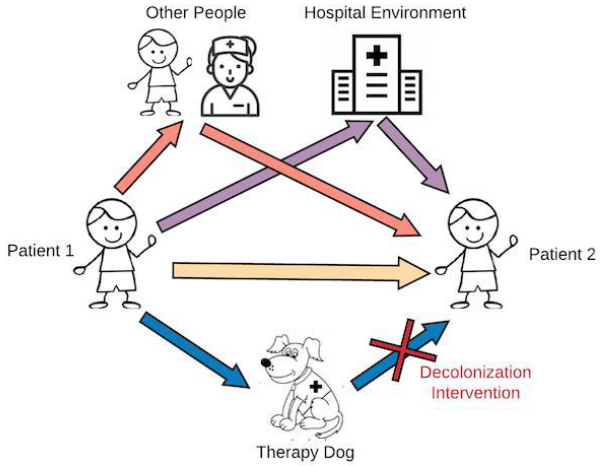
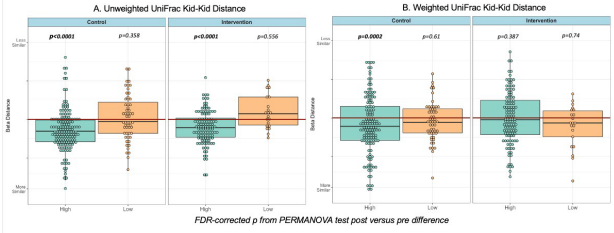
Figure 1: Microbial Pathways during Animal-Assisted Intervention Programs



Methods. We collected pediatric patient and therapy dog nasal samples before and after each group therapy visit. Contact level was based on interaction time and key behaviors. Therapy dog handlers performed normal practices for two control visits, then switched to a decolonization protocol (chlorhexidine shampoo prior to the visit, and chlorhexidine wipes during the visit) for two intervention visits. Sample DNA was sequenced for the 16S rRNA gene V1-3 region to assess microbiota composition and diversity.

Results. We collected 105 samples (79 from patients and 26 from dogs) over 13 study visits. There was an increase in within-sample (alpha) diversity levels after the visits in patients and dogs in control visits, and an overall decrease in intervention visits. Patients were more similar in their microbial composition (beta diversity) to other patients and to dogs after visits. Patients with higher dog contact were more similar to other patients in control and intervention visits using the unweighted metric, but only in control visits for the weighted metric.

Figure 2: Difference in Beta Distance Post–Pre Visit, by Contact Level and Visit Type



Conclusion. These findings indicate that microbes are shared between patients and therapy dogs during animal-assisted interventions, shown by the increase in alpha diversity levels and microbial community shifts. High contact increased interactions in all pathways, resulting in greater microbial sharing. With the dog pathway blocked, the intervention reduced spread of unique dog taxa, but sharing still occurred in high contact patients.

This shows that, while there is potential for the dog to be a vector, other potential pathways are important for microbial sharing during group therapy visits. Infection control efforts should reflect all possible pathways of microbial transmission.

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818. Healthcare Worker Feedback Regarding the Implementation of a New Disinfection Tracking System

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Session: P-34. HAI: Disinfection/Sterilization & Environmental Infection Prevention

Background. Tracking of disinfection of portable medical equipment (PME) and demonstration of compliance with PME disinfection policies can be difficult to demonstrate. A Disinfection Tracking System (DTS) was implemented in our hospital to assess the impact of such a system on the disinfection events of PME and its ability to capture disinfection events. The DTS system improved the total disinfection events as well as disinfection events on commonly used items such as Computer-on-wheels (COWs) and vitals machine (VM) (Figures 1 & 2). Here we present a summary of healthcare workers' (HCWs) opinions about the implementation of the DTS system in their routine work flow.

