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The WAWLC Wound Care Kit for less resourced countries: a key tool for modern adapted wound care

INTRODUCTION

Throughout the world, chronic wounds are a public health problem that is often ignored.¹ This is even more evident in reduced resources regions, such as Africa, Asia, and South America. In these regions, the main aetiologies of wounds are similar to those encountered in Europe (e.g., vascular or diabetic ulcers, traumatic wounds, and burns) with the addition of typical tropical pathologies of infectious origin (e.g., leprosy, Buruli ulcer, phagedenic ulcer, and sickle cell ulcers). Wounds resulting from physical trauma are one of the primary reasons for the demand for care in natural disasters, displacements of populations, or armed conflicts.

The treatment required for these wounds can be long and expensive. The patient often needs to remain in the hospital, while some will require additional help if the wound limits their independence such as in the case of an elderly person or a child. Even if the care is provided free of charge, the indirect costs (purchase of food, loss of ability to work, interruption to schooling for a child, and social limitations) create a difficult financial burden.

In these settings, basic wound treatments largely rely on poor use of antiseptics and drying of the wound, resulting in long, expensive, and painful care. Additionally for large wounds, serious physical consequences, such as limb contractures, articular fixation, and amputations, can occur. Additionally, dressing material is often not available and is often limited to various bandages and compresses.

It is interesting to remember that the World Health Organisation (WHO) has defined a list of essential medicines, including approximately 200 medicines that respond to the priority health needs of a population. These were selected according to the prevalence of diseases, safety, efficacy, and a comparison of the cost-efficiency ratios. These medicines should be permanently available in the context of operational health systems, in sufficient quantities, in a suitable galenic formulation, with assured quality, and at an affordable price at the community level.² This essential medicines list, which is revised every two years, is an effective tool for rationalisation of the distribution of medicines; however, no similar list exists for wound care materials.

Over the last decades, the approach to wound care has been profoundly transformed, as a result of better understanding of wound healing physiology. The principles that were traditionally based on frequent disinfection and drying of the wound are no longer in use. International consensus now favours healing in a moist environment and less disinfection. These principles have been adopted by the WHO as the basic approach for wound care.³

Although healing in a moist environment has largely benefitted from the arrival of new dressings on the market (e.g., hydrocolloid, hydrogel, hydrocellular, and alginate dressings), these items are far too expensive and rarely available in countries with reduced resources. It seemed important for the World Alliance for Wound and Lymphoedema Care (WAWLC) to establish new



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Basic materials needed for a modern adapted wound dressing. All elements except tweezers and scissors are contained in the WAWLC Wound Care Kit.



standards in the form of a list of essential materials for wound dressings. Thus, the authors developed such a list and then a practical wound care kit.

GENERAL PRINCIPLE BEHIND HUMANITARIAN KITS

International organisations, such as ICRC, HCR, and UNICEF, and NGOs, such as MSF, MDM, CARE, and Oxfam, are often called to respond to emergency situations due to conflicts or natural disasters. In the 1980s, to become more rational and more effective, these organisations worked on solutions to standardise medical supplies. This approach led to standardised, pre-packaged, immediately available, and easy to transport kits. These kits reflected the WHO principles for medicine administration.⁴ These kits are generally composed of a base unit and additional units that enable the response to be better adjusted to the variety of scenarios encountered in the field.

These medical kits are the result of consensus from the major emergency organisations and the WHO and are regularly updated according to field feedback, development of new medical products, and protocols. The kits are considered to be reliable, standardised, inexpensive, and able to quickly provide essential medicines and medical devices (renewable supplies and equipment) necessary in an emergency. Among the most used kits are the cholera kit⁵, the interagency emergency health kit 2011⁶, and the reproductive health kit from UNFPA.⁷

UPDATING THE WOUND CARE KIT

The actual Dressing Kit for caregivers contains the supplies necessary for 50 dressings.⁸ Largely used by international organisations, this kit was created more than thirty years ago and does not take into account progress in wound healing knowledge. Mainly composed of dry gauze and iodine, this kit is based on the principle of disinfecting and drying and does not provide for a modern approach to wound care. It was thus necessary to update the wound care kit.

