. Combinations of IPC teaching activities.

Concrete experience	Reflective observation	Abstract conceptualization	Active experimentation
Readings	Logs	Lecture	Projects
Fieldwork	Journals	Papers	Fieldwork
Laboratories	Discussions	Projects	Homework
Observations	Brainstorming	Models	Case study
Simulations			Simulations
Games			

Teaching approaches for IPC

There are a number of approaches that can be used for IPC training. Consider the advantages and disadvantages of:

- large group teaching
- small group teaching
- teaching in clinical practice.

Large group teaching works best when there is a need to reach a large number of people at the same time with the same information, but does not require gaining new skills or adopting new attitudes. The introduction of a new treatment policy or guideline (or the launch of the core components in a facility!) are excellent examples of such large group teaching appropriateness. The advantages of large group teaching is that it enables you to signpost essential concepts that can then lead to independent, deeper learning by learners.

The disadvantages of large group teaching include the challenge in maintaining the engagement of all learners as it can encourage passivity and learners may also find it difficult to clarify questions about the course materials.

Small group teaching can facilitate interactive skills and collaborative learning from and with other learners. For example, it may be very useful to consider when selecting key stakeholders that would support the implementation of a given core component, so they learn and try to resolve some of the challenges likely to arise.

The disadvantages of small group teaching are that it may not be the preferred learning approach for participants who are introverts, those who may not be as knowledgeable, experienced or confident as others and, in turn, it can make more

advanced participants feel bored if they are not offered opportunities for increased learning.

Teaching in clinical practice is useful for procedures and interventions. However, it is important to consider the patient's feelings, beliefs, and rights in the context of learning in clinical practice – issues of consent and ethics are important here. In addition, all of the elements of effective communication come into play. Learning in clinical practice is unrivalled to gaining skills and experience, but it can be difficult to ensure the standardization of the learning experience for all students.

Reflection - which approach would you use for:

- implementation of a new urinary catheter?
- introduction of a new waste management policy?
- training hand hygiene observers?

Group work 1: Dramowski et al

Instructions

- Work in groups of five to seven people – a facilitator will join each group.
- First, read the summary below based on an article by Dramowski et al².
- Answer the two questions presented at the end in your groups.

Setting

South African paediatric and neonatal wards.

Background information

- The epidemiology of paediatric and neonatal health care-associated infection (HAI) in South Africa is poorly documented.
- The burden of HAI is substantial, but underappreciated, owing to a lack of HAI surveillance and reporting.
- Recent clinical surveillance at one of the large children's hospitals in the country documented a HAI prevalence of 24%, with a predominance of hospital-acquired pneumonia and bloodstream infection.
- HAI incidence was highest in the paediatric intensive care unit (PICU).
- PICU device-associated infections were double those reported from PICUs in other low- and middle-income settings.
- Two-thirds of all in-patient mortality occurred in association with HAI, with crude mortality six-fold higher than among HAI-unaffected hospitalizations.
- In 2012, a national health care quality improvement programme was launched together with a national accreditation body. New IPC standards were developed. The aim was to provide a renewed focus on IPC and HAI surveillance and to benchmark hospitals against agreed standards.
- However, despite the establishment of the national quality improvement programme, it was clear that there were significant challenges related to the implementation of IPC improvements and that the development of standards and surveillance alone were not sufficient to improve practice at the frontline. A comprehensive framework for HAI prevention would also need to be developed.

Key challenges to HAI prevention in neonatal and paediatric patients

- Implementation of HAI prevention in the South African health care context is complex, with multiple challenges to IPC programmes at the health system, institutional and patient levels. The authors list the following challenges:
 - **Health system challenges:** competing health priorities; high burden of community-acquired infections; few resources for IPC implementation; lack of HAI surveillance programmes and reporting; lack of IPC policies; lack of IPC training for health care workers; lack of a coordinated research agenda for HAI prevention.
 - **Institutional challenges:** overcrowding; high patient-to-staff ratios; lack of IPC provisions and consumables; lack of isolation facilities; ageing infrastructure; inadequate environmental cleaning; re-use and sharing of devices and equipment; lack of a patient safety focus and institutional culture.
 - **Patient-level challenges:** malnutrition; human immunodeficiency virus (HIV) exposure and HIV infection; prematurity; chronic diseases; high device utilization rates; high antimicrobial usage.