Image of DTS Mounted on a Computer-on-Wheel

Image of a DTS Mounted on a Vitals Machine

Methods. The study was conducted on two medical-surgical acute care units in Temple, TX Veterans Affairs hospital. The DTS devices were equipped with sensors to detect moisture events corresponding to disinfection. A display on the device indicated the last time the PME was disinfected. Opinions were obtained after the 10-week study period through a survey and facilitated group discussions between frontline HCWs and managers who had encountered the DTS during their daily work routine. The survey measured level of agreement with 13 items on a Likert-type scale system ranging from one (least agreement) to ten (most agreement).

Disinfection Tracking System with Screen Displaying Time Since Last Disinfection

Results. A total of 17 surveys were completed. The lowest mean agreement score was 5.1 for the statement - the DTS system display corresponds to a real disinfection of the equipment and the highest mean agreement scores included - the DTS system was easy to understand and follow and the DTS system can easily be adopted in my routine workflow. Lastly, - the DTS system helped improve the disinfection of my COW and the DTS system will improve patient outcomes corresponded to agreement score means of 8.1 and 7.9, respectively. In the group discussions, all the involved groups of healthcare workers expressed agreement in the ease of use of the system and minimal disruption in workflow.

Conclusion. Our survey and interview results indicate that most of the HCWs who interacted with the device had a positive interaction with the device. They stated the DTS system helped serve as an indicator about the last disinfection event. They also noted the system integrated well into their workflow without any disruption or additional workload.

Disclosures. Sarah Simmons, DrPH, Xenex Disinfection Services (Employee, Shareholder) Mark Stibich, PhD MHS, Xenex Disinfection Services, Inc (Board Member, Employee) Chetan Jinadatha, MD, MPH, AHRQ (Research Grant or Support)Department of Veterans Affairs (Other Financial or Material Support, Owner: Department of Veterans Affairs. Licensed to: Xenex Disinfection System, San Antonio, TX)Inventor (Other Financial or Material Support, Methods for organizing the disinfection of one or more items contaminated with biological agents)NiH/NINR (Research Grant or Support)NSF (Research Grant or Support)Xenex Healthcare Services (Research Grant or Support)

819. How effective is alcohol flush and drying cycle of automatic endoscope reprocessor (AER): Stripped Endoscope (SE) model

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Background. Endoscopic designs are more ergonomic and technically sophisticated than ever. Endoscope transmitted infections continues despite scrutiny and optimization of disinfection processes. Effective endoscopic dryness has been largely overlooked, even though it is paramount for prevention of water-borne pathogens accumulating after high level disinfection (HDL). Additionally, complete dryness is required to achieve sterilization. The aim of this study is to evaluate the dryness of the endoscopes after routine a routine disinfection process.

Methods. Three endoscopes were stripped from their outer sheaths to allow for visual inspection of the inside channels. SE were processed as per usual practice. After HLD in an automatic endoscope reprocessor (AER) that included an alcohol flush and drying cycle, SE were hung and observed for any water within the channels. SE were flushed with filtered compressed air. Dryness was monitored visually and by feeling for the impact of water spray at the distal tip of SE. Dryness of the channels before and after air flush was observed for the three SE for three trials each.

Results. All the SE were grossly wet after HLD despite the AER's alcohol flush and drying cycle. Hanging vertically had no effect on the narrow diameter channels. Applying compressed air to each channel was effective for drying the channels based on visual inspection and water emission from the distal tip of the SE. The filtered compressed air had a flow rate of 20 L/minute for an average of 2 minutes to assure complete dryness. The nozzle for applying the filtered compressed air was ill-fitting to the openings of the cylinders and ports on the control handle, making it difficult to get a good seal for applying the filtered compressed air.

Conclusion. The AER's drying cycle was not effective for drying endoscope channels. Vertical hanging had limited efficacy on endoscopic dryness. The application of filtered compressed air to individual channels was effective for drying the channels. This SE model was useful and direct for assessing the degree of moisture inside the channels. The application of filtered compressed air should be an essential step in endoscopic reprocessing regardless of the need for sterilization.

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820. Impact of pulsed xenon ultraviolet (PX-UV) light disinfection for reduction of pathogens on high touch surfaces following hospitalization

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Background. Ultraviolet (UV) light disinfection following a manual terminal cleaning process for hospital rooms has been proposed as an additional method to reduce the bacterial burden on surfaces. The impact of UV light disinfection and the level of interdependence between the modalities remains unclear.