THIS WAWLC WOUND CARE KIT, MUST:

- Provide basic equipment in an emergency situation as well as for primary health care
- Enable distribution of standardised materials
- Offer appropriate, well-known materials
- Facilitate management of stocks and health programmes
- Facilitate management by better controlling orders and budgets

THIS UPDATED WAWLC WOUND CARE KIT MUST ALSO ENABLE CREATION OF A NEW DYNAMIC:

- Wound care protocols standardisation by using the same materials
- Modern wound care training harmonisation based on a standard material list
- WHO facilitation in establishing a list of essential materials
- Facilitating negotiations with industry to obtain better commercial conditions
- Facilitating development of materials for wound care in regions with limited resources

THIS KIT WILL MAINLY SERVE PATIENTS OF THE FOLLOWING ORGANISATIONS:

- Emergency situation organisations (e.g., UNICEF, UNHCR, ICRC, MSF, MDM, CARE, Oxfam, and Save the Children) that provide care in the field
- National health programmes related to wound care (Buruli ulcer, yaws, leprosy, and lymphatic filariasis)
- Organisations acting in the domain of primary or secondary health care (health centres and district hospitals)

The WAWLC Wound Care Kit, which is described here, should be the basis of the update to the kits provided by specialised distributors in humanitarian crises. The content of this kit can also provide a simple reference list to help NGOs or local authorities to organise their own pharmacy from local purchases. Most importantly, all of its main components can either be bought in the less resourced



countries or replaced with equivalent local products (e.g., shea butter instead of Vaseline).

Following the WAWLC and WHO initiative, consensus work was carried out via a modified DELFI approach to define the content of this new kit. This task force, which brought together experienced clinicians from the fields of wounds and emergency care in regions with limited resources, assembled via internet consultations and in workshops organised at conferences of the European Wound Management Association (EWMA, Copenhagen, May 2013 and Madrid, May 2014) and the Canadian Association of Wound Care (CAWC, October 2014).

GENERAL DESCRIPTION OF THE WAWLC WOUND CARE KIT

■ Main specifications

The main objective is to realise quality wound care in an emergency situation or in a situation with limited resources in health centres or district hospitals. Such a kit should:

- Contain the necessary renewable materials to make up to 100 dressings (standard size set at 10 cm x 10 cm)
- Be simple to use for nursing or medical staff
- Enable providers to follow the basic principles of modern wound care
- Be transportable by plane, ship, or road and, in case of emergency, as hand luggage
- Be able to easily go through customs
- Be easy to store and quick to identify (expiry date, origin of the materials, name of the kit, and list of contents)
- Be stable enough to be stored in humid conditions and high temperatures (50°C)
- Have a shelf life of more than 2 years
- Respect the laws of medical materials, notably directives 93/42/EEC concerning medical equipment⁹

Main features

The WAWLC Wound Care Kit is stocked in a cardboard box. The kit has a volume of 0.1 m³ and weighs approximately 16 kg. It is composed as a basic functional unit to which additional units, such as the Modern Dressing 01 (defined below), can be added.

The basic unit contains classic materials that are known by most care providers and that can be found in most countries. This unit can be easily used but, if necessary, can also be constituted or replenished on site.

The additional unit Modern Dressing 01 comprises three so-called modern dressing components, which are far from readily available in such settings. In addition, their use, although very simple, necessitates specific training.

According to the resources available in the health structure, the WAWLC Wound Care Kit can be supplemented with other available materials such as the disinfection kit or the MSF kit, designated as “dressing, three instruments” (KSURBDRE3).

Part of the included materials may necessitate sterilisation. If the structure does not have the necessary means for sterilisation, it is recommended that a sterilisation kit be procured.

With no narcotic or psychotropic substances, the medicines that are included are not subject to international inspection, and there is no requirement for extra formalities in order to transport them.

What is not included

The kit is directed at care of the wound itself; however, it is clear that one of the basic principles of modern wound care is to take a holistic approach to the patient, thus requiring some items outside the kit.

Pain control is most important, and use of analgesics (minor or major) will need to be evaluated in each situation.

Localised or general secondary infections must be diagnosed and can sometimes necessitate oral or enteral antibiotics. It should be pointed out that most wounds do not require antibiotics. Simply cleaning the wound with clear water or possibly using an antiseptic is often sufficient. Moreover, many cases of fibrinous wounds are mistaken for infection, and therefore, education has an important role to play for this situation.

