Minimum infection prevention and control requirements for independent wound management facilities: a measured approach

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https://doi.org/10.36303/WHSA.2

Summary

In the independent wound management facility (IWMF) environment, infection prevention and control (IPC) practice is seldom measured and recorded. Furthermore, no standardised IPC recommendations are available for the IWMF in South Africa. No baseline data is available on current infection control practices in preventing healthcare-associated infection (HAI) and antimicrobial resistance in wound management facilities. This raises two important questions: Firstly, are IWMFs adhering to national and international IPC requirements to provide protection and safety to patients, health care providers and visitors? Secondly, what should the minimum requirements of IPC core components look like in the IWMF?

Keywords: infection prevention, minimum requirements, control

Wound Healing Southern Africa 2023;16(1):3-7

Introduction

Increasing antimicrobial resistance (AMR) and antimicrobial stewardship (AMS) have been highlighted in the updated International Wound Infection Institute (IWII) consensus document together with current clinical practice in wound infection.[1] The prevention of wound infection is focused on implementing strategies to reduce risk factors for infection.[1] AMS is an important component of infection prevention and control (IPC) and an essential strategy to prevent infections that delay wound healing.

The International Consensus document 'Defying hard-to-heal wounds with an early antibiofilm intervention strategy: wound hygiene' suggests additional stages to regular debridement followed by antibiofilm re-formation strategies.[2] Wound hygiene involves cleansing the peri-wound skin and refashioning the wound edge in the antibiofilm intervention strategy.[2] However, biofilms are not only a problem for more than 80% of chronic wounds but also for healthcare facility environments.[3]

The role of biofilms is increasingly recognised as a contributing factor to the transmission and persistence of multi-drug-resistant organisms (MDROs) and AMR in healthcare facilities.[3] 'Clean first, then disinfect'; the methodical cleaning method to remove organic matter first, applies to wound hygiene and environmental hygiene.

According to the World Health Organization (WHO), infections acquired in healthcare settings are the most frequent adverse events in healthcare delivery worldwide. 'Today, out of every 100 patients in acute-care hospitals, seven patients in high-income countries and 15 patients in low- and middle-income countries will acquire at least one healthcare-associated infection (HAI) during their hospital stay. On average, 1 in every 10 affected patients will die from their HAI.'[5]

Furthermore, patients visiting independent wound management facilities (IWMFs) have often received prior antibiotic treatment, which greatly increases the risk of infection with an antibiotic-resistant organism.[4] Therefore, aligning the prevention of wound infection in wound management with AMS is important in addressing the global problem of AMR and will contribute significantly to a reduction in antibiotic use.[1]

The WHO launched its first-ever global report on IPC in May 2022, revealing strong evidence that good IPC programmes can reduce healthcare infections by up to 70%.[5] Furthermore, it highlights the harm to patients and healthcare workers caused by HAIs, and cautions that facilities can be the entry point for outbreaks and amplifiers of pathogen transmission.[5]

Therefore, the question is, can we ensure that IWMF provides safe care if we do not measure the IPC standards in facilities? Furthermore, how do we propose we measure IPC in IWMFs?

The independent wound management facility

An IWMF refers to a privately owned healthcare facility providing wound management to the community. The IWMF is most often owned by a private nurse practitioner.

Patients requiring outpatient wound management are referred to IWMFs by healthcare professionals from the greater medical community where the IWMF is located. Wounds referred to IWMFs can be acute wounds (e.g., surgical or trauma-related wounds and burns) or chronic wounds (e.g., diabetic foot ulcers, lower leg ulcers, and iatrogenic wounds).

IWMFs often fall outside the sophisticated surveillance systems of hospitals and are responsible for managing their own IPC programmes, standard operating procedures (SOPs), IPC training, and IPC equipment

and materials, including medical waste. The IPC budget for an IWMF can be a significant strain on facility expenditure.

