A heritage in care.
A reputation in excellence.
Gaming and Technology to improve hand hygiene compliance and technique
Introduction

- In 2009 the World Health Organisation recommended the utilisation of a ‘multi faceted, multi modal hand hygiene strategy to improve hand hygiene compliance among healthcare staff..

- Our acute care facility embraced this idea and set about utilising everything at our disposal including technology, to demonstrate hand hygiene effectiveness to all grades of staff and ultimately improve hand hygiene compliance.
Background

- Hand hygiene has been recognised as essential in preventing infection and providing safe care since the 1800s.
- Yet today we still battle to ensure our staff understand the importance of both.
- Regardless of what country we live in, WHO, Departments of Health and Health protection agencies bombard us with documents and audit tools and guidelines - yet is it not just a simple matter of just making people do it??
Just DO IT!

- It is a well known fact that
- ‘He who complies against his will is of his own opinion still’
- Thus we need to help everyone, every grade of staff, understand why we want them to wash their hands
- And staff need to personally experience what the implication of not washing is..
- It’s not enough to tell people to do something … They need to want to do it…..
We decided it was time to try something new...

- Something to demonstrate immediately and visually the risks of unclean hands.
- Surely there was some new technology that would do what we wanted....
- Our IPC team utilised a technology, predominantly used in the food industry, to demonstrate hand hygiene effectiveness and equipment cleanliness levels to all grades of staff and ultimately get a cleaner safer hospital.
Science Bit !!

- SystemSURE Plus is an Adenosine Tri-phosphate (ATP) monitoring system.
- When ATP is brought into contact with the reagent in the Ultrasnap testing device, light is emitted in direct proportion to the amount of ATP present.
- Because ATP is the universal energy molecule found in all animal, plant, bacteria, yeast and mould cells, residues, particularly food or organic residue, contain large amounts of ATP.
- After cleaning, all sources of ATP should be significantly reduced.
- **Thus the higher the reading, the more contamination present**
A baseline audit was carried out in November 2009.
Results were not pretty!
Compliance was about 20% overall
Throughout 2010, monthly departmental audits were carried out by the Infection Prevention and Control Nurse
• As part of these audits staff of all grades were observed washing their hands and asked to participate in ATP swabbing to assess organic load on their hand after washing.
• No-one objected!
• Curiosity got the better of them.....
• An Ultrasnap swab stick was used to swab the palm, between fingers and tip of fingers of one hand and the swab placed into the ATP monitor.
• Results were provided after 15 seconds to the participants with on the spot feedback on areas missed when washing and how to improve their hand hygiene technique.
Advantages

- Previously we had used agar plates to give a visual result of hand contamination but the shock factor was lost when staff had to wait 48 hours for the result.
- Utilising ATP technology to demonstrate contamination levels on hands, right at the bedside allowed us to give a visible numerical record of how clean hands actually were - on the spot.
Staff reactions

- Staff were surprised at the results.....
- Some even shocked - especially when we swabbed a commode and showed it had a lower score than many of their hands!
- This made hand contamination real, tangible.....personal..
DEMONSTRATION

1. Swab
2. Snap & squeeze
3. Insert in systemSURE II
4. Read results
What Next?

- However, we had identified a problem – one which auditing of WHO 5 moments hadn’t identified - Hand washing technique was not good, especially among non nursing staff.

- But we didn’t have the staff resources to audit and train each staff member individually and provide individual feedback.

- Then we discovered SureWash..
Surewash technique training and auditing

Video camera measures hand movements in real-time

Touch screen to deliver training content and give real-time feedback

Robust, easy to clean cart can be moved around the hospital to deliver the training where it is needed
In action

- Surewash uses gaming technology. A camera observes the user going through the motions of hand hygiene and measures these movements scoring the user based on WHO accepted technique.
- Gaming captures the users imagination and encourages interactive participation in training.
- It is available 24/7.
- It doesn’t care if you are a doctor, a nurse or a porter.
- It measures fairly and consistently.
The system guides the user through the 7 steps of hand hygiene, demonstrating each position and allowing the user to practice.
The Surewash unit was placed in a ward and staff were asked to try it out – No training was provided. We just said – follow the on screen instructions!!

And they did – in fact when we checked the system -35 staff had used it over the 2 days we left it there. The system had provided 6 hours of training ... With no assistance required.

We decided to use it hospital wide to assist us with teaching technique to all grades of staff.
Can training be Fun?

- Its amazing how people hate to be beaten .... We have noticed staff going back again and again until they get it right... It’s a bit like a computer game – addictive in a way!!

- Surewash provides a fun way to learn hand washing technique  ... And best of all, no one is watching you ...you get to practice on your own and get feedback
How much is it used?

- The unit was moved from one ward/department to another; spending a week in each area.
- Then a report was run and provided to the manager detailing who attended and how long they practiced.
- In the 8 months it’s been in our hospital the usage has been 287 hours of training.
Did it work?

- Initial audit of 50 random staff as they entered the hospital canteen
- Used a portable hand wash sink with timed water to ensure everyone got the same amount of time and water to wash (amazing how competitive people get when there is a prize at stake!!)
- Used ATP to test the efficacy of their hand washing technique
- We repeated every 3 months from mid 2010.
- Most recent audit in April 2012
Why did it work?

- Hard to understand why people don’t wash their hands
- They have the knowledge
- The information is repeated, over and over and over from cradle to grave
- A new theory emerging from behavioural research has found that “individual experience is of greater import than formal education in explaining hand hygiene behaviour” (Nicol et al, 2009)
- Using ATP and Surewash gives this personal experience and this impacts on staff compliance rates.
Results – ATP

<table>
<thead>
<tr>
<th>Period</th>
<th>EXCELLENT (ATP &lt;10)</th>
<th>PASS (ATP &lt;25)</th>
<th>FAIL (ATP &gt;25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd 1/4 2010</td>
<td>20%</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>4th 1/4 2010</td>
<td>24%</td>
<td>40%</td>
<td>36%</td>
</tr>
<tr>
<td>1st 1/4 2011</td>
<td>38%</td>
<td>42%</td>
<td>20%</td>
</tr>
<tr>
<td>2nd 1/4 2011</td>
<td>87%</td>
<td>13%</td>
<td>0%</td>
</tr>
<tr>
<td>1st 1/4 2012</td>
<td>18%</td>
<td>2%</td>
<td>80%</td>
</tr>
</tbody>
</table>
Improving compliance levels

- 2009: 20% bare below elbow, 22% compliance with WHO 5 moments
- 2010: 78% bare below elbow, 80% compliance with WHO 5 moments
- 2011: 89% bare below elbow, 86% compliance with WHO 5 moments
- May-12: 95% bare below elbow, 92% compliance with WHO 5 moments
Conclusion

- If there is personal experience from a non-compliance, the person’s compliance will improve.
- Was it the Surewash or ATP that caused the improvement?
- It was neither ... It was both ... It was the hospital’s commitment to utilising a multi-faceted approach to hand hygiene.
- Technology is not a replacement for education and audit and dare we say it ... nagging!
- Gaming and new technologies such as ATP are tools to capture the imagination of staff and engage staff in learning... and they work.
So are we finished?

- Posters work – for a while
- Education works – for a while
- Audit with feedback works – for a while
- ATP and gaming works – probably only for a while
- Hand hygiene needs continuous, enthusiastic, intervention using every tool available
- We need to be constantly on the look out for new and innovative ways to engage and remind staff ....and you never know- some day, we might all just do it.. without reminding (like putting on a seat belt)
Thank you....

References

