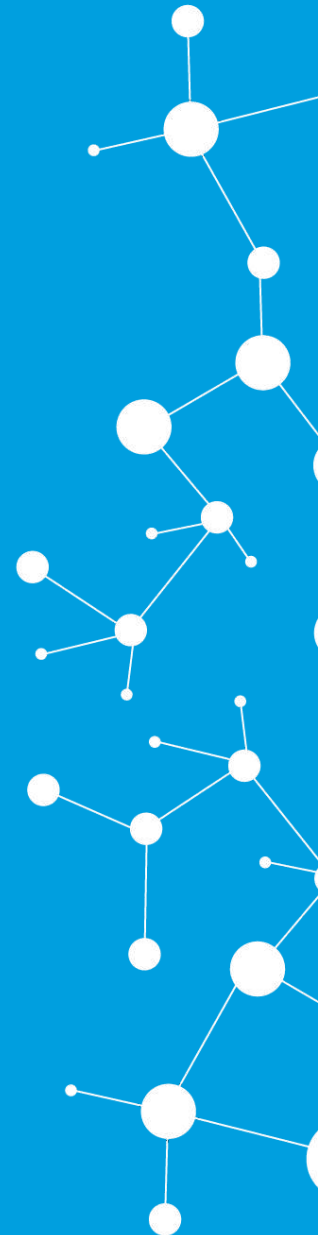


The importance of ATP Cleaning Verification in Healthcare & Hospitality

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Healthcare Associated Infection (HCAI) High Cost of Failure

- WHO
 - 35% HCAI are not associated with devices
 - due to other sources of infection
- Patient environment
- Endoscopes
 - Complex ; very difficult to clean
 - Several studies show 30% endoscopes inadequately cleaned
- Equal to 1 Jumbo jet crash per month in EU
- HCAI are preventable

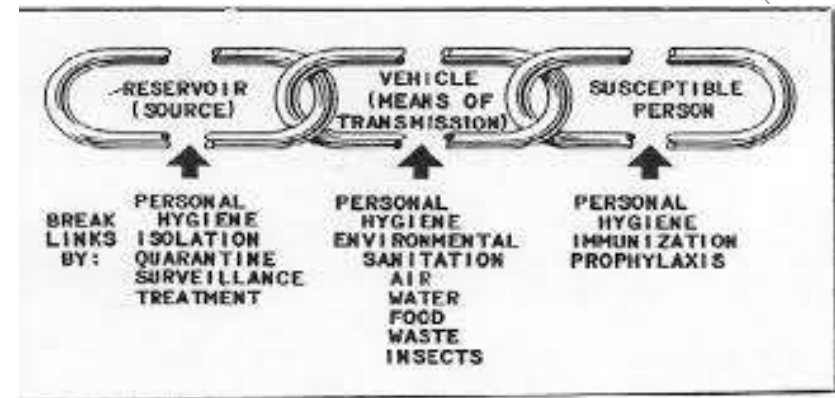


Decontamination: Effective cleaning and disinfection

- Cleaning is a key component of Infection prevention
- Reduces the reservoir of pathogens
- Breaks the chain of cross infection

However cleaning is considered

- Lesser importance
- Little support and attention
- Low skills
- Large burdensome on-cost (£100's millions) p.a.
 - (90% cost is labour)
- Delivered inconsistently
- Inadequately measured



The meaning of Clean

Definitions

- Cleaning
 - removes dirt, dust, large numbers of microorganisms and the organic matter
 - using detergent and warm water or disposable detergent wipes
 - Cleaning is a pre-requisite to disinfection or sterilisation
- Disinfection
 - removing or killing most, but not all viable organisms.
 - reduces the number of micro-organisms to a safe level
 - Spores are not destroyed
- Decontamination
 - A general term for the destruction or removal of microbial contamination includes sterilisation, disinfection and cleaning
- Sterilisation
 - removing or killing all viable organisms including spores.
 - Dead microorganisms and toxins (pyrogens) may remain.

