



**Singapore Healthcare Management 2018**

# Revolutionizing the Surveillance of Cleaning Practices in the Dental Care Facility

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## Introduction

With the unique nature of dental procedures, non-visible aerosols are produced during treatment, which can only be detected as settled droplets on environmental surfaces. The surfaces that fulfil the criteria for visual assessment of cleanliness could still be contaminated with micro-organisms or other organic material.

## Aims

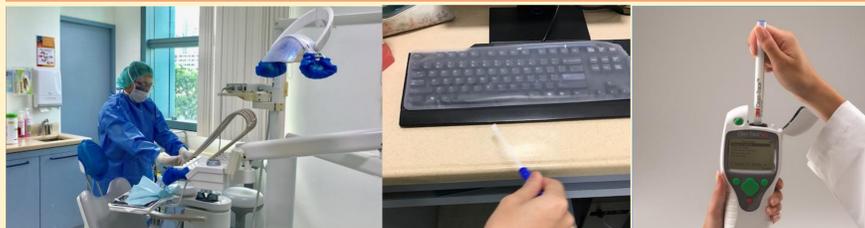
The aim is to improve the existing subjective visual inspection with a quantitative methodology evaluation which is more reliable and robust to determine the cleanliness in the dental facilities so as to achieve at least 90% cleanliness for the identified “touch points”.

## Methodology

### Pilot Study

#### Identify Key Areas of Contamination

- 5 “high touch points”



#### Identify Factors affecting RLU values

Non-related Factors	Related Factors
<ul style="list-style-type: none"> <li>➤ Timing of dental sessions</li> <li>➤ Day of the week</li> <li>➤ Seniority of staff who clean the dental unit</li> </ul>	<ul style="list-style-type: none"> <li>➤ Duration of cleaning</li> <li>➤ Staff awareness</li> <li>➤ Methodology of cleaning</li> <li>➤ Keyboard cover</li> </ul>

### Main Study

#### Interventions

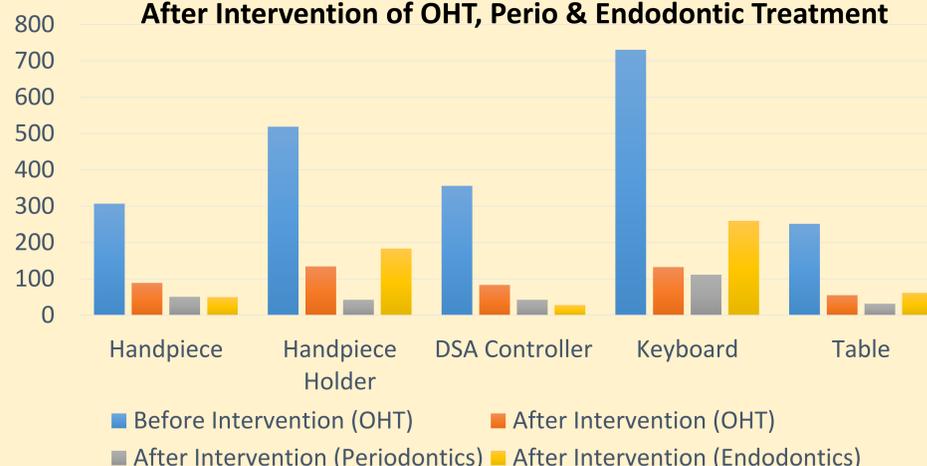
- Video training to educate Dental Surgery Assistants (DSAs) of an efficient and effective method to do a wipe-down at patient zone and healthcare zone
- Increasing their in between patients 5-minute time to 8-minutes for wipe-down.
- Keyboard covers were issued to prevent contaminants from infiltrating the keyboard and encourage hand hygiene

#### Data Collection & Statistical Analysis

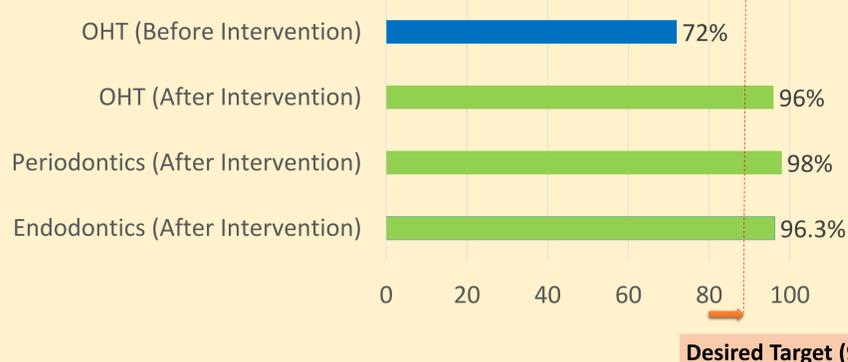
A team of research assistants collected RLU values data of the “high touch points” at random timings from the Oral Hygiene Therapists (OHT), Periodontics (Perio) and Endodontics (Endo) treatment units. 300 data points were collected over 2-3 weeks for each department.

## Results

**Table 1. Relative Light Unit( RLU) Reading at Before and After Intervention of OHT, Perio & Endodontic Treatment**



**Table 2. The Achieved Target Percent (%) of Swabs that Passed the Cut Off Value (RLU<350)**



## Discussion

Relative Light Units (RLU) is the unit of measurement. Adenosine triphosphate (ATP) is present in all organic material and is the universal energy used in all living cells. The ATP reacts with luciferase to generate light, therefore producing bioluminescence which is measured by a luminometer and displayed as RLU within 30 seconds. A high RLU value indicates a high amount of living cells.

As seen in Table 1, the highest average RLU value before intervention is 730, as compared to the highest RLU value after intervention: 259. The interventions has also allowed all three departments to achieve a set goal of at least 90% target achieved for RLU values below 350 RLU as shown in Table 2. The results support the goal of increased patient safety.

## Conclusion

This innovative surveillance is reliable and robust in helping to determine the cleanliness of the facility.

## Acknowledgements

Special thanks goes to DUKE-NUS ACP Programme Grant for funding the project, and CI A/Prof Poon Choy Yoke for supporting our endeavors.