Standard aseptic techniques, as recommended during wound dressing changes, are inclusive of all standard IPC precautions, such as risk assessment, hand hygiene, respiratory hygiene (surgical masks) and cough etiquette, patient placement, personal protective equipment (apron, disposable gloves and eye protection if needed), sharps injury prevention, environmental cleaning, medical waste management, and decontamination and reprocessing of reusable equipment.1,7 These standard precautions aim to protect both healthcare providers and patients by reducing the risk of transmission of microorganisms.7

Minimum dressing materials should include a basic sterile dressing tray, linen saver, potable water, or sterile antiseptic fluid and individual sterile dressing materials according to the individual patient's needs. Furthermore, equipment used for performing debridement (e.g., scissors, curette, and forceps) should be sterile.1 The gold standard for sterilising wound care instruments is the autoclave; however, liquid chemical disinfection is acceptable practice when an autoclave is not available.6

Infection prevention and control legislation for healthcare facilities

In South Africa, the following legislation is included in the governance of IPC in healthcare facilities: National Health Act, Occupational Health and Safety Act, National Core Standards for Healthcare Establishments, and the Healthcare Waste Act.[14] Amongst others, international documents for IPC recommendations and programmes are available from the WHO and Centers for Disease Control (CDC).

Two documents were published by the South African National Department of Health in 2020, which apply to both the public and private healthcare sectors:

1. Infection Prevention and Control Strategic Framework;
2. Practical Manual for the Implementation of the National Infection and Prevention and Control Strategic Framework.

The national strategic framework guides public and private health facilities and healthcare providers on compliance with standards relating to IPC practises.[3] The practical implementation manual has been developed parallel to the national strategic framework to further assist and support reducing HAI and AMR.[3]

Furthermore, the practical implementation manual can be used as a training guide and comprehensive IPC reference to all involved in the IWMF.[3]

Core components for infection prevention and control

The devastating outbreak of Ebola virus disease in West Africa in 2016 hastened the effort to compile comprehensive, evidence and consensus-based WHO guidelines on the core components of effective IPC programmes.9 The practical implementation manual, referred to above, is aligned with the WHO Core Component IPC programme recommendations.3 It highlights the essentials for developing and improving IPC at the health facility level in a systematic, stepwise manner for South Africa.3

It also supports the Framework for the Prevention and Containment of AMR in South African Hospitals (2018) and community services such as the IWMF.3

All healthcare facilities, including all IWMFs, should comply with the WHO core components for IPC, as indicated in Table I.

Table I: WHO core components for IPC[8]

1. IPC programmes
2. IPC guidelines/SOPs
3. Education and training
4. HAI surveillance
5. Multimodal strategies
6. Monitoring, auditing and feedback of IPC practices
7. Workload staffing and bed occupancy/consultation room occupancy
8. Built environment, materials, and equipment

IPC – infection prevention and control

Minimum requirements for infection prevention and control in healthcare facilities

The WHO defines the minimum IPC requirements as: "IPC standards that should be in place at national and facility levels to provide minimum protection and safety to patients, healthcare workers and visitors, based on the WHO core components for IPC programmes".[11]

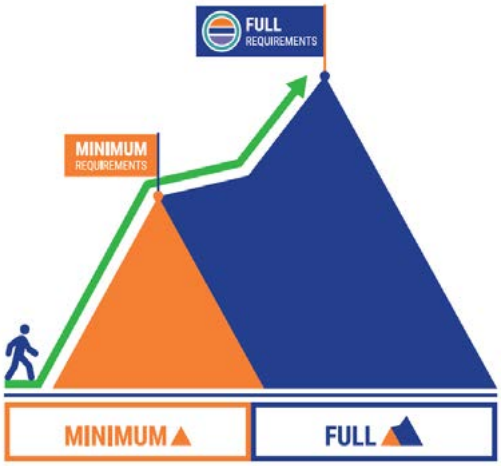

Figure 1: WHO minimum requirements for IPC illustrated[11]

Suggested application of the WHO and South African Government guidelines on the minimum requirements of IPC core components in the independent wound management facility

Core component 1 – IPC programmes for IWMFs

National and international guidelines recommend a baseline IPC assessment of the IWMF's IPC situation through an assessment tool such as the infection prevention and control assessment framework (IPCAF). This tool is available online (https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.9).

