Hand hygiene – lessons from the NHS

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For a long time it was assumed that the food industry was very much second best when compared to the medical industry in the area of hand hygiene and cross contamination. The advent of the major outbreaks of foodborne infections in the 1980s and 1990s seemed to confirm this view. The food industry has invested a great deal of time and money over the past 15 years to improve in all areas to raise its standards.

Then we witnessed the discovery of antibiotic resistant bacteria and large scale outbreaks and deaths amongst patients in the healthcare sector.

This highlighted so many things. The first was that the traditionally high levels of medical hygiene had declined and that this had been hidden by the profession's reliance on antibiotics to resolve any cross contamination outbreaks. The food industry cannot prescribe antibiotics to its customers.

The UK food industry has taken a close interest in what the UK's National Health Service (NHS) has been experiencing in recent years with MRSA and Clostridium difficile (C. diff). There are many parallels between the hygiene problems facing the NHS and those facing the food industry. There are many 'new' solutions being introduced into the medical profession that have been developed in the food industry, but it would be a mistake to assume that nothing new (to the food industry) is being introduced.

An interesting solution

One of the interesting solutions that could cross over into the food industry is the development of HigenX – an enterprise wide hand hygiene monitoring system, which is poised to become a standard system in the healthcare sector. An entry level system, Klean Hands, has evolved from the HigenX system, specifically for the food processing and retail industry.

There has been discussion and reports arguing which is the more dangerous of the 'super bugs' but like the food industry the NHS understands that the establishment of fundamental practices are needed to combat the cross contamination.

Whilst the food industry has yet to see a major crossover of the hospital acquired infections into food there are a number of infections already of threat in both sectors including Hepatitis A, Staphylococcus aureus and listeria, and in both sectors hand hygiene will be the first line of attack in defeating these threats.

The NHS is rapidly coming to the conclusion that prevention is better than cure and the solution is not a wide scale 'after the event' blitz, but an ongoing, systematic process of hygiene control, centred around hand hygiene, with a focus on changing behaviours.

Bad hand hygiene has been widely acknowledged to be the most common cause of spreading infection, and is therefore considered the most effective target for prevention. It is, however, a challenging area in which to achieve success.

People say they wash their hands more often than they actually do. 22 studies between 1974 and 1998 showed that the actual percentage hand washes compared to claimed hand washes were 38% (hospitals), 40% (commercial food preparation) and 42% at home. The number of bacteria on the fingertips doubles after using the toilet, but up to 50% of men and 25% of women fail to wash their hands after going to the toilet.

Like the food industry the NHS has gone through a painful learning curve and like the various initiatives that have been launched in the food industry, 'washing for life' and the 'hands on system', the healthcare industry, has its 'clean your hands campaign'.

All recognise that implementing an effective regime of hand washing is the most critical action to take in order to avoid the spread of hygiene related infections in the medical contact and in the food processing arena.

The food processing and retailing industry needs no reminder of the impact of the negative publicity that has engulfed the NHS. The press learned to spell salmonella and listeria long before it had to cope with MRSA and C. diff. Nonetheless, the food industry will appreciate that it can benefit from the further steps taken in the NHS.

If we take a look at the current guidelines for hand hygiene in the healthcare sector you can see that the guidelines stem from the World Health Organisation's guidance – WHO Guidelines on Hand Hygiene in Health Care – all 216 pages of it!

This encourages a systematic approach to hand washing with continuous monitoring. However, the problem remains that this monitoring is invariably undertaken by people taking spot checks and manually recording hand washing activity on a clipboard.

The obvious down side to this is that there is a great deal of room for error, both in immediate recording and in transferring the data to systems such as spreadsheets, for management review.

In addition, manual observation does not see 'behind the curtain', so any information that is produced is incomplete at best and misleading at worst.

Successful trials

To do this HigenX has been developed for the NHS. It has undergone successful initial trials at Ipswich hospital and has eliminated the problems of data capture and analysis. The trial's participants included consultants, healthcare professional nurses and managers and were conducted over a six week period in theatre. This area was chosen because the nature of theatre activities makes statistics difficult to collate and, as such, may be inaccurate. For example, privacy laws prohibit an auditor observing hand hygiene activity behind the curtain.

The system trials confirmed the daily actual and average hand and gel washes by person, area and department. This resulted in an accurate record of hand washing and enabled the setting of compliance levels, which were maintained and improved in subsequent months. As a result the system is being installed in the new A&E building before rolling out across the hospital.

The system is fully developed for enterprise wide implementation and can be used by larger organisations for wide scale management review and monitoring. The system uses RFiD to record hand washing activity at a monitoring station, but also includes sophisticated software to track hand washing by person, department and region, on a

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real-time basis. This information is automatically downloaded and can be integrated into current enterprise systems or custom reports can be produced, for example, in Excel.

Current practice can have a lead time of two to four weeks by the time information is gathered by observation, checked, input into software packages, summarised into management packs and then disseminated to the relevant management for action to take place.

Unfortunately, by the time the relevant people have the information it is often too late. Management need to have the information to hand to allow them to act immediately, as contamination does not wait for a report to be produced.

