Using technology to passively reduce surface virus and bacteria levels

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Description & Context

Understanding oncology patients are often immunosuppressed, I wanted to utilise technology in a cost-effective manner to reduce virus and bacterial levels passively for both staff and patients. Identifying that surface areas are a prevalent method of transmission for microbes, often without utilising any technology to reduce microbial levels. After research I deemed silver Ion technology to be a cost effective solution, and something that had a long effective life. Other options such as copper technology were ruled out due to higher costs. I found one particular company who offered such technology, which covered push plates and different surface areas. I observed them in practice, then obtained scientific evidence and presented to and gained department permission to trial.

AIM

- Reduce virus and bacteria levels passively levels for both staff and patients.
- Expand project beyond Radiotherapy department, and monitor impact within my Radiotherapy department.
- Prove innovation with technology can greatly influence our future for the better.
- Use scientific evidence to highlight project effectiveness

Method

Researching relevant articles regarding surface antimicrobial technology. Visiting a local department store to observe the product in practice. Making initial contact with supplier, then the head of Radiotherapy to present project idea and findings. Next contacting supplier to obtain in-depth scientific evidence, then identifying and measuring surface points within my Radiotherapy Department for the product to be installed. Calculating cost with supplier, later identify only high traffic usage areas to implemented product to make project more cost effective (around 75% cost reduction). Contacting Infection Control lead for Charing Cross Hospital (CHX) for approval (approved for all CHX sites). Obtaining estates and facilities approval for project to be used in my Radiotherapy department, and for all CHX sites. Meeting with head of Radiotherapy for final approval, assisting in the product instalment.

Later assisting the supplier to conduct comparison analysis swabs, comparing surfaces treated with the produce to those that were not treated. Testing 9 touch points post 8 months instalment. Results showing an average of a 92% reduction in microorganism levels on treated areas. The tests were comparing RLU levels (converted from ATP). Such evidence was used to support the case for project expansion to chemotherapy wards in CHX. The supplier offered free instalment and testing of the product in chemotherapy wards in CHX, also offering to write a scientific paper regarding their effectiveness. I attended the chemotherapy ward proposal meeting with the supplier and oncology staff from CHX. I have further assisted the supplier in conducting scientific laboratory swab tests assessing project effectiveness in our department, the laboratory results are currently being processed.

Outcomes

Successfully implemented project on the ground and first floor of the Radiotherapy department in CHX. Eight month post instalment testing has shown a significant reduction in both virus and bacteria levels on surfaces with the product installed. Project currently being expanded to cover chemotherapy wards in CHX, with scientific paper being wrote by CHX staff and the supplier.

CLINICAL OUTCOMES/ BEHAVIOUR CHANGE

- Proven reduction in surface microbial levels,
- Potential reduction in both staff and infections, it is hoped that evidence will become more apparent post project expansion.

Key learning points

- Technology has great potential to make a difference in infection control.
- Importance of pushing for innovation and change in my working environment.
- Perseverance to make a difference and commitment to completing a project.
- Using time effectively - all the time available when I am not busy.

NEXT STEPS

- Supporting expansion of the project to oncology wards and wider departments/hospitals
- Continue searching for innovation potential and application in healthcare
- Continue to make improvements in my working environment & wider healthcare

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