The production and effectiveness of an awareness tool for surgical staff highlighting the potential exposure routes during the use of diathermy techniques in the operating theatre

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ABSTRACT

Diathermy is the use of high frequency electric current to produce heat. It is a surgical process that is used to either cut or destroy tissue or to produce coagulation. This process produces fume in the operating theatre that contains a number of substances that are potentially harmful to health. Operating theatre employees, such as Surgeons, Operating Theatre Practitioners (ODPs) and Nurses are exposed to this fume on a regular basis. Control systems are employed, but the effectiveness of these is difficult to quantify due to the difficulty in visualising the fume in the theatre environment.

The aim of this project was to compare two formats of a visualisation tool aimed at raising the awareness of diathermy fume in the operating theatre. The images focused on the path of diathermy fume in the operating theatre when a sample of the available controls was investigated. The images were produced using suitable lighting techniques to highlight the fume and they were then presented in two formats, either a short PowerPoint presentation or a narrated DVD. The two formats were then shown to separate groups of volunteers who were asked to answer a questionnaire before and after the viewing. The questionnaires were identical for each format and the responses were analysed to gauge the changes in awareness after viewing the respective tool.

The participants consisted of theatre staff whose job titles included ODPs, Nurses and student ODPs. The control systems that were investigated were laminar flow air supply, vacuum suction and on-tip extraction.

The analysis of the resultant questionnaires concluded that the level of awareness of the presence of fume in the operating theatre was raised as a result of viewing both formats of the tool. There was also raised awareness in relation to the effectiveness of the control systems used in the simulations. Although both modes of delivery received a positive response in raising awareness of the fume in the theatre, the DVD session was considered to be the most effective.