² Dramowski A, Cotton MF, Whitelaw A. A framework for preventing healthcare-associated infection in neonates and children in South Africa. S Afr Med J. 2017;107(3):192-195.

Questions

1. The problem

Discuss the problem described by the authors in your groups. Summarize in writing what you think was the main problem that needed to be addressed.

2. Identifying key challenges

- a. Discuss and write down the main challenges to HAI prevention faced by the leaders in South Africa as described above. (These challenges are essentially leadership opportunities).
- b. As you discuss these challenges, think about the core components and the multimodal strategy.
- c. Discuss whether you have faced similar challenges.
- d. As a group, choose **three of the challenges identified above that you or members of your group have also faced** and write down what action was taken to address these challenges in your own place of work.

Making improvement with limited resources – supplementary information

IPC practitioners working in low-resource settings face multiple challenges. It is important to understand that not all improvement interventions cost money or require additional human and material resources. Damani highlights three approaches to improve IPC in settings with limited resources³:

- focus on improving no-cost practices – that is, improving adherence with recommended practices that do not require additional resources;
- focus on improving low-cost practices – that is, implementing cost-effective practices;
- stop wasteful and unnecessary practices – that is, focus on cost-saving measures.

These three approaches have the potential to save money, time, and improve the quality and safety of health care.

No cost	Low-cost	Stop wasteful and unnecessary practices
<ul style="list-style-type: none"> • Aseptic technique for all sterile procedures. 	<ul style="list-style-type: none"> • Provision of alcohol-based handrub and handwashing facilities for hand hygiene. 	Routine <ul style="list-style-type: none"> • Microbiological swabbing of the environment. • Disinfectants for environmental cleaning, for example, floors and walls. • Fumigation of isolation rooms with formaldehyde.
<ul style="list-style-type: none"> • Remove indwelling devices when no longer needed. 	<ul style="list-style-type: none"> • Use of adequately sterile items for invasive procedures. 	Unnecessary <ul style="list-style-type: none"> • Use of overshoes and dust-attracting mat. • Personal protective equipment in the intensive care and neonatal unit.
<ul style="list-style-type: none"> • Isolation of patient with communicable diseases/multiresistant organisms. 	<ul style="list-style-type: none"> • Use of single-use disposable sterile needles and syringes. 	Excessive/unnecessary use of <ul style="list-style-type: none"> • Intramuscular/ intravenous injections. • Insertion of indwelling devices, for example, intravenous lines, urinary catheters, nasogastric tube. • Antibiotics both for prophylaxis and treatment (including prolonged courses).
<ul style="list-style-type: none"> • Avoid unnecessary per vaginal examination in 	<ul style="list-style-type: none"> • Disposal of sharps in robust containers. 	<ul style="list-style-type: none"> • Inappropriate antibiotic prescribing.

No cost	Low-cost	Stop wasteful and unnecessary practices
Women in labour.		
<ul style="list-style-type: none"> • Placing mechanically ventilated patients in a semi-recumbent position. 	<ul style="list-style-type: none"> • Adequate decontamination of medical devices/care equipment between patient use 	
<ul style="list-style-type: none"> • Minimize the number of people in the operating theatre. 	<ul style="list-style-type: none"> • Provision of hepatitis B vaccination for health care workers. 	
	<ul style="list-style-type: none"> • Post-exposure management of health care workers exposed to an infectious risk. 	

³ 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.

Handout 4: The behaviour change wheel

Figure 2 of this paper

<https://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-6-42>

Group work 2: Nyiratuza et al

Instructions

- Work in groups of five to seven people – a facilitator will join each group.
- First, read the summary below based on an article by Nyiratuza et al³.
- Answer the four questions presented at the end in your groups.