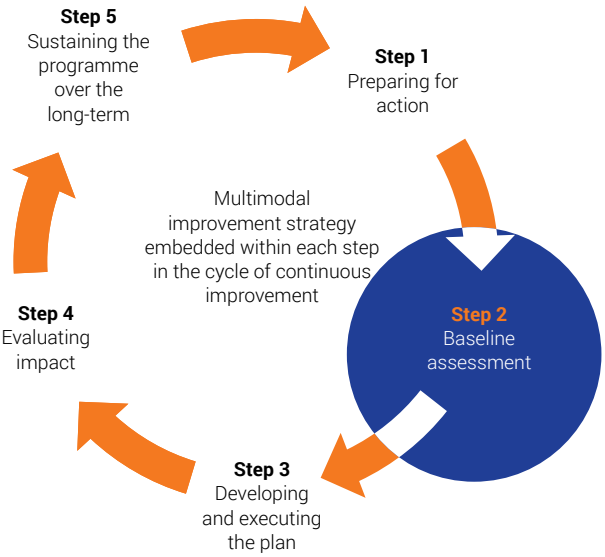

Figure 2: WHO's five-step cycle of improvement[10]

The WHO further developed a five-step cycle of improvement to support guideline implementation through principles of successful behaviour change in health care (Figure 2).[3,10] Step 2 in the cycle suggests a baseline assessment.[10] An exploratory baseline assessment of the current situation, including the identification of existing strengths and weaknesses, is critical for developing a tailor-made action plan that addresses the reality of the IWMF.[10]

An IPC programme/action plan for an IWMF will serve as an initial starting point building on the baseline assessment of the facility's IPC situation to provide minimum protection and safety to patients, healthcare workers and visitors.[11] The IPC programme must have clearly defined objectives to prevent HAIs and combat AMR through good IPC practices.[3]

Furthermore, the WHO's minimum requirement is to have a trained IPC focal person at the facility/or available on a consultation basis, who can assist in designing and implementing the facility's IPC programme.[11]

Core component 2 –SOPs for IWMFs

Evidence-based IPC SOPs should be developed, implemented, and monitored in the IWMF. Standard precautions (SPs) "should be applied to all patients, and in all relevant situations, regardless of diagnosis or presumed infection status".[3]

Key elements of SPs are:[3]

- Hand hygiene
- Appropriate use of personal protective equipment
- Patient placement
- Appropriate use of antiseptics, disinfectants, and detergents
- Decontamination of medical devices
- Safe handling of linen and laundry
- Healthcare waste management
- Respiratory hygiene and cough etiquette
- Environmental cleaning
- Principles of asepsis
- Injection safety, prevention of injuries with sharp instruments and post-exposure prophylaxis

Core component 3 – IPC education and training in IWMFs

IPC education of the health workforce is essential to ensure patient and health worker safety.[3] By understanding the basics of transmission, all healthcare workers can contribute towards reducing HAIs by implementing basic IPC measures.[3]

For the IWMF, we suggest the following:

- Each facility should have a competency-based, practical/clinical CPD training programme for all personnel, which must be passed every 2 years.
- Training should be inclusive but not limited to SPs, transmission-based precautions, microbes, surveillance, occupational health and vaccinations, terminal cleaning, aseptic procedures, and decontamination of instruments.
- Ongoing training/workshops should be explored on a biannual basis.
- Mandatory training with the introduction of new equipment/material should be required.

