

# Front Line Nurse Feedback During The Development And Testing Of A System To Track Cleaning Of Portable Medical Equipment

## Central Texas Veterans Health Care System

Hector Ramirez, M.D.<sup>2</sup>; Marjory Williams, PhD, RN<sup>1</sup>; Julie Ann Martel, B.S.<sup>1</sup>; John David Coppin, MPH<sup>1</sup>; Mark Stibich, PhD<sup>3</sup>; Sarah Simmons, DrPH<sup>4</sup>; Deborah Passey, PhD<sup>4</sup>; Hosoon Choi, PhD<sup>1</sup>; Piyali Chatterjee, PhD<sup>1</sup>; Patrick Crowley, D.O.<sup>2</sup>; Chetan Jinadatha, MD, MPH<sup>1</sup>

<sup>1</sup>Central Texas Veterans Health Care System, Temple TX; <sup>2</sup>Baylor Scott & White Memorial Hospital, Temple, TX; <sup>3</sup>MD Anderson Cancer Center; <sup>4</sup>Xenex Disinfection Systems

VA



U.S. Department of Veterans Affairs

Veterans Health Administration  
Central Texas Veterans Health Care System

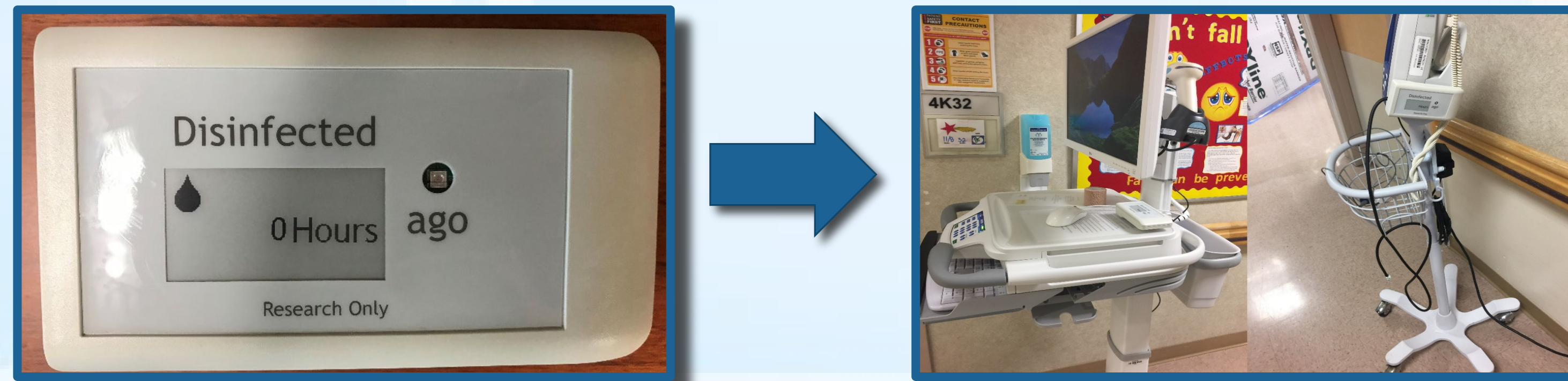
## Background

Demonstration of compliance with disinfection protocols for Portable Medical Equipment (PME) is challenging for health care institutions.

As part of testing a newly patented Disinfection Tracking System (DTS), end user feedback was sought to inform system design and implementation.

### DTS Design Elements:

- Detects manual cleaning and UV disinfection
- Uploads cleaning event records to on-line database
- Provides visual display of time since last cleaned



## Methods

- 2 acute care units in a 120 bed VA hospital in Texas
- DTS devices installed on computer-on-wheels (COW) and vitals machines (VM)
- DTS devices programmed to detect moisture events
- Cleaning events recorded over 10 weeks
- PME protocol of once every 24 hours and as needed with hospital approved disinfectant wipe
- Survey and Focus Group Discussions with Registered Nurses and Nursing Assistants

## Measures

Survey: 13 item, 10 point Likert scale; at 6 weeks  
Focus Group: 30 minute facilitated discussion (ease of use; usefulness; workflow; other applications; input into development and implementation); at 8-10 weeks

## Results

Surveys: N = 17; mean item scores (range & median)

Survey Item: The DTS system...	Mean	Range	Median
...Is a functional way to track disinfection of equipment	6.9	1 - 10	7
...Helped me improve the disinfection of my COW	8.1	3 - 10	8
...Provides accurate information about the last disinfection event	6.6	1 - 10	7
...Display corresponds to a real disinfection of the equipment	5.1	1 - 10	5
...Will make disinfection of equipment a more efficient process	7.2	1 - 10	8
...Will make patient care more appropriate	6.6	1 - 10	7
...Will improve communication of cleaning work processes	7.4	2 - 10	8
...Will improve organizational performance	6.6	1 - 10	8
...Was easy to understand and follow	8.6	3 - 10	10
...Can easily be adopted in my routine workflow	8.6	3 - 10	10
...Will improve patient outcomes	7.9	3 - 10	9
...Will reduce costs of care	7.8	3 - 10	8.5
...Will improve patient satisfaction with care	6.9	1 - 10	8