Setting

- A quality improvement project was conducted in Gihundwe District Hospital located in the Western Province of Rwanda.
- The hospital has a maternity unit with 36 beds and an average occupancy rate of 90%.
- The unit admits an average of 241 patients and performs 65 caesarean sections per month.
- Before the intervention, the identification of HAI among post-caesarean section patients was done only by the nurse in charge of the unit. No other members of the team were involved in collecting data on HAI.
- There was no set schedule or routine for her to conduct the process. HAI could be missed when she was not on duty.
- Two criteria were used to identify HAI: pus found in the surgical wound and urinary tract infection. Any HAI discovered was documented in a registration book without any patient details or the type of HAI.
- The HAI rate was calculated on a monthly basis based on the registration book.
- According to routine reports from the maternity unit, the average HAI rate in 2014, was 1.64 per cent; this rate was significantly lower than rates reported by sub-Saharan African countries (average 7.3%) or developed countries (average 4.8%)^{4, 5, 6}.
- Hospital leadership suspected under-reporting and had no confidence in the data.

A summary of the intervention implemented

- To improve the reporting of HAI rates, an intervention consisting of four main components was developed and implemented.
 - First, the implementing team revised the criteria used to identify HAI in the maternity unit. Before the intervention, the maternity unit only used two criteria to determine HAI: pus and urinary tract infection, likely resulting in under-reporting. For the intervention, clinical staff were asked to use the WHO clinical signs and symptoms tool to identify HAI. A HAI data collection form was created to allow them to record each case.
 - Second, HAI reporting responsibilities were distributed more equally among all maternity unit staff and not only relied solely on one person. For the intervention, they appointed a new person each day to be responsible for checking patients in the unit and completing the data collection form when HAI was detected. The nurse in charge of the maternity unit created monthly summary reports based on the collected information. The summary reports were then submitted to the IPC committee and the chief of nursing for analysis and recommendations.
 - Third, they improved recordkeeping for auditing purposes and a dedicated folder was created to file all completed HAI forms.

³ Nyiratuza A, et al. A quality improvement project to improve the accuracy in reporting hospital-acquired infections in post-caesarean section patients in a district hospital in Rwanda. *On the Horizon*. 2016; 24(4):319-326.

⁴ Conroy, K., Koenig, A.K., Yu, Y.H., Courtney, A., Lee, H.J. and Norwitz, E.R. (2012), "Infectious morbidity after Cesarean delivery: 10 strategies to reduce risk", *Review in Obstetrics & Gynecology*, Vol. 5 No. 2, pp. 69-77,

⁵ Chu, K., Maine, R. and Trelles, M. (2015), "Caesarean section surgical site infections in sub-saharan Africa, a multi-country study from Médecin Sans Frontière",

⁶ Mpogoro, F.J., Mshana, S.E., Mirambo, M.M., Kidenya, B.R., Gumodoka, B. and Imirzalioglu, C. (2014), "Incidence and predictors of surgical site infections following caesarean sections at Bugando medical centre, Mwanza, Tanzania", *Antimicrobial Resistance and Infection Control*, Vol. 3 No. 1, p. 25.

- Finally, a guideline on the use of the new HAI surveillance form and new process was created. All midwives and nurses in the maternity unit received repeated training on the new guideline in January 2016. Training was a one-day session and was repeated three times to allow staff from all shifts to participate. In total, 11 out of 12 nurses/midwives in the unit (91.7%) and 12 students in clinical placements were trained on the new process and guideline.
- To measure the accuracy of the routine HAI surveillance report, a validation team was created to collect HAI data for all patients who underwent caesarean sections in the maternity unit during ward rounds. The team used a surveillance form adapted from a WHO tool that utilizes clinical signs and symptoms to identify HAI (CDC, 2006⁷; WHO, 2002⁸). This approach has been widely accepted as a valid method to determine infection, particularly in resource-limited clinical settings where laboratory results are not always available (WHO, 2002).
- The same validation team consisted of the head of the maternity unit, the chief nurse and a midwife. All three team members were familiar with the surveillance tool. HAI data collected by the validation team were compared with the HAI rates found in the routine unit reports of the same period. When discrepancies were found, the validation team would audit the concerned patient's file to confirm the final HAI result, verify that proper follow-up had been given to the patient and ensure that the documentation was complete. The discrepancy was expressed as the difference between the reported HAI rate in the unit report and the validation team rate.