The kit does not contain items necessary for diagnosis and aetiological treatment of wounds, such as those in diabetes or Buruli ulcers. ►

This kit contains neither anti-tetanus vaccine nor serum that can be recommended according to the state of the wound and its context.

Nutrition is an important issue that should also be considered.

A Post-Exposure Prophylaxis (PEP) kit for staff members that are accidentally exposed to blood or body fluids is also recommended.

Item quantities

The benchmark measurement is a wound that requires covering by a 10-cm × 10-cm secondary dressing. The estimation of the quantities of materials is based on the use of standard therapeutic directives and on the figures provided by individuals or organisations with experience in the domain. The quantities should be sufficient if the clinicians follow the standard therapeutic directives.

However, it should be stated that the WAWLC Wound Care Kit was not conceived for the treatment of severe acute wounds or wounds from major surgery, which require acute treatment at secondary or tertiary level hospitals.

Kit contents

As mentioned above, no WHO-based list for essential wound dressing materials exists. The first part of the project was to establish such a list of essential materials.

The goal was to consider three major item groups:

- The WAWLC Wound Care Kit, which is composed of 26 items to allow basic adapted modern wound care (Table 1)
- The additional Modern Dressing 01 Kit, which is composed of three so-called modern wound dressing items (Table 2)
- 13 additional useful items to improve both woundcare and hygiene (Table 3)

The objective of this essential material is to be able to realise modern, adapted wound care that can be summarised schematically in six points:

- Comprehensive patient evaluation and treatment
- Avoidance of physical and chemical trauma to the wound
- Debridement and peri wound skin and judicious infection control
- Management of controlled humidity of the wound
- Control of periwound oedema/lymphedema
- Prevention of disability

As described above, the basic unit of the WAWLC Wound

Care Kit has been reduced to 26 items. This limitation has been met principally for two reasons:

- A pedagogic will to promote simple protocols
- Ease of management.

With respect to the kit currently used by humanitarian organisations, 19 new items have been introduced:

- Non-sterile, non-woven gauze
- Thick, sterile tulle
- Transparent alimentary film
- Cohesive bandage
- Under-plaster bandage, wadding
- Vaseline
- Silver sulfadiazine
- Sterile saline solution
- Liquid soap
- Hydro alcoholic solution for the hands
- Scalpel blade
- Disposable scalpel with sheath
- Single-use drapes

In addition, some items that enable the management of patient follow-up and waste have been added:

- Basic, easy-to-use wound care procedures (therapeutic directives)
- Patient follow-up charts
- Pen
- Paper rulers
- Sharp-edged box
- Plastic rubbish bag

The additional modern dressings unit for the wound care kit comprises three items:

- Alginate
- Hydrogel
- Polyurethane foam (hydrocellular)

The basic WAWLC Wound Care Kit also contains a list of additional kits that are available and a list of addresses of kit suppliers.

To understand the convenience of the new kit, in the following table we have noted the use of each item with respect to the six basic principles of wound care.

WHAT IS THE COST FOR THE NEW KIT?

The cost of the actual Dressing kit is approximately 200 euros for up to 100 dressings (2 euros per dressing). The cost of the new WAWLC Wound Care Kit is currently estimated to be between 220 and 240 euros, but this price should be reduced 300-350 following mass production.