Methods. Samples were collected from 5 high touch surfaces from 10 patients room following discharge prior to manual disinfection, following manual disinfection, and following pulsed xenon UV disinfection using Rodac contact plates (total 150 samples). Colonies were identified using MALDI-TOF mass spectrometry. The bacterial colony counts were recorded and analyzed as pathogenic or commensal organisms (based on CDC criteria) to assess the efficacy of the disinfection process.

Results. Average colony counts for the rooms prior to disinfection, post disinfection, and post UV light were 185.8 CFU +/- SD 280, 43 CFU +/- 121, and 20 CFU +/- 36.7 respectively. The average drop in colony-forming units of the five high touch areas in patient's rooms can be seen in table 1. Twelve commensal bacterial species were isolated: *Bacillus species (sp.), Corynebacterium sp., Enhydrobacter sp., Kocuria sp., Lysinibacillus sp., Macrococcus sp., Micrococcus sp., Paenibacillus sp., Pantoea sp., Psychrobacter sp., Siccibacter sp., Coagulase negative staphylococcus*. Seven pathogenic bacteria were isolated: *Acinetobacter sp., Brucella sp., Proteus sp., Staphylococcus aureus, Escherichia sp., Enterococcus, and Pseudomonas aeruginosa*. Reductions in the predominant bacterial species following disinfection modality are noted in table 2.

Table 1: Colony forming units (CFUs) average Pre-disinfection (Pre-Dis), Post Disinfection (Post-Dis), and Post PX-UV Light (PX-UV).

	Pre-Dis	Post-Dis (% change)	Post PX-UV (% change)
Bathroom rail	138.6	28.5 (-79.4%)	10.0 (-92.7%)
Bathroom sink	67.9	19.2 (-67.6%)	27.2 (-59.9%)
Call button	220.8	16.8 (-92.3%)	6.5 (-97.0%)
Toilet Grab Bar	242.7	60.6 (-75.5%)	21.2 (-91.2%)
Tray Table	262.3	13.3 (-94.9%)	7.5 (-97.1%)

Table 2: Sub-analysis of commensal and pathogen isolation Pre-Disinfection (Pre-Dis), Post-Disinfection (Post-Dis), and Post PX-UV light (PX-UV).

	Pre-Dis [n (%)*]	Post-Dis [n (%)*] (Pre/Post-Dis %)**	Post PX-UV [n (%)*] (Pre/Post UV%)**
Proteus Mirabilis. (Pathogen)	10 (4.23)	0 (0.00) **(-100%)**	0 (0.00) **(-100%)**
Acinetobacter Sp. (Pathogen)	8 (3.37)	4 (1.87) **(-50%)**	2 (1.24) **(-75%)**
Staphylococcus Aureus. (Pathogen)	4 (1.69)	1 (0.62) **(-75%)**	1 (0.62) **(-75%)**
Enterococcus Sp. (Pathogen)	5 (2.11)	2 (1.25) **(-60%)**	0 (0.00) **(-100%)**
Bacillus Sp. (Commensal)	43 (18.18)	61 (37.95) **(+29.5%)**	59 (37.06) **(+27.1%)**
Coagulase (-ve) staphylococcus sp. (Commensal)	87 (36.81)	36 (22.4) **(-86.5%)**	35 (21.96) **(-86.5%)**

* % of total bacterial isolates
** % reduction as compared to pre-disinfection

Conclusion. A combination of manual disinfection and UV has shown a notable additional reduction in overall bacterial contamination of the patient rooms, including the majority of high touch areas as compared with manual disinfection alone. No additional reduction in commensal bacteria isolates was noted after UV light, however a further decrease in pathogenic bacteria *(Acinetobacter and Enterococcus)* was noted. UV light may be considered as an additional room disinfection method to reduce overall bacterial burden and pathogenic bacterial contamination of rooms as a comprehensive strategy to reduce nosocomial infections.

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