

# Improving Value-Based Care with Digitally-Enabled Disinfection Solutions: Survey Results

Conducted by UV-Concepts Inc. during a live interactive presentation at the National Association of Healthcare Transport Management (NAHTM) Conference, Seattle, WA  
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*Disclaimer: The survey questions were solely developed by UV-Concepts Inc. This summary including the conclusions are the opinions of the author and contributors. They are NOT intended to represent the viewpoints of NAHTM as an organization nor any of the individual NAHTM members.*

## Summary

**KEY WORDS:** Healthcare-Associated Infections, Disinfectants, Value-Based Care, Portable Medical Equipment

**BACKGROUND:** In the healthcare setting, value-based care initiatives focus on improving clinical outcomes and quality for reimbursement and cost control (Joynt et al., 2017). Transmission of nosocomial pathogens has been linked to transient microorganisms coming into contact with health care workers, medical devices and mobile equipment in the patients' environment (Donskey, 2014; Jinadatha et al., 2017; Peretz, Koiefman, Dinisman, Brodsky, & Labay, 2014). These healthcare-associated infections (HAIs) have a substantial negative impact on value-based care, and excellence in environmental cleanliness is one of the primary initiatives to combat HAIs. The National Association of Healthcare Transport Management (NAHTM) was founded with the mission to provide effective change and improvements in the field of hospital-based patient transportation. NAHTM is at the forefront of developing effective and proven best practices. This live interactive survey was conducted during a presentation titled *Improving Value-Based Care with Digitally-Enabled Disinfection Solutions* to shed light on the current state of disinfection protocols related to patient transport equipment, and to explore the future role of digitally-enabled solutions aimed at driving a more proactive and effective approach to environmental disinfection.

**METHODS:** The survey was conducted during a general session at NAHTM's Annual Conference and Exposition in Seattle, WA, on September 13, 2018. The survey method was a mobile polling application to which audience participants responded anonymously. Thirty-seven participants responded to seventeen polls. The survey questions were developed solely by UV-Concepts Inc., a manufacturer of a digitally-enabled disinfection solution.

**SAMPLE:** A convenient sampling was used to formulate the focus groups. A total of 67 patient transportation leaders were invited to participate in the study who had similar backgrounds, roles and interests. Of the 67 leaders invited, 37 responded to the survey for a 55% participation rate. Thirty-seven healthcare organizations ranging from large academic medical centers to community hospitals were represented at the general session (Figure 1).

Figure 1: States of Healthcare Organizations Represented at NAHTM Annual Conference

State	# of Hospitals	State	# of Hospitals	State	# of Hospitals
Alabama	1	Maryland	2	Pennsylvania	6
California	2	Michigan	2	Texas	4
Delaware	1	New Hampshire	2	Utah	2
Florida	5	New Jersey	2	Virginia	1
Indiana	1	New York	2	Wisconsin	1
Massachusetts	2	Ohio	1	TOTAL	37

#### OPERATIONAL DEFINITIONS:

- **Digitally-Enabled Disinfection:** The integration of automated disinfection equipment and software-based products which use algorithms and applications to record, report, and synthesize data. In the future, intelligent automation, machine learning, and the Internet of Things (IoT) will assist in protocol decisions, adherence, and compliance reporting.
- **Healthcare-Associated Infections (HAIs):** Infections that patients get while receiving treatment for medical or surgical conditions, often preventable, threat to patient safety.
- **NAHTM:** The only national professional organization composed of management from the United States, Canada, Brazil and Singapore who are responsible for the transportation of patients within hospital settings.
- **Nosocomial Pathogen:** A bacterium, virus or other microorganism acquired in the hospital that can cause a disease.
- **Value-Based Care:** A form of reimbursement that ties payments for care delivery to the quality of care provided and rewards providers for both efficiency and effectiveness.

RESULTS: 78% of respondents indicated that their facility is not addressing the risk of contamination of mobile equipment (Figure 2). 57% responded that the transportation department has responsibility for the cleaning and disinfecting of mobile equipment, followed by environmental services (16%), nursing (11%), others (11%), and volunteers (5%) (Figure 3). Periodic cleaning and disinfecting of wheelchairs is done daily (45%), weekly (10%), monthly (12%), and inconsistently (33%); for gurneys it is done daily (45%), weekly (15%), monthly (0%), and inconsistently (40%) (Figure 4). Respondents indicated that their facility has in-place written protocols for cleaning & decontamination of wheelchairs (66%) and for gurneys (61%) (Figure 5). Protocol adherence is assured for the cleaning & disinfecting of wheelchairs through automated solutions (10%), manually written records (37%), and other methods (random, spot-check) (53%); for gurneys protocol adherence is assured through automated solutions (13%), manually written records (28%), and other methods (random, spot-check) (59%) (Figure 6).