HigenX shows in real time what is actually happening, so that corrective actions can be put in place to rectify a potentially damaging situation before it becomes a major organisational problem.

In addition, when staff are aware of the system requirements, the level of compliance increases as they do not want to be seen to be sticking out from the crowd and letting the team down.

The HigenX system allows hand washing compliance to be included within reward programmes, performance measurement metrics, KPI and benchmarking analysis as the element of uncertainly is eliminated and, therefore, is less open to challenge.

Tag recognition

Small tags worn by staff communicate via RFiD with wall mounted readers each time hygiene activity, such as hand washing, takes place. The tags can either be integrated into staff uniforms or worn like a name tag. A unique feature of the system is the positioning technology used to ensure that only valid hand washing activity is recorded.

In other words, the system will recognise when an individual is standing in exactly the right place for at least the prescribed amount of time to perform a legitimate hand wash – otherwise the activity will not be recorded.

The system also counts gel washes by swiping a tag after each gel wash is complete. This information is then automatically logged into a software application which incorporates 'best practice' hygiene information within its database. The management can then view reports comparing hygiene activity across individuals, groups or locations and measuring performance against pre-set goals.

These goals will be agreed with the client organisation prior to installation of the system and can easily be configured within the software so that each installation meets the particular requirements of respective customers. The system will, therefore, facilitate efforts to achieve compliance and dramatically improve hygiene standards within the enterprise. The system does not require the installation of proprietary wash stations and plumbing, and you are not tied in to one supplier of gels.

However, what happens if someone goes to the wash station, stands there for 15 seconds, for example, and then walks off without washing their hands? This is what the developers of the HigenX system had been asked and had expressed some initial concerns about. But in practice they found that because the system still relied on the professionalism and integrity of the staff, the uptake was far higher than expected.

Not only were staff pleased to show their levels of compliance, which up until that point had the potential of being skewed, but they were pleased that they could not be accused of not washing their hands.

In addition, peer pressure ensures that it would not be tolerated if people went to a wash station and just stood there. 15 seconds is a long time doing nothing so you may as well wash your hands!

This also overcame the initial fears of 'Big Brother'. When a senior consultant in a hospital asked "what's this then – big brother?" He was told, "well if you don't make this work that's the next step!"

When he was also informed that other members of staff looked on his department as the biggest culprits when it came to not washing hands, he was shocked and was determined to show that was not the case. Which he did!

The developers of the system looked at the food processing market and saw that there was a need for the same enterprise wide, software driven system and also an entry level visual system.

As a result Klean Hands was developed, which immediately indicates when someone's hands had been washed or should be washed and provides food processors and food retailers the tools to manage hand washing on a real time basis.

This system operates a visual reminder by having one red and one green light (LED) in the badge so that when the person goes to the wash station for a predetermined time the green LED lights up. As the staff members go about their daily activities the LED will change to red if they have not washed their hands again within a specified time frame.

For example, a retail outlet may want to program into the system that staff have to wash their hands every 15 minutes. In addition, zone out boxes can be placed in toilets and access points to critical areas so that when someone enters these areas their tag automatically turns red.

The beauty of both systems is that they are modular and very simple to operate and install. In closed environments both peer pressure and management activity increase compliance. In retail environments it is clear for the customer to see who has washed their hands and this can be publicised for positive PR. All hand hygiene systems require a change of culture to make sure people within the organisation understand the importance of hand hygiene and the consequences for non-compliance. Systems such as the HigenX can stimulate and reinforce good behaviour.

In some parts of the food industry it is possible to control and encourage hand hygiene by the use of hand wash controlling access to the production areas, but not all parts of the food processing sector and certainly little of the food retailing and catering sector can use these forms of control.

The requirement within legislation for hand wash facilities may satisfy inspectors, but how do they ensure that they are used? You may take the food handlers to the wash basin but how do you ensure they wash?

The introduction of systems like these could have additional positive benefits. There would be the obvious important improvement in hand hygiene.

But what of the impact upon liability insurance? What might be the benefits to a 'restaurant's score on the door'? What would be the response of the food processor's customers to a reliable method for monitoring hand hygiene levels?

Effective integration

The integration of an effective monitoring system to encourage changes in behaviour to ensure a systematic shift to improved hand hygiene into an organisation of any size is of clear importance.

You reinforce safe, effective hand hygiene and strengthen current and proposed systems to work towards a culture where there are no avoidable infections. The system needs to integrate hand hygiene into the overall risk management and health and safety governance of an organisation, whatever the size, ensuring that the information that is being acted on is accurate by using robust real time data.

The system needs to help sustain improvement and continued compliance. Arguably, most importantly, it needs to ensure that public confidence is maintained and improved. Last but not least, it has to have clear cost benefits and these should include the reduction in costs of non-conformance of statutory obligations.

If a food safety challenge results from poor hand hygiene practices then the possibility of a due diligence defence may be diminished if the defendant has no record of hand wash performance.

To replicate an organisation wide 24/7 monitoring by manual means will be extremely expensive and would not guarantee any improvement on the quality of the information collated.

This system eliminates the physical recording collating and re-keying of data. It enables the rapid focusing of corrective action, and verifiably diminishes the risks of costly consequences of food safety failures which should reduce insurance premiums. n

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