Terms are often used indiscriminately; cleaning assumed = decontamination

Control requires Measurement

- In Healthcare we rely almost entirely on visual assessment
- NHS UK cleaning manual defined clean as
“the absence of blood, spillages, stains and sticking plaster”
- Poor definition and very subjective
 - means different things to different people
- Not Objective and Not quantitative
- No standards for the patient environment
- Gives poor quality management information
- Perceived to have no cost

**Visual assessment implies cleaning activity has occurred but
gives no information about how well it was performed.**

Measurement and Control

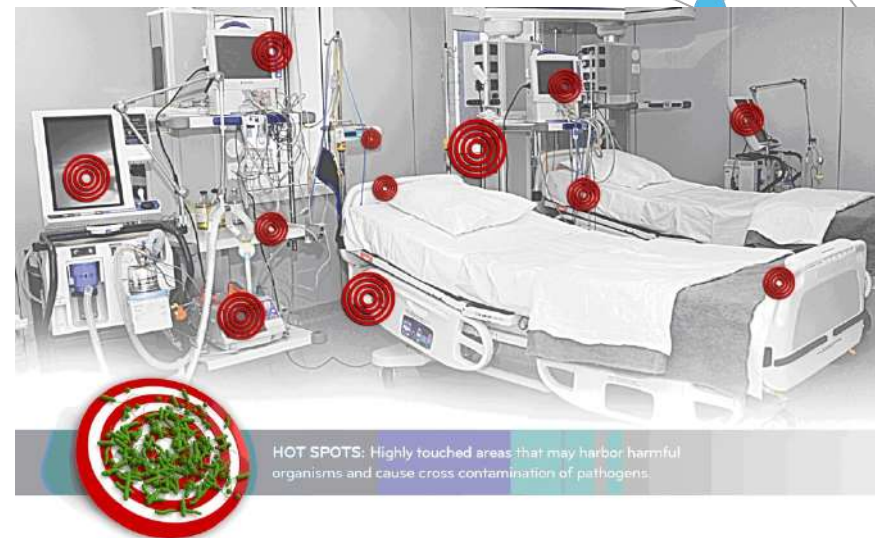
H. James Harrington

“Measurement is the first step that leads to control and eventually to improvement.

If you can't measure something, you can't understand it.

If you can't understand it, you can't control it.

If you can't control it, you can't improve it.”



HOT SPOTS: Highly touched areas that may harbor harmful organisms and cause cross contamination of pathogens.