RECOMMENDATIONS: Additional focus group interviews should be conducted with members of the patient transportation community to help bring more global awareness to practices addressing the risk of the contamination of mobile equipment. Protocols to ensure routine cleaning of shared mobile equipment like wheelchairs need to be developed (Suwantarat, Supple, Cadnum, Sankar, Donskey, 2017).

CONCLUSIONS: It is well-recognized by healthcare leaders that mobile equipment specifically wheelchairs & gurneys pose significant challenges when attempting to reduce healthcare-associated infection risk (Peretz, et al., 2014). Much of this responsibility lies with the patient transportation department. Cleaning & disinfecting of this equipment does take place, but with inconsistencies related to frequency and protocol adherence. Better healthcare worker training, automated disinfection platforms, equipment tracking solutions, and digitally-enabled platforms which ensure protocol adherence are needed to address this problem. Healthcare workers' adherence to cleaning and disinfection guidelines is essential to decrease healthcare-associated infections (Rutala & Weber, 2013).

Figure 2

**DO YOU FEEL YOUR FACILITY IS ADEQUATELY ADDRESSING THE RISK OF CONTAMINATION OF PORTABLE MEDICAL EQUIPMENT?**

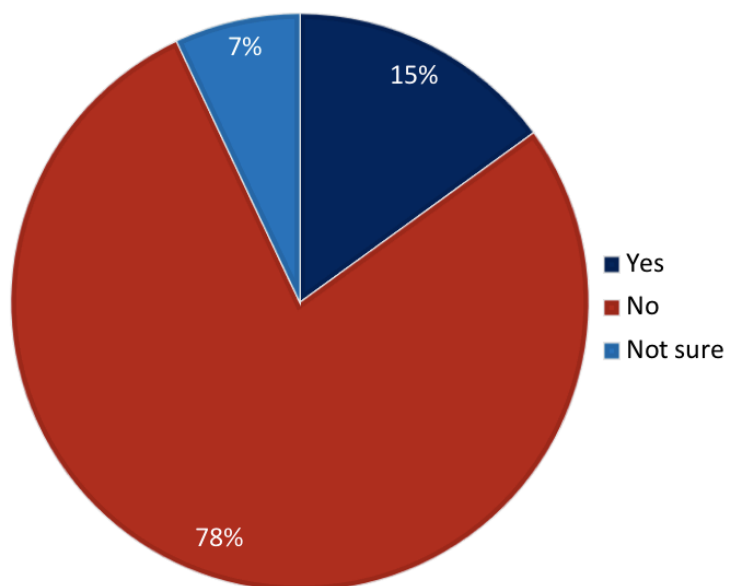


Figure 3

**WHO IS RESPONSIBLE FOR CLEANING & DISINFECTING YOUR DEPARTMENT'S PORTABLE MEDICAL EQUIPMENT? (SELECT UP TO 3 ANSWERS)**

