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EDITORIAL

The role of wilderness medicine training in resource-limited settings

Richard III cried out "A horse, a horse! My kingdom for a horse!" in the play of the same name, undoubtedly because it was a much needed resource that he did not have, and would have to overcome his enemies by improvising during the battle [1]. Resource limitations in emergency medical care demand that we perpetually consider and reconsider ways to improve the quality of that care. Resource limitations can usually be classified similar to a surge capacity assessment, i.e. lack of essential equipment (stuff), trained professionals (staff), space restrictions (structure), and appropriate systems to manage patients (systems) [2]. Within the majority of African emergency care settings, resource limitations involving one or more of these are challenging to say the least. Clinicians navigating these health care restrictions (whether in-, or outside the hospital) have to be both smart and innovative in order to render care of a reasonable standard without compromising safety. Often these solutions are born of need, and although not ideal, necessity tends to be the mother of all invention.

Finding safe workable solutions in some of the most onerous settings during protracted times of resource limitation are key variables that define wilderness medicine [3,4]. The only difference between wilderness medicine (as it is practiced in remote areas) and emergency medicine (as it is practiced in low- and middle-income emergency centres) is the environment it is practiced in. Naturally, wilderness medicine encompasses a select group of illnesses and injuries peculiar to an extreme austere environment [5,6]. However, the basis of both fields is a system of common sense undifferentiated patient management, practiced within a less than ideal setting and with very little diagnostic and therapeutic tools to boot. If one ignores the environment, the two are practically indistinguishable. It therefore seems reasonable to suggest that wilderness medicine training can also prepare clinicians practicing in African emergency care by developing the type of on-your-feet thinking required to function effectively when resources are few.

To contextualise the potential role of wilderness medicine in African emergency care training, we might have to reconsider the classification of resource limitations, listed earlier. Wilderness medical care providers will attest to managing patients with very little resources for long periods of time using a few basic principles. Two of these principles are multi-functionality and cross-functionality [7]. Multi-functionality describes equipment that can be used for more than one element of a patient's care, e.g. a simple intravenous giving set can also double as a rudimentary percutaneous crico-thyroidotomy kit. In other words, a device with several different potential uses reduces the need to carry multiple devices with few uses [8]. Ketamine is an example of a drug that has many uses, from analgesia to sedation and rapid sequence induction [9]. Cross-functionality on the other hand describes the use of multiple items for similar tasks so that in the event that one item is not available, care can still be delivered using an alternate item, that was essentially carried for a different use. Simple plastic bags can be used as rudimentary gloves in the event that standard medical gloves are not available, or high-pressure wound flushing devices in lieu of syringes, over and above their other primary functions.

Working in remote wilderness settings prepares providers to work in relative isolation. This is done through exposure to and encouragement of a fair amount of self-reliance, and psychological resilience skills. Wilderness medicine providers are also trained to perform tasks alone that would usually require several other persons. For instance applying a pelvic binder can be easily applied by just one person, by first tying a knot, then placing a firm rod or a stick over the knot, and tying a second knot over that. The makeshift binder can now be tightened using the windlass technique to tighten the knot [10,11]. The need for self-reliance, and psychological resilience skills are not too different from the staff shortages African emergency care providers are exposed to on a regular basis (Fig. 1). Working in every compartment from a boat to the inside of helicopter, space is often considered a premium. Wilderness medicine providers are exposed to risk and error in an unforgiving environment. A lapse in concentration in patient management could mean harm to both the patient and the provider. Wilderness medicine providers incorporate aspects of aircraft crew resource management and tactical team based standard operating procedures to improve human resource efficiency and thereby reduce errors in wilderness rescue and patient care [12]. The result of wilderness medicine training is a unique group of systems thinkers, who are able to address clinical problems using limited inputs whilst maximising outputs for optimal patient outcome. System thinking, including practical aids such as challenge-and-response checklists, would not be out of place in a low- or middle- income emergency centre setting.

Wilderness medicine is not just a peripheral field in emergency medicine; it also includes a deeper understanding of the utility of assessment and interventions, in the face of reducing wastage of time and physical resources, within the limitations of a restricted capacity environment. It basically offers the soft skills, to support African emergency care workers in thinking outside the box. It is not meant to be viewed as a service replacement, but rather as a systems approach in limited resource settings, to improve

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Fig. 1. The author with advanced wilderness medicine instructors learning improvised care in disaster settings.

efficiency with minimal quality and safety trade-offs – such as the vast majority of African emergency centres. Whilst a high-angle rescue off a cliff face may be the initial attraction for adrenaline-seeking individuals, the true value of wilderness medicine training lies in providing highly refined, system-oriented thinking for regular emergency care providers working in limited resource environments. It is for this reason that it should at least be considered for inclusion in training programmes.

Conflict of interest

The author declares no conflict of interest. The views expressed in opinion pieces do not necessarily reflect the views of the African Journal of Emergency Medicine or the African Federation for Emergency Medicine and are solely the opinion of the author.

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