

IPPP

Issue 12
March 2021
ISSN 2633-6944

Innovation, People and Practice

Image courtesy
of Glenn Dene



Talking Heads

Brian King, Cantel EMEA
Sales Training Manager **p6**

On the cover

Keeping one another going
during COVID-19 **p8**

Spotlight

Kate Illingworth, founder
of Hull Uni ODP Society **p10**

Double Gloving:

A gold standard of practice

Double gloving is advocated by a vast array of national and international health organisations including WHO, NICE and CDC. Perioperative educational bodies such as the AfPP, AORN, ACORN and EORNA also recommend double gloving should be considered the gold standard. Understanding the rationale for double gloving in perioperative practice is key to educating others and improving compliance outcomes.

- WHO** - World Health Organization
- NICE** - The National Institute for Health and Care Excellence
- CDC** - Centers for Disease Control and Prevention
- AfPP** - Association for Perioperative Practice
- AORN** - Association of periOperative Registered Nurses
- ACORN** - Australian College of Perioperative Nurses
- EORNA** - European Operating Room Nurses Association

Overview

Double gloving provides an extra layer of protection, and using a coloured indicator glove helps identify a breach as it occurs. Micro-perforations often go unnoticed during surgery and are a major factor in the risk of occupational exposure to bloodborne pathogens, increasing the likelihood of infection.

Research has proven that micro-perforations occur during many types of surgical procedures regardless of specialty. This statistic alone provides justification for routine double gloving during surgery.

Factors that may result in micro-perforations

The operating theatre is a unique environment in many respects; healthcare workers (HCWs) are in close proximity, often over long periods and under emergency conditions (Gaines & Luo 2017).

Failure of surgical gloves from sutures, sharp instruments and bone fragments are common sources of hand contamination from blood and body fluids (Gaines & Luo 2017).

According to Kaplan *et al* (2016), different conditions such as instrumentation, surgical equipment and techniques have the potential to create glove tears (Kaplan *et al* 2016).

During surgery, gloves are exposed to a range of chemical and physical stressors such as twisting, pulling and stretching with potential exposure to fluids, fat or chemical substances (Kaplan *et al* 2016).

All these factors influence glove integrity and increase perforation risk.

The risk of single gloving in the UK

- Approximately 100,000 sharps injuries occur in UK hospitals annually (Kerr & Stewart 2009, Trim & Elliott 2003).
- It has been estimated that 4% of HCWs sustain 1 to 6 sharps' injuries each year (Kerr *et al* 2009).
- A small, but significant number of HCWs in the UK, including nurses, have developed potentially life-threatening diseases because of a sharps' injury (HPA 2012, PHE 2020).
- Since the late 1990s, at least 20 HCWs have contracted hepatitis C and there have been 5 documented cases of HIV transmission (HPA 2012, PHE 2020).

The benefits of double gloving

- Double gloving **reduces risk of exposure** to patient blood by **as much as 87%** when the outer glove is punctured (Berguer 2004).
- **Volume of blood** on a solid suture needle is **reduced by as much as 95%** when passing through two glove layers, thereby reducing viral load in the event of a contaminated percutaneous injury (Berguer 2004).
- Despite aseptic practice in maintaining sterility, bacteria is impossible to eradicate from the operating theatre. Double gloving has shown to reduce visible **skin contamination 22.7% compared to 42.1%** with single gloving (Thomas *et al* 2001).
- Wearing a coloured under glove increases identification of **perforations by up to 86%** (Laine & Aarnio 2001). Coloured under gloves also **reduce time to awareness from 67 seconds to 42 seconds** (Florman *et al* 2005).

The importance of glove change

Consider the length of surgical case and the amount of time gloves are worn during surgery. The **longer the surgical case, the greater the chance for a tear** in the glove due to a bone fragment or sharp instrument (Tilli *et al* 2017).

In a study by Tilli *et al* (2017), it was reported that **significantly higher perforation rates** occurred when the **gloves**



were worn for over 90 minutes. Moreover, a systematic review of orthopedic surgery revealed that glove change every 20–90 minutes is good practice (Tilli *et al* 2017).

Why surgical staff might not practice double gloving in the UK

Some HCWs, particularly surgeons and operating theatre staff, are disinclined to wear more than one pair of gloves. They claim that their dexterity and ability to safely handle and use instruments is compromised or even diminished with the addition of an outer pair of gloves. Multiple studies investigating tactility and sensation, both objectively and subjectively, have concluded that there is **no negative impact on tactility associated with the use of double gloves** (Lipson *et al* 2018, Padhye 2011, Wilson & Sellu 1996).