Measurement

- The primary outcome of interest was the discrepancy or difference between the HAI rates detected through routine unit reports and validation team processes.
- Any discrepancy of HAI between the routine reports and validation team was measured in the pre- and post-intervention periods for comparison.

Discussion

- The intervention successfully reduced the discrepancy of HAI reporting from 6.5% to 1.9% by using a validated tool with more vigorous criteria to identify HAI, appointing a dedicated person per shift to record HAI, strengthening the reporting processes, and training staff appropriately. With more accurate data, the hospital IPC committee and senior management team were able to make better informed decisions to address HAI issues.
- The shifting from over-reliance on just one person to a team approach appeared to be an important success factor. To create a cohesive team, the authors incorporated the principle of leadership into the project (Kotter, 1995⁹; Banaszak-Holl et al., 2011¹⁰; Berwick, 1996¹¹). Engaging relevant people from the beginning of the project was important. The staff working in the maternity unit was informed of the quality improvement project from its inception, which allowed to obtain their commitment. They were informed by the nurse in charge of the maternity of the problem magnitude and its impact on the quality of care. Several representatives played a key role in performing the root cause analysis, as well as planning, implementing and evaluating the intervention.
- Open and transparent communication with staff was used to gain their support and manage their expectations.
- Before the intervention, nurses and midwives were not involved in the HAI reporting process. With the new process, the new responsibilities represented extra work and some would forget to record HAI data on the form. This presented a big challenge in implementation and increased communications and face-to-face conversations were needed to break down resistance.

⁷ CDC (2006), Outline for Healthcare-Associated Infections Surveillance.

⁸ WHO (2002), Prevention of Hospital-Acquired Infections: A Practical Guide, World Health Organization, Geneva.

⁹ Kotter, J.P. (1995), "Leading change: why transformation efforts fail", Harvard Business Review, Vol. 73 No. 2, pp. 59-67.

¹⁰ Banaszak-Holl, J., Nembhard, I.M.E., Taylor, L. and Bradley, E.H. (2011), "Leadership and management: a framework for action", Shortell Kaluzny's Healthc Manag Organ Des Behav, pp. 40-45.

¹¹ Berwick, D.M. (1996), "A primer on leading the improvement of systems", BMJ, Vol. 312 No. 7031, p. 619.

- Repeated training and one-on-one sessions were also needed to ensure that nurses and midwives were knowledgeable about the new process and guideline.
- Continuous and rigorous follow-up from the nurse in charge of the maternity was needed to keep everyone engaged and informed of progress made.
- The language barrier proved to be another challenge that had to be overcome. The guidelines required translation and interpretation and this increased the time of the improvement project, for example, more time was needed for training.

Questions

3. What behaviour required changing?

Identify the individual, team or organizational behaviour that required improvement and was targeted by the team.

Discuss and write down all behaviours that were targeted in your opinion.

Behaviour	Individual	Team	Organization

4. What was the intervention implemented?

Identify the intervention(s) implemented by the team.

Next, **discuss** in your group any of the factors included in the context, innovation and recipients' categories presented in the session.

Reflect whether these factors were barriers or facilitators.

Intervention	Context?	Innovation?	Recipients?

5. How did the authors measure the impact of their intervention?

Now, try to **identify** the different ways used by the authors to measure the impact of the intervention(s).

Then, **discuss** if the indicators used were quantitative or qualitative.

Finally, **write down** if the indicators focused on a process or an outcome.

Indicator	Process?	Outcome?	Qualitative/Quantitative?

6. What leadership skills were used to resolve the challenges?

Finally, **focus** on the challenges and difficulties experienced by the team and the approaches used to resolve those challenges.

Think about the leadership skills presented in the session and discuss which one(s) may have been required within the approaches.

Challenge	Leadership skill

Group work 3: Communication channels

Which channel works best in the following situations?	
Situation	Channel
1. A new type of urinary catheter is going to be used from now on in your facility.	
2. A surgeon had a sharps injury while operating on a patient with a bloodborne virus and she is worried about her career.	
3. A peer IPC focal person would like to meet and discuss creating a network of IPC focal persons in the country.	
4. WHO has launched a new campaign on IPC and antimicrobial resistance and you want to launch it in the facility/district/nationwide.	