Even if in an emergency situation a cost of 4 euros per

TABLE 1: COMPOSITION OF THE BASIC UNIT OF THE WAWLC WOUND CARE KIT

Essential materials	Items present in the former Dressings kit	Avoidance of physical and chemical trauma to the wound	Debridement and judicious infection control	Management of controlled humidity of the wound	Management of the infection when present	Control of oedema and lymphoedema	Other (Hygiene, immobilisation, analgesics, etc.)
GAUZE AND DRESSING							
1. Sterile, non-woven gauze	X	X		X			
2. Non-sterile, non-woven gauze		X		X			
3. Thick, sterile tulle		X	X	X			
4. Cellophane transparent film		X		X			
BANDAGE							
5. Cohesive bandage						X	
6. Under-plaster bandage, wadding						X	
7. Crêpe bandage	X	X					
CREAMS, OINTMENTS							
8. Vaseline			X	X			
9. Silver sulfadiazine			X	X	X		
TAPE							
10. Plaster, 2 cm	X	X					
11. Plaster, roll, 10 cm	X	X					
HYGIENE AND DISINFECTANT							
12. Sterile saline solution			X				X
13. Liquid soap					X		
14. Povidone iodine, 10%, solution	X				X		
15. Hydroalcoholic solution for the hands							X
MATERIALS							
16. Single-use, non-sterile gloves	X						X
17. Scalpel blade			X		X		
18. Disposable scalpel with sheath			X		X		
19. Syringe, 20 ml	X		X				X
20. Single-use drapes							X
STATIONERY							
21. Marker							X
22. Easy-to-follow procedure							X
23. Patient follow-up card							X
24. Ruled paper							X
WASTE MANAGEMENT							
25. Sharp-edged box							X
26. Plastic rubbish bag							X

TABLE 2: ADDITIONAL UNIT MODERN DRESSINGS 01

Essential materials	Items present in the former Dressings kit	Avoidance of physical and chemical trauma to the wound	Debridement and judicious infection control	Management of controlled humidity of the wound	Management of the infection when present	Control of oedema and lymphoedema	Other (Hygiene, immobilisation, analgesics, etc.)
GAUZE AND DRESSING							
Alginate		X	X	X			
Hydrogel		X	X	X			
Polyurethane foam (hydrocellular)		X	X	X			

TABLE 3: COMPLEMENTARY ITEMS LISTED AS ESSENTIAL MATERIALS FOR WOUND CARE BUT NOT CONTAINED IN THE WAWLC WOUND CARE KIT

Essential materials	Items present in the former Dressings kit	Avoidance of physical and chemical trauma to the wound	Debridement and judicious infection control	Management of controlled humidity of the wound	Management of the infection when present	Control of oedema and lymphoedema	Other (Hygiene, immobilisation, analgesics, etc.)
GAUZE AND DRESSING							
Non-adherent dressing		X					
Super-absorbent dressing		X		X			
Charcoal dressing		X	X				X
Dressing with PHMB		X	X		X		
BANDAGE							
Light cotton bandages		X					X
Bandage with short extension		X				X	X
Tubular bandage		X					X
CREAMS, OINTMENTS							
Corticosteroid cream						X	
HYGIENE AND DISINFECTANT							
5% aqueous chlorhexidine solution					X		
Povidone iodine ointment					X		
Surface disinfectant							X
MATERIALS							
Xylocaine injectable							X
Xylocaine spray							X

dressing is acceptable, a lower cost is desirable for everyday use in the context of limited resources. A maximum cost of 1 or 2 euros per dressing will have to be achieved.

Several mechanisms of cost reduction can be envisioned:

- agreement with producers of differentiated price policies for countries with limited resources,
- purchase of kits with money subsidised by specific funds,
- work with pharmaceutical companies to have cheaper

packaging,

- fostering competition between producers, and
- procurement from producers in emerging countries.

FURTHER DEVELOPMENT OF THE WAWLC WOUND CARE KIT

After production of the very first prototype in April 2016, work, within WALWC, is underway to test the WAWLC Wound Care Kit. Eighteen preseries kits will be produced

and sent to three reference hospitals. Once tested, the users will provide their opinions on a form. Based on these observations, necessary adaptation of the kit will be made before a dialogue with the medical device and/or pharmaceutical industry takes place for industrial production.

Distributors and users will be invited to give their comments and recommendations for the next generation. To optimise both diffusion and use of the kit as well as a modern approach to wound care suited to the context of limited resources, various actions are underway:

- both face-to-face and over the Internet training sessions,
- use of the kit in training sessions,
- guidelines currently under publication, notably within MSF,
- validation request regarding the list of essential materials for wound care with the WHO, and
- definition of quality criteria for materials for wound care in order to facilitate choice of procurement sources.

CONCLUSIONS

Development of the WAWLC Wound Care Kit will greatly enhance the quality of wound care in less resourced countries.

This will be accomplished by not only the materials contained in the kit but also through the training provided for the kit to clinicians.

Of course, both the kits and related training have associated costs, and sponsors are welcome to contact the authors of this humanitarian endeavour that is undertaken under WAWLC auspices. ■

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