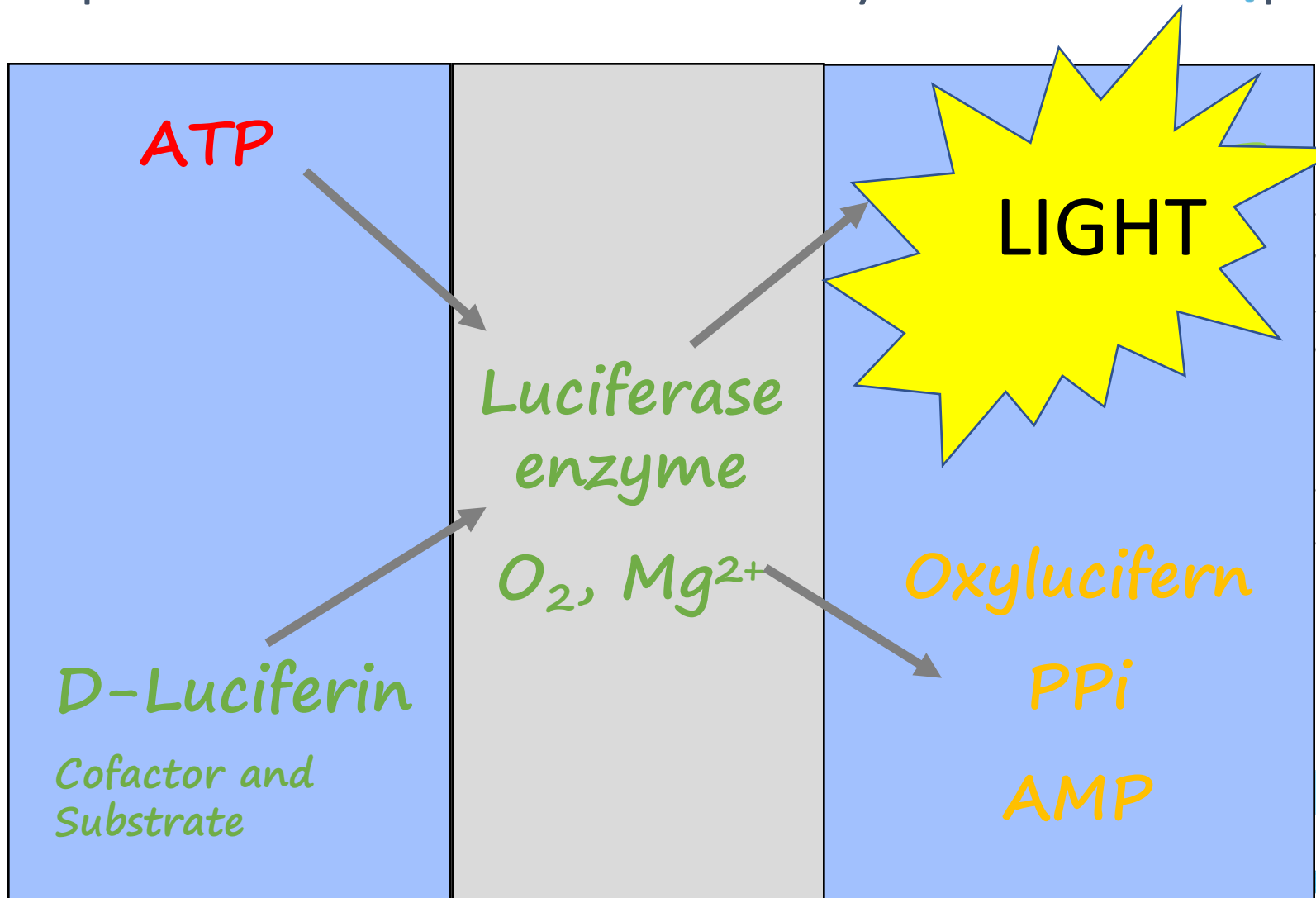
ATP Bioluminescence

- Biological enzyme (Luciferase) reaction that emits light
- Found naturally in creatures such as the firefly
- Modern genetically engineered Luciferase providing;
 - robustness, performance and sustainability
- Very specific and sensitive
 - detects Adenosine Triphosphate (ATP) ; femtogram levels (10^{-15})
 - ATP is present in all living things
- Emitted light gives results in seconds
 - converted to digital signal as Relative Light Units (RLU)
- Many sources of ATP
 - The test cannot differentiate between different sources
- Well-established proven detection principle
 - Non-specific surface hygiene, post-cleaning verification test
- UK Dept of Health / Health Protection Agency; Rapid Review Panel (2009) Top rating; Recommendation #1
 - “Basic research and development, validation and recent in-use evaluations have shown benefits that should be available to NHS bodies to include as appropriate in their cleaning, hygiene or infection control protocols.”



Specific Biochemical Enzyme Reaction

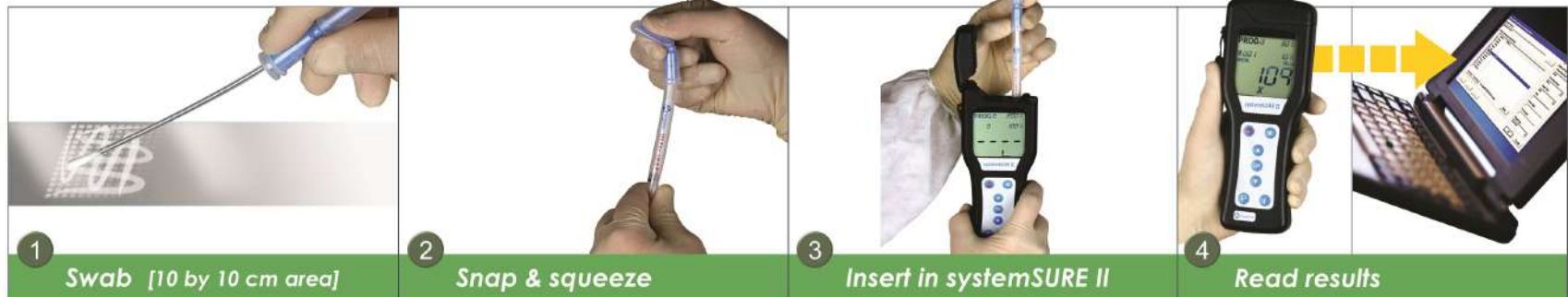
- Complex balanced mixture driven by ATP in the sample



ATP Hygiene monitoring

Verification of Cleaning

- Instrument
 - SystemSURE Plus
 - EnSURE™
 - EnSURE™ Touch
- Reagent test device
 - UltraSnap; surface swabs
 - SuperSnap; surface swab (high sensitivity)
 - AquaSnap; liquid samples
 - Other tests



Benefits of ATP systems

- Simple and easy to use by anyone, anywhere, any time
- Providing instant objective quantifiable data
 - Permits immediate corrective action
- Identify hot spots and potential risk
- Optimises cleaning processes; reduces costs
- Demonstrates and reinforces Best Practice
- Provide real data for Quality monitoring,
 - evidence of due diligence,
 - value for money
- Supports training and awareness
- Enables team building through more effective direct communication
- Restores pride, ownership and commitment
- Encourages behaviour change

Clean it Prove It!