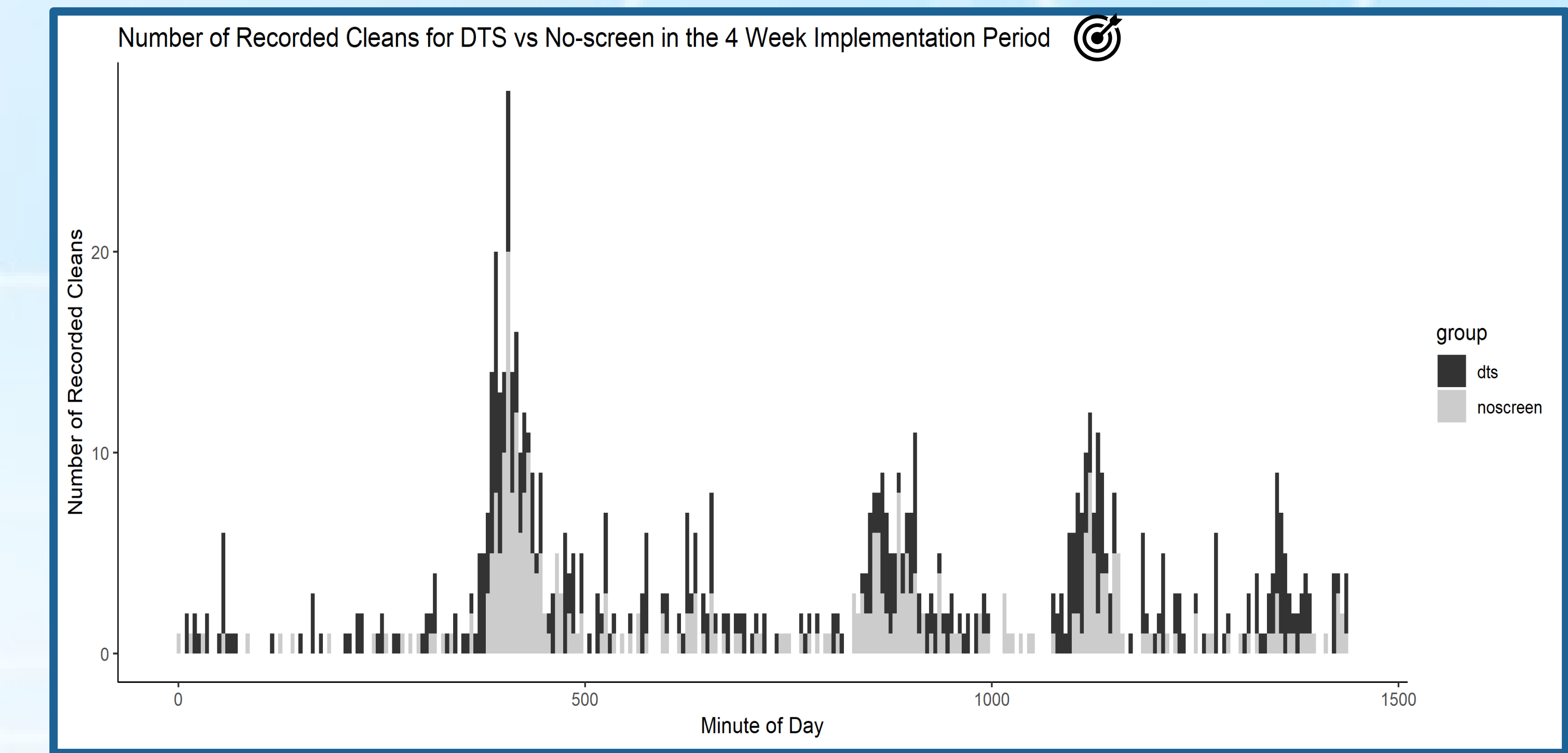
Focus Groups: N = 22 participants; day and off-tour

- Easy to use with minimal difficulties or concerns
- Information useful in daily practice
- Minimal disruption or change in workflow
- Good for validating compliance with protocol
- Avoid applications that create work or barriers to effective practice
- Can reset without actually cleaning PME

This study was supported by NIH NOA 2R44NR016638-02 and by the Central Texas Veterans Health Care System (Temple, Texas). Views are those of the author(s) and do not necessarily represent the views of the Department of Veterans Affairs. Authors would like to thank the Acute Care Nursing Staff at the Central Texas Veterans Health Care System for the participation in this study.

## Focus group comments

- “...part of what I am doing anyway”
- “...increased my awareness of equipment disinfection”
- “...useful as a rounding tool to discuss infection prevention”
- “...**already clean my COW at the beginning of my shift**”
- “...I started checking the display more often”
- “...useful as prompt to clean infrequently used equipment”
- “...keep it simple”
- “...don't overuse...consider balance of workload and value”
- “...provide disinfection closets with UV that can be used when prompted that equipment needs to be cleaned”
- “...badge scanning would increase accountability for actually cleaning”



## Conclusions

- Device functioned as designed
- DTS system added value to practice environment
- Nurses clean equipment more often than required by policy
- Nurses want to know equipment is clean and value helpful technology
- Nurses are concerned about technology that creates extra work that may be not feasible for them to accomplish