The following IPC training is freely accessible to all IWMFs:

- Dramowski, A. *Infection prevention and control: a guide for health workers in low-resource settings*. 2nd ed. Stellenbosch: Bettercare.[14]
- Project ECHO (Extension for Community Health Outcomes), an evidence-based telementoring model, to proactively support evidence-based infection control guideline implementation. Available from: https://globalhealthprogress.org/collaboration/project-echo/

Core component 4 – HAI surveillance in IWMFs

Facility-based surveillance should guide IPC interventions and detect outbreaks according to the WHO minimum requirements. Facilities should keep track of microscopy and susceptibility (MC&S) results on a basic Microsoft Excel sheet to establish a baseline infection rate and pathogen spectrum for that facility. Recognising infection clusters and/or increases in wound infection rates above the baseline can help to detect possible infection outbreaks promptly.[14] An antibiogram can also be requested from the pathology laboratory in your community – data that can be created from wound cultures and susceptibility profiles requested from individual wound swabs sent by your facility.

Core component 5 – Multimodal strategies in IWMFs

A multimodal strategy involves several components implemented in an integrated way to improve an outcome and change behaviour, e.g., bundles and checklists.[10] Hospital documentation and recommendations can be adapted to the reality of the IWMF, considering the facility environment and resources.

It is important to consider what is required by the South African government: The Norms and Standards Regulations applicable to different categories of health facilities should be used to monitor IPC practices as set out in Sections 7, 8 and 9.[3]

- **Section 7 of the Regulations for clinical management stipulates the following:**

  (1) The health facility must establish and maintain clinical management systems, structures and procedures that give effect to national policies and guidelines.

  (2) For the purpose of sub-regulation (1) a health facility must:

  (b) Establish and maintain systems, structures, and programmes to manage clinical risk.
- **Section 8 of the Regulations for infection prevention and control programmes stipulates the following:**

  (1) The health facility must maintain an environment, which minimises the risk of disease outbreaks, and the transmission of infection to users, healthcare personnel and visitors.

  (2) For the purposes of sub-regulation (1), a health facility must:

  (a) Ensure that there are hand hygiene facilities in every service area;

  (b) Provide isolation units or cubicles where users with contagious infections can be accommodated;

  (c) Ensure there is clean linen to meet the needs of users; and

  (d) Ensure that healthcare personnel are protected from acquiring infections using personal protective equipment and prophylactic immunisations.
- **Section 9 of the Regulations for waste management stipulates the following:**

  1) The health facility must ensure that waste is handled, stored, and disposed of safely in accordance with the law

  (2) For the purposes of sub-regulation (1), the health facility must:

  (a) Have appropriate waste containers at the point of waste generation;

  (b) Implement procedures for the collection, handling, storage, and disposal of waste."[3]

The WHO requires, at the very least, to implement interventions to improve hand hygiene, safe injection practices, decontamination of medical instruments and devices, and environmental cleaning to ensure that HAIs and AMR are reduced at the facility level.[11]

The WHO has identified five elements of an effective multimodal strategy towards ensuring that IPC is visibly practised throughout the IWMF:[3]

1. System change (build it) – the availability of infrastructure and supplies enabling the implementation of IPC guidelines
2. Education and training (teach it) – of healthcare professionals and key role players
3. Monitoring and feedback (check it) – infrastructure, practices, processes, outcomes, and feedback based on the interpretation of data collected
4. Reminders and communication (sell it) – visual reminders in the workplace
5. Culture change (live it) – strengthening of a safety climate

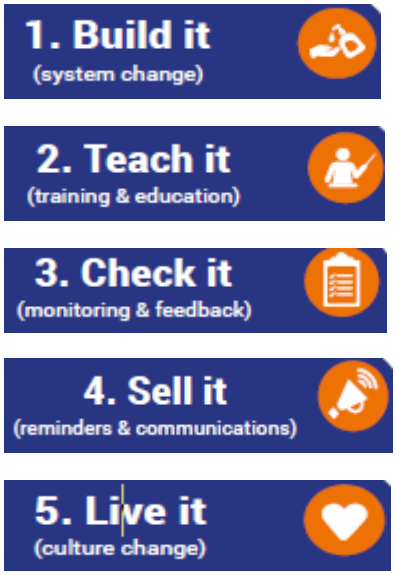

Figure 3: The WHO multimodal intervention strategies illustrated[3]