Moreover, there appears to be a lack of awareness and understanding surrounding the reasons everyone should double glove (Lipson *et al* 2018). Occupational risk along with increased risk of infection perhaps has been misplaced or simply not discussed.

Please visit www.AnsellCARES.com to access a February 2021 recorded webinar on Double Gloving. Additional self-study PDF courses accredited by AfPP and other educational resources are also available. ■

Article by **Jessamy Walker, BSC Hons, ODP and Eunice Sithole, RGN, MSc. Area Clinical Consultants with Ansell.**

Reference List

- Berguer R, MD. 2004 Preventing Sharps Injuries in the Operating Room. *Jour Am Coll Surg*; 04. Pp. 462–467
- Florman S, Burgdorf M, Finigan K, Slakey D, Hewitt R, Nichols RL. Efficacy of double gloving with an intrinsic indicator system. *Surg Infect (Larchmt)*. 2005;6(4):385–395. doi:10.1089/sur.2005.6.385
- Gaines S, Luo JN. Optimum Operating Room Environment for the Prevention of Surgical Site Infections. *Surgical infections*. 2017; 18(4):503–507
- Health Protection Agency (HPA) 2012 Eye of needle: United Kingdom surveillance of significant occupational exposures to bloodborne viruses in healthcare workers London
- Kaplan JD *et al* 2016 Intraoperative radiation safety in orthopaedics: a review of the ALARA (As low as reasonably achievable) principle Patient Safety in Surgery: 10–27
- Kerr HL, Stewart N, Pace A, Elsayed S. 2009 Sharps injury reporting amongst surgeons *Annals of The Royal College of Surgeons England* 91 430–432
- Kerr HL, Stewart N. 2009 Sharps injury reporting amongst surgeons. *Annals of The Royal College of Surgeons England* 91 430–432
- Laine T, Aarnio P. 2001 How often does glove perforation occur in surgery? Comparison between single gloves and a double-gloving system. *Am J Surg* 181(6):564–566. doi:10.1016/s0002-9610(01)00626-2
- Lipson ME, Deardon R, Switzer NJ *et al* 2018 Practice and attitudes regarding double gloving among staff surgeons and surgical trainees. *Canadian Journal of surgery. Journal Canadien de Chirurgie*. 61(4):244–250
- Padhye MN, Girotra C, Khosla AR, Gupta KV. 2011 Efficacy of double gloving technique in major and minor oral surgical procedures: A prospective study. *Ann Maxillofac Surg*; 1(2). Pp. 112–119
- Public Health England (PHE) 2020 Eye of the needle report February 2020. <https://www.gov.uk/government/publications/bloodborne-viruses-eye-of-the-needle>
- Thomas S, Agarwal M, Mehta G. 2001 Intraoperative glove perforation—single versus double gloving in protection against skin contamination. *Postgrad Med J*. 77(909):458–460. doi:10.1136/pmj.77.909.458
- Tilli MA, Belgacem A, Sridi H *et al* 2017 Evaluation of surgical glove integrity and factors associated with glove defect. *Am J Infect Control*; 46. Pp. 30–33
- Trim JC, Elliott TS. A review of sharps injuries and preventative strategies 2003. *J Hosp Infect*. 2003 Apr;53(4):237–42. doi: 10.1053/jhin.2002.1378. PMID: 12660120
- Wilson SJ, Sellu D. 1996 Subjective effects of double gloves on surgical performance. *Ann R Coll Surg Engl*. 78:20–22

Further Reading

Association of Peri- Operative Registered Nurses (AORN) Recommended practices for prevention of transmissible infections in the Perioperative practice setting. Standards, Recommended Practices and Guidelines. Published 2014.

The Association for Perioperative Practice (AFPP) 2016 Standards and Recommendations for Safe Perioperative Practice 4TH Edition Harrogate AFPP.

The Association for Perioperative Practice (AFPP) 2020 Infection Control Standards '5.2 Standard Principles for preventing healthcare Associated Infections'. Harrogate AFPP.

Australian College of Operating Room Nurses (ACORN) 2020 Standards for Perioperative Nursing in Australia 16th Edition.

The National Institute for Health and Care Excellence (NICE) 2006 Surgical site infection: NICE Guideline.

The World Health Organization Glove Use Information Leaflet. http://www.who.int/gpsc/5may/Glove_Use_Information_Leaflet.pdf.

CDC Surgical Site Infection. 2017 Guideline for Prevention of Surgical Site Infection. <https://www.cdc.gov/infectioncontrol/guidelines/ssi/>.