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Implementation of High Level Disinfection (HLD) For Endocavity Ultrasound Transducers

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INTRODUCTION

In recent years, international guidelines have shown that it is important to use HLD for endocavity ultrasound transducer for proper prevention of cross contamination and infection control. [1,2,3]

After considering various alternatives, we decided to implement HLD using Ultra Violet C (UVC) which requires only 90 seconds / cycle for disinfection of all endocavity ultrasound transducers[4].

Eight machines were purchased and installed in March 2018, servicing a total of 18 ultrasound rooms for 270 patients each day.

The aim was to design the workflow that allows for HLD with minimal impact on existing workload and patient waiting time.

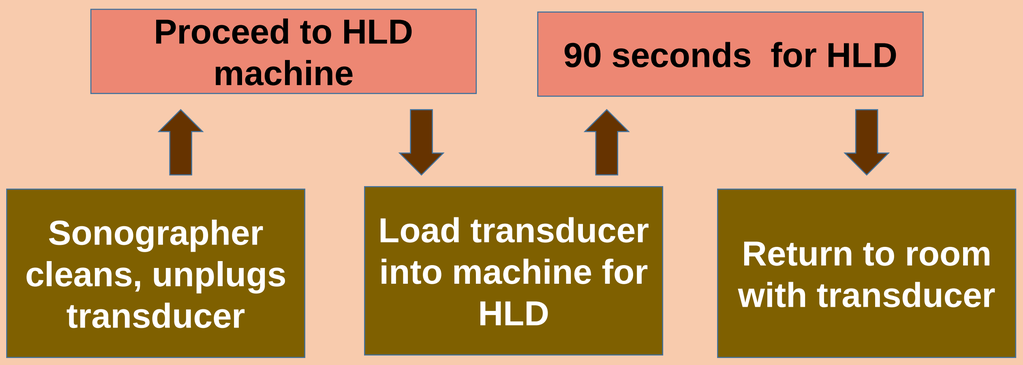
METHODOLOGY

We adopt the PDSA cycle (Plan-Do-Study-Act) method to establish the most suitable workflow.

Two workflows were studied:

1. Sonographer performs HLD
2. Patient Service Assistant (PSA) performs HLD

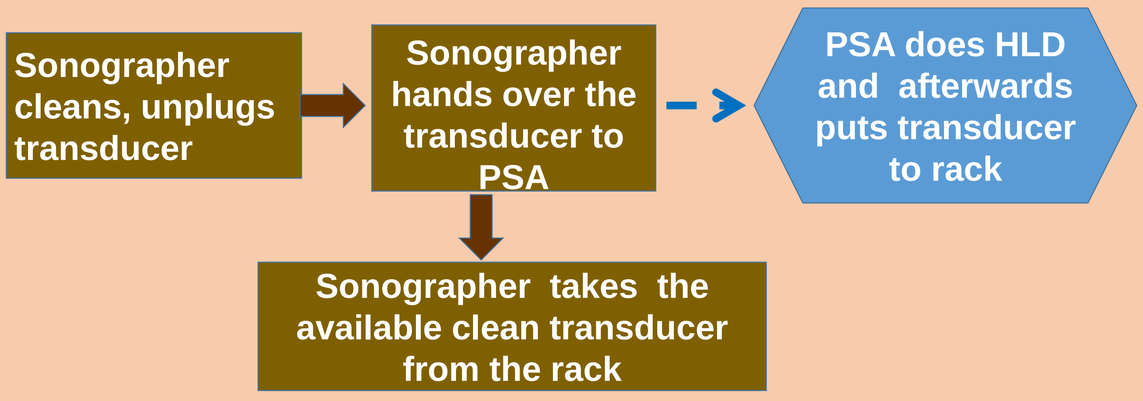
Initial Trial: Sonographer performs HLD



- Additional time required: 4 minutes / patient
- Total additional time : 1080 minutes (270 patients)
- 1080 minutes ≈ time taken to scan 36 patients (average 30 minutes per scan)
- In order to accommodate for the additional time, the appointment booking will need to be reduced.
- A more sustainable solution has to be explored to maintain workload.

Scanning time 34 minutes

Subsequent Trial: PSA performs HLD



Scanning time 30 minutes

Statistics from the Radiology Information System (RIS) on the average scanning time, with a PSA assisting the HLD were collected. It was shown that the total scanning time with HLD required an average of 30 minutes per case. This was thus within the limits of the current scanning time.

We then officially implemented HLD for all endocavity ultrasound transducers on 04 April 2018. All staff involved in HLD were trained and certified. The data on the average scan time per case was collected for the first two weeks after implementation (from 9th April to 20th April 2018).

RESULT

Average scan time per case

01 Oct – 30 Nov 2017 (Before implementation of UVC HLD)	9-20 April 2018 (After implementation)
30 minutes	31 minutes

There is no significant difference on average scan time per case before and after implementation of HLD with assistance of the PSA. Hence, the number of cases scanned per day remains the same.

CONCLUSION

This job redesign of involving PSA, enabled the department to adopt HLD efficiently, while maintaining workload level in a busy ultrasound section. Most importantly, there was no impact to ultrasound appointment waiting time.

UVC HLD machines

Reference:

1. ASUM/ACIPC: Guidelines for reprocessing ultrasound transducers (AJUM Feb 2017)
2. Christiane M.Nyshen, Hilary Humpreys et all. Infection prevention and control in ultrasound- Best practice recommendations from the European Society of Radiology Ultrasound Working Group October 2017
3. Rutala WA, Weber DJ. Disinfection and sterilization. An overview. American Journal of Infection Control May 2013;41
4. Meyers C, et al. PloS One 2017. UVC radiation as an effective disinfectant method to inactivate HPV.