Core component 6 – Monitoring, auditing, and feedback in IWMFs

The IPC priorities identified in the baseline assessment should be monitored through auditing with feedback to the IWMF focal IPC. For example, medical waste removal logbooks, environmental cleaning schedules, autoclave logbooks, etc., must be kept up to date. This will determine whether IPC standards are met with regular feedback to the wound management team.

Core component 7 – Workload, staffing and occupancy in IWMFs

Patients are usually booked by appointment to prevent overcrowding in a waiting room. The IWMF must have a system that ensures patient flow in the management of consultations. This ensures that the facility's staffing levels and capacity are not exceeded to reduce the risk of HAIs and the spread of AMR.[11]

Core component 8 – Building, IPC equipment and materials in IWMFs

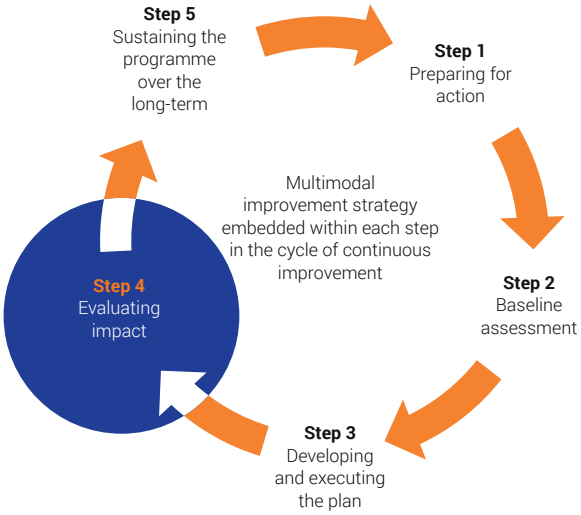

Figure 4: The WHO's five-step cycle of improvement[10]

At each facility, materials and equipment for good hand hygiene must be available at all points of care. A clean and hygienic environment should be maintained throughout. The minimum requirements for core component 8 include the following:[11]

- Water and sanitation for health (WASH)
- Hand hygiene facilities at all points of care (functional hand wash basins with soap and/or alcohol hand rub dispensers
- Medical waste management
- Adequate ventilation
- Decontamination and reprocessing of medical devices
- Triage
- IPC supplies

Conclusion

The recommendation is that all IWMFs carry out a baseline assessment of their IPC situation and design and implement an IPC programme for their facility. In a no-blame environment, IPC standards can be audited annually as recommended by the National IPC Strategic Framework[13] to ensure a safe environment for patients receiving wound care treatment, and adherence to national and international guidelines.

Future research can include an anonymous baseline study to estimate baseline trends of IPC compliance to national and international IPC minimum requirements in the IWMF. From the data of such a study, benchmark recommendations can be established regarding IPC in IWMFs, and guidelines can thereafter be standardised. Common problems experienced by IWMFs can be identified and prioritised by these recommendations. Key structures and processes for the prevention of HAIs and AMR at the IWMF level in South Africa can be described and IPC awareness can be raised.

Furthermore, an IPC assessment tool can be designed specifically to fit the IWMF environment in compliance with national and international guidelines to identify targets for quality improvement. From the data gathered, standardised IPC recommendations can be compiled for IWMFs from the Infection Control Society of Southern Africa (ICSSA) in future.

Acknowledgement

Thank you to Prof. Angela Dramowski and Michelle Osborne for peer reviewing this article.

Conflict of interest

The author declares no conflict of interest. We further report that there is no association with any product or company.

Funding source

None.

Ethical approval

None required.

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