



WHO NEEDS SPRAY ANYWAY? - RECOVERY TEAM, 2020

TEAM MEMBERS: Helen Spencer Jones (Staff Nurse), Emily Young (Deputy Sister), Sharon Clyde (Assistant Recovery Practitioner).and Joao Fontes (Staff Nurse).

Aim: To reduce the usage of ethyl chloride spray for testing spinal/epidural blocks in RBH Recovery from baseline use (4 cans per week in recovery) to 1 can or fewer by using an alternative that has a lower environmental impact.

Background: The staff were asked to stop using ethyl chloride spray in recovery and try 'cold sticks' (solid stainless-steel sticks with handles that can be reused and kept in the fridge) for testing spinal/epidural blocks, recording their findings at each use on a tool designed by the Green Recovery Team.



Approach:

Strategic choice of project - Data gathered by the Sustainable Development Unit demonstrated that pharmaceuticals are the greatest contributor to the carbon footprint of procurement. Cans are not recycled but disposed in the domestic waste stream. The use of spinal and epidural anaesthesia is high as the trust is a centre for elective orthopaedic surgery. Spinal anaesthesia is commonly used for high risk patients in major gynaecological surgery. The cans are costly at £17.94 per can, with the added cost of disposal. There is a carbon footprint for manufacturing, transport (1,440 km by truck), and disposal. The spray takes 1 to 2 months to break down. If released into the environment it is acutely toxic to birds, animals and aquatic life and affects the growth rate of plants.

Robust measurement of impact - Accurate baseline data was collected showing that 4 cans were used in recovery and 2 per week in Derwent. 72 audit forms were collected in Main Recovery and the Derwent Recovery over the course of our trial, 69 for spinals and 3 for epidurals. Staff judged that the use of the sticks gave a satisfactory and accurate block level that did not need rechecking with the spray in all but 2 of the 72 instances. In one instance the blocks had been out of the fridge for a long time and warmed up, in a second the staff member judged that the spray more accurately assessed the level of the block.

Engaged colleagues/patients - the Acute Pain Team and a senior anaesthetist were contacted for feedback on the project idea. Infection Control were contacted for guidance on how to clean and store the sticks. Information was cascaded to all staff at key meetings and via emails. Data was reviewed on a weekly basis, to understand staff and patient opinion on their experience of using the sticks, to help ensure that staff were completing forms reliably and accurately and that clinical care was not being compromised. A poster campaign was run which encouraged the use of cold spray where appropriate and the filling out of the audit sheets.

Steps taken to ensure lasting change - The team aim to introduce the change to all theatres, the Anaesthetic Directorate and all hospital wards that use the spray. The team have been liaising with Dr Isabel Smith, a Consultant Anaesthetist and Clinical Lead for Transformation; she is very interested in promoting sustainability and is helping to engage the Senior Anaesthetic Team. A reliable supplier for the metal sticks has been found. The team continue to liaise with Infection Control to ensure items meet the standards regulations and are putting together a business case supported by their matron.

Evidence of Impact:

Environmental benefit	The 6 cans per week baseline was responsible for 5,341kgCO ₂ e. After initiation of the project 5.2 cans were saved over the 2 units per week, which equated to 270 cans per year. The cool metal sticks were cleaned by wipes between patients. The emissions produced by the 0.8 cans used per week and the wipes were 729kgCO ₂ e, that gives an overall saving of 4,613kgCO ₂ e over 1 year (cool metal sticks were already property of the department so carbon footprint not taken into account). If the project was spread to 8 surgical wards the hospital could save 36 tonnes CO ₂ e (-13.76kgCo ₂ for procurement of 20 metal sticks for the hospital)
Social sustainability: Impact on relationships and networks for patients, staff and the wider community	This project may build stronger links between the department and their local medical instruments company and lead to NHS money being spent locally, supporting the local economy, rather than at a distance. Participating in the project built social capital and relationships both within the green recovery team and between departments.
Financial benefit	Overall annual saving of £4,827 for the new method. If this project was spread to all 8 surgical wards of the hospital could save £37,413 (taking into account, the cost of purchase of 20 sticks).
Clinical outcomes	Ethyl chloride has a number of adverse effects associated with use including being a liver and kidney toxin, risk of fatal coma with respiratory or cardiac arrest and risk of frost bite. The reduction in usage of the spray lowers the risk of these adverse events for both patients and staff members carrying out the procedure. The metal sticks were effective at assessing blocks, and the patients seemed to 'jump' a lot less when sticks were used in comparison with the spray, suggesting a better patient experience. No patients expressed any problems with or dislike of the sticks. It was difficult to gather more data on the patients experience with the sticks as many of them have no prior experience of ethyl chloride spray that they can recall or were very drowsy on waking that is was not possible to gain permission to use their name in results.