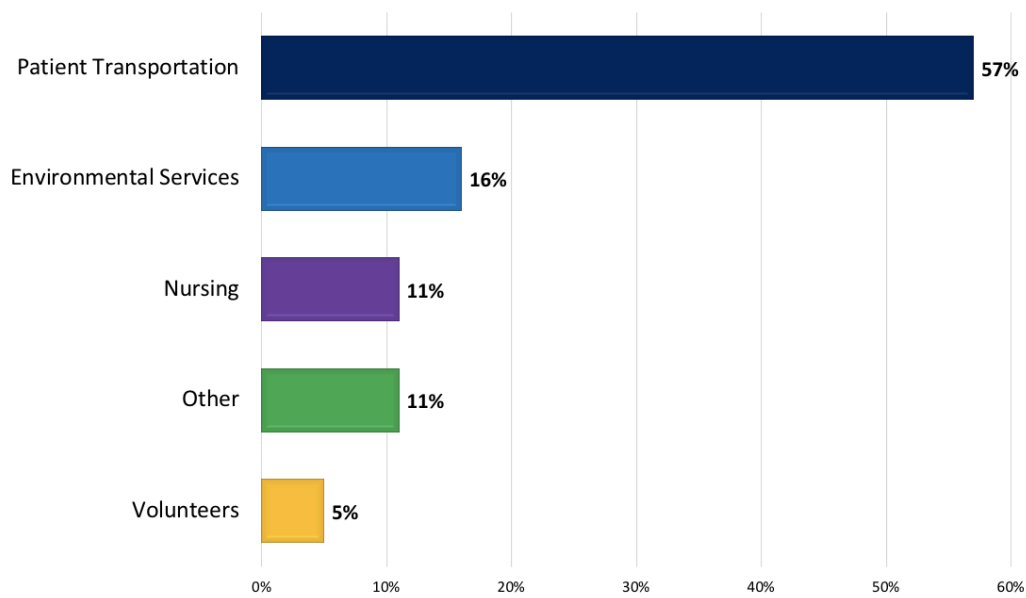


Figure 4

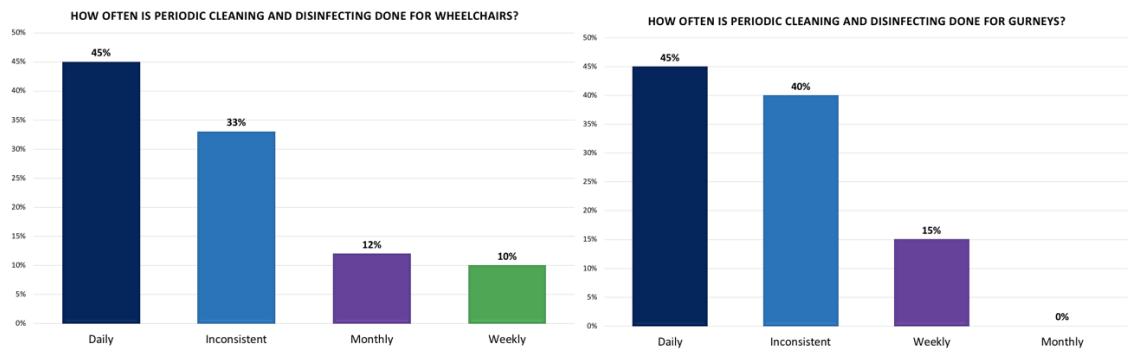


Figure 5

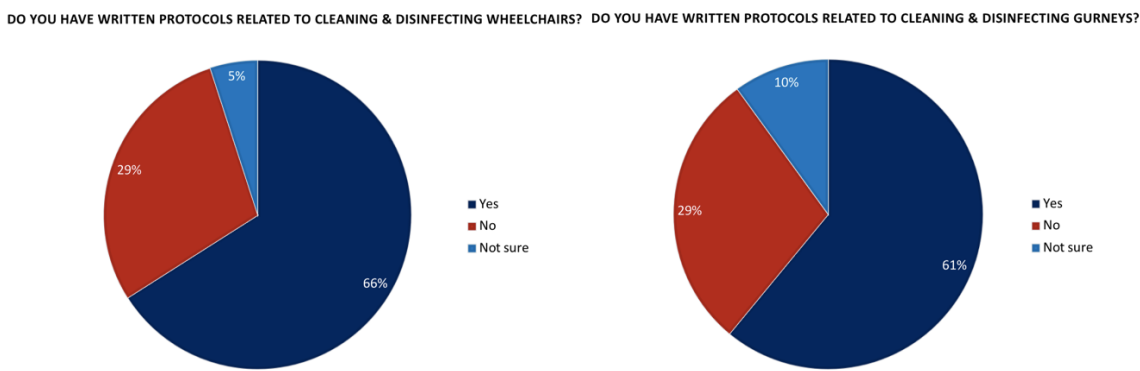
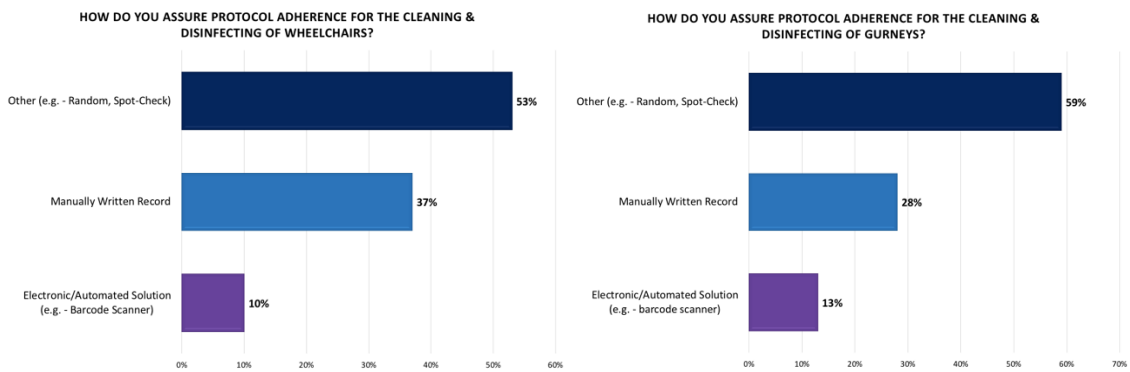
