

## LETTER TO EDITOR

## As Infecções Relacionadas à Assistência à Saúde (IRAS) podem ser evitadas

### *Healthcare Associated Infections (HAIs) may be preventable*

### *Las Infecciones Asociadas a la Atención Sanitaria (IAAS) pueden ser prevenibles*

James R. Korndorffer Jr.,<sup>1</sup> Rosana Richtmann<sup>2</sup>

<sup>1</sup> Escola de Medicina da Universidade de Stanford, Stanford, CA, Estados Unidos da América.

<sup>2</sup> Doutora na Universidade de Freiburg; Presidente da Comissão de Controle de Infecção Hospitalar do Hospital e Maternidade Santa Joana e Pro Matre Paulista; Médica do Instituto de Infectologia Emílio Ribas; Membro do Comitê de Imunização da Sociedade Brasileira de Infectologia.

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korndorffer@stanford.edu

rrichtmann@uol.com.br

Healthcare Associated Infections (HAIs) are infections that patients acquire during the course of medical treatment and many HAIs may be preventable. The elimination or reduction of HAIs has been identified as a global priority.<sup>1,2</sup> Patient safety and improved care is the driver for this global priority as the development of HAIs leads to increased patient morbidity, including sepsis, which can increase mortality. Complicating the issue is the global increase in the rates of antimicrobial resistant organisms associated with HAIs, which adds to the future of healthcare challenges.<sup>3-5</sup> A recent publication noted that HAIs account for 60% of sepsis cases in Brazil and Brazilian ICU sepsis-related mortality rates of over 55% have been reported.<sup>6</sup>

Two of the most common HAIs are catheter related blood stream infections (CLABSI) and surgical site infections (SSI). Surgical site infections are the leading HAIs reported hospital-wide in Low & Middle Income countries (LMIC) and the 2nd most frequent type in USA and Europe – they are also among the most preventable.<sup>3-5</sup>. While the etiology of SSI and CLABSI is multifactorial, the primary source of both is considered to be predominantly the patients endogenous skin flora.<sup>7-11</sup>. Sub-optimal skin antisepsis is therefore considered to be a primary cause of these HAIs and the role of patient skin antisepsis is vital in the prevention of these infections.<sup>12</sup>

To combat sub-optimal skin antisepsis, numerous guidelines have been published regarding optimal skin antisepsis prior to insertion of intravascular catheters or surgical incision. For central vascular access, many recommend the use of alcoholic chlorhexidine (CHG) – at a concentration > 0.5% or specifically 2%.<sup>13-15</sup> Guidelines for the prevention of SSI are less specific, generally advocating alcohol-based solutions but leaving the choice open between CHG and povidone-iodine

(PVI).<sup>16</sup> However, the 2016 WHO guideline for the Prevention of SSI recommends CHG as the active substance of choice.<sup>5</sup>

While most current guidelines focus on efficacy of the antiseptic agents, the guidelines fail to address other key elements of skin antisepsis including the method of application.<sup>17</sup> The classic application of antiseptic solution is in a circular motion, moving from the insertion or incision site to the periphery. While this application technique might be necessary for aqueous based solution, to allow time for the solution to dry and for maximal time to destroy microorganism, it has little rationale with alcohol-based solutions. Furthermore, there is no evidence to support this application methodology. More recently studies have demonstrated that applying antiseptic solution in a back and forth motion for a minimum of 30 seconds at the procedural area and then moving outward to the periphery may cleanse more skin layers and reduce bacterial load more effectively.<sup>18-20</sup>

Additionally, in many countries, patient skin antisepsis is performed using hemostats with gauze dipped in a basin of antiseptic agent poured from a bottle of bulk multi-use solution which is at risk for external contamination on reuse.<sup>21-23</sup> A potential improvement in this method is the use of single use sterile applicators.

The potential benefits of single use sterile antiseptic applicators include improved control of the flow and volume of antiseptic solution, reduced risk of chemical or thermal burns and the prevention of drug errors (accidental injection of antiseptic has been reported in the literature).<sup>24</sup> Applicators may also save time and reduce waste.<sup>17</sup> Sterile single use applicators can promote Aseptic Non Touch Technique® (ANTT), protecting the antiseptic solution from external contamination such as that noted with bulk multi-use bottles. Patient safety may

also be improved as single-use applicators encourage standardization of the patients' skin antisepsis procedure, improving compliance, especially for the critical steps of the antisepsis procedure.<sup>25-27</sup>

In conclusion, single use sterile applicators containing alcoholic Chlorhexidine 2% for pre-interventional skin antisepsis have gained broad acceptance in the US and are increasingly being adopted in Europe, Middle East and Australia. As the applicators become available in Brazil, they have the potential to contribute best practice in patients' skin antisepsis and help minimize risks of CLABSI and SSI.

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