

Bulletin

of The Royal College of Surgeons of England

Head and neck cancer audit
Microbes on ties
Needlestick injuries
Errors in maxillofacial surgery

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The influence of the BSS course on needlestick injuries

Ann R Coll
Surg Engl (Suppl)
2002; 84: 310-311

The *Basic Surgical Skills* course is a mandatory part of basic surgical training¹ that provides an introduction to techniques such as suturing, instrument handling, anastomosis and sharps handling. Glove usage and sharps safety with avoidance of needle handling is emphasised throughout

Methods

The study was conducted at a regional Basic Surgical Skills course. Fifteen senior house officers (SHOs) attended and participated in the study with consent. On the first day of the course the participants were asked to place two simple sutures (Ethilon) in artificial skin while wearing latex surgical gloves (Bodyguard). Gloves used in the exercise were then removed

the course. The aim is to improve skills and provide a safer suturing environment for the trainee by keeping needlestick injuries and glove perforations to a minimum. This study assessed whether the *Basic Surgical Skills* course influenced the glove perforation rate during simple suturing.

dried and re-tested and if still positive were re-tested using the industry standard water load test² to localise the perforations, which were then recorded. We tested 90 gloves using this method. A control of 90 gloves which had been simply put on and removed were also tested for glove perforations using the electrical conductance test.

Fear of HIV, hepatitis B and hepatitis C transmission remains a major driving force for safer sharps handling.

carefully and placed appropriately in bins marked dominant and non-dominant hand. Any perforations or needlestick injuries sustained during this exercise were marked on the glove and recorded. This exercise was repeated three times. On the final day of the course the exercise was again performed and repeated three times with all gloves collected in a similar manner.

The electrical conductance test² was used to test for glove perforations. A standard ohmmeter (Caltec category 2 CM 1100) was used to assess the electrical resistance across a surgical glove

Results

Before the course the perforation rate was 4.4% (2/45) in the dominant hand, 11.1% (5/45) in the non-dominant hand and 7.8% (7/90) overall. After the course the rate was 0% (0/45) in the dominant hand, 2.2% (1/45) in the non-dominant hand and 1.1% (1/90) overall. No needlestick injuries were reported during the study period. Control perforation rate was 1.1% (1/90). A reduction of six perforations ($p=0.032$ Fishers exact probability) was noted post-course.

transmission remains a major driving force for safer sharps handling. The use of latex gloves in providing a mechanical barrier against blood borne viruses is also advocated as surgeons are at risk from both topical and parenteral exposure of blood borne viruses.⁴ Glove material reduces the transferred blood volume by 46-86%. The 'no touch technique' during laparotomy closure reduces the incidence of glove perforation.⁵ Many studies show that the majority of perforations occur in the non-dominant hand, specifically to the index finger and thumb, and presumably secondary to needle handling.^{6,7} Clearly, any intervention that reduces the incidence of glove perforation and subsequent exposure of the operator to blood is beneficial.

Glove perforation can occur without the operator noticing a needlestick injury, as was

of the Basic Surgical Skills course is sustained into clinical practice and this area requires further study.

References

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Before and after the course perforations were detected mostly in the non-dominant hand which is consistent with other studies.^{6,7} There was a significant reduction in glove perforations after the course

the case in this study. The clinical risk of a glove perforation as opposed to a documented needlestick injury is not known. If the glove perforation rate falls with good technique it seems logical that the likelihood of a needlestick injury will also fall.

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As this course is mandatory only for trainees sitting their MRCS exam, many doctors who are exposed to similar risks while suturing will not receive the benefits of this course. We recommend that anyone performing suturing

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Acknowledgements

Mica E Gilroy, surgical research assistant and Mr