Many Applications

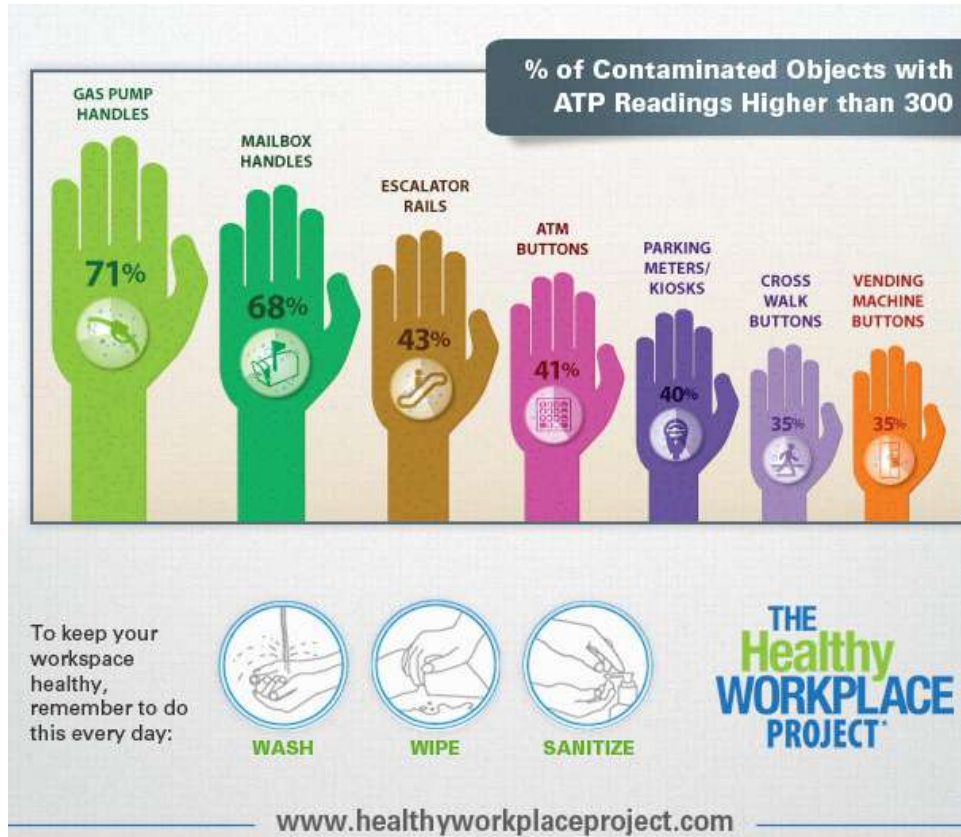
- Hospitals and Primary care
 - , Nursing Staff, Ward Managers , Service providers
 - Quality Audit
 - Deep Clean
 - Trouble shoot – Identify areas where cleaning is required
 - Low and high patient care environments
 - Equipment libraries
 - Community equipment (beds, mattresses, clothing)
 - Hand Hygiene Training and compliance
- Sterile services
 - Washer disinfectors and monitoring endoscopes and water
- Dental
- Catering and laundry services
- Ambulances and blood services
- Police and Forensics ; Prisons
- Care homes
- Verify cleaning after norovirus outbreak
 - Shiplee and Johnson (2014) on cruise ships
 - better and more consistent cleaning = fewer and less severe incidents.
 - **“ATP monitoring have proved to be an invaluable tool for the rapid assessment of cleaning standards. They have served to identify areas and surfaces regularly inadequately cleaned, resulting in ships changing their cleaning procedures.”**

ATP standards and benchmarks

- 15 years in healthcare; many studies
- Benchmarks have been established and verified
- CDC (USA) HAI Tool Kit (2010) ; Level II; Appendix B
 - Objective Methods of Evaluating Environmental cleaning
- Danish Standard for Hospital cleaning and Infection control DS 2451-10 (2011). Standards given in femtomoles ATP

Location	Pass	Caution	Fail
Public areas	100	101 - 200	>200
Near patient areas	50	51 - 100	>100
High care areas	25	26 - 50	>50
Sterile services	10	11 – 30	>30
Ambulances			
Driver cab	50	51 – 200	>200
Patient saloon	50	51 – 100	>100

Healthy Workplace



KIMBERLY-CLARK PROFESSIONAL* tested office hotspots for levels of contamination. Of the hotspots tested, these surfaces were found to have high levels of contamination (ATP counts of 300 or higher).



Cleaner work place

- Better staff morale
- Less sickness
- More productivity

Thank You

