



Zero bugs is 'manna from heaven'

Current NHS thermal disinfecting guidelines don't kill all bugs – but a new ozone laundry system does, and what's more it works best at low temperatures. **Jose Sanchez de Munain** reports.

They say that life is full of ironies so here is one more to add to the list. A new laundry system is being rolled out in the UK that kills virtually all bacteria on clothing, as well as removing vegetable oil and protein staining, at low temperatures – so far so good. The irony is that at a time when hospital-acquired infections are hitting headlines, and killing 3,000 patients per year, it is likely the NHS will be the last sector to benefit from this revolutionary new system.

For many years there have been suggestions of links between hospital laundry procedures and patient infections. Three years ago the Times newspaper ran an article pointing out that 5,000 people died per annum from hospital contracted infections, with suggestions that laundry procedures could account for some of these deaths. In 2002, the Watt Group report – reviewing an outbreak of salmonella at the Victoria Infirmary, Glasgow – summarised the lessons that could be learned by the wider NHS in Scotland. Among the recommendations were that every Trust should have a staff uniform policy, that all uniforms be laundered by or under the control of the NHS, and that staff travelling to/from work in (potentially contaminated) uniforms should cease.

The NHS publishes guidelines for thermal disinfecting, HSG (95) 18, but there are increasing grumbles about it. HSG (95) 18 specifies method – eg temperature and time of wash – but not what the results/bug-kill should be. A solution that does not follow the NHS-specified thermal disinfecting method cannot be used, even if it has a 99% bacteria-kill rate, such as ozone-based laundry systems. The NHS guidelines are increasingly looking antiquated in the face of other countries' standard procedures. In France barrier wash systems are commonplace, and Holland has dedicated disinfecting plants.

Although ozone laundry systems are not (in theory) new to the UK, they have never been introduced commercially. In the US however, ozone laundry installations are being fitted widely. Six years ago Virginia's Department of Mental Health installed five ozone laundering systems, and within a year one laundry manager was reporting 25% reduced water usage, and 45%

reduction in laundry chemicals. And this with a 99.5% bacteria and viral kill.

Ozone acts as a powerful anti-oxidant, working 3,000 times faster than chlorine, and it is 150% more effective. Not only does it work best at low temperatures, it also decomposes quickly into oxygen, which makes it environmentally friendly.

One company that has carried out laboratory testing with ozone laundry systems and produced a commercial system is JLA – the UK's largest independent distributor of commercial laundry equipment. JLA has been looking at ozone for the last five years, and seven months ago launched ozone systems into the care industry, explains JLA marketing director Dick Cardis. 'We are saving our customers 60% on electricity and around 90% on hot water usage.'

Dick is exploring all relevant sectors for ozone laundry systems, which includes work-wear. 'From a laundry point of view, some high

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Dr Neale of the Dry Cleaning Technology Centre carried out lab tests, and based on the results he can envisage the new system being adopted by the NHS.

tech garments with retro-reflective strips cannot be washed at high temperatures, as they tend to destroy them. We are doing tests with strips and laminate garments, and so far it works with flying colours. The whole treatment can be carried out at low temperatures.'

But the place where ozone cleaning would be most beneficial is in hospitals, is a no-go area – a fact that is highly distressing for Dick. 'The hospital guideline for thermal disinfection, HSG (95) 18, was based on research from as far back as 1969. The big problem is that these guidelines should have been reviewed in 2000, but because NHS Estates is currently being disbanded, we are not holding our breath.'

NHS Estates are nevertheless aware about industry concerns, as a spokesperson told *Company Clothing*. 'NHS Estates has recently been in discussion with representatives of the



JLA marketing director Dick Cardis has launched an ozone system into the care home market.

laundry industry with regard to a number of issues dealing with hospital laundry including the guidance document HSG(95)18 Hospital Laundry Arrangements for Used and Infected Linen. NHS Estates will be considering these comments and the use of new technologies prior to any review of existing guidance.'

Strangely enough few people seem to be willing to back the new technology, perhaps because it sounds too good to be true or because it is so new to the UK. Phil Liversidge, chairman of Society of Hospital Linen Services and Laundry Managers, is keen to know more about ozone and has invited a speaker to talk about it at the next Society meeting. 'Nobody

can bury their head in the sand, but I do not think it is up to a laundry manager to make comments on a topic which belongs to a microbiologist.' Phil is particularly keen to find out information beyond that of disinfecting. 'It would be of interest to find out how efficient it is with a variety of textiles, as well as health and safety implications.'

Dr Richard Neale, of the West Yorkshire-based Dry Cleaning Technology Centre, knows more about the effect of ozone on textiles than most people do. It was he whom JLA commissioned in 2004 to conduct a series of tests comparing standard thermal disinfecting with ozone system washing. Dr Neale's experience with ozone goes back to the late 80s, when he first started looking at ozone in a workwear rental environment.

In the latest study, Dr Neale was looking at soiling and staining in care-wear, which is known to be highly rich in protein soiling; ie full of body fluids, but the tests also measured removal of vegetable dyes that occur for example in red wine. 'I was monitoring three machines, with very infected clothing. What

really impressed me was that there was a significant difference between the ozone wash and the non-ozone wash.'

The major difference was in the number of bacteria present after the ozone wash – in Dr Neale's words – 'down to zero bugs on ozone'. The results were particularly significant for the care home environment, where garments cannot always be washed at high temperatures, or risk colour loss. 'The reason staff like it is that they can process foul work quickly without it hanging round in the laundry. These results were manna from heaven.'

Ozone is just one of the possible solutions that Dr Neale works with, and there are many chemicals being tested by infection specialists such as the Berlin-based Robert Koch Institute. As an independent scientist Dr Neale must be impartial but considering the success rate of ozone testing, and its environmental cleanliness, he says that he can envisage ozone systems being taken up by the NHS. How long it will take for this technology to be accepted – or even recognised – as a viable weapon against hospital-acquired infections is, of course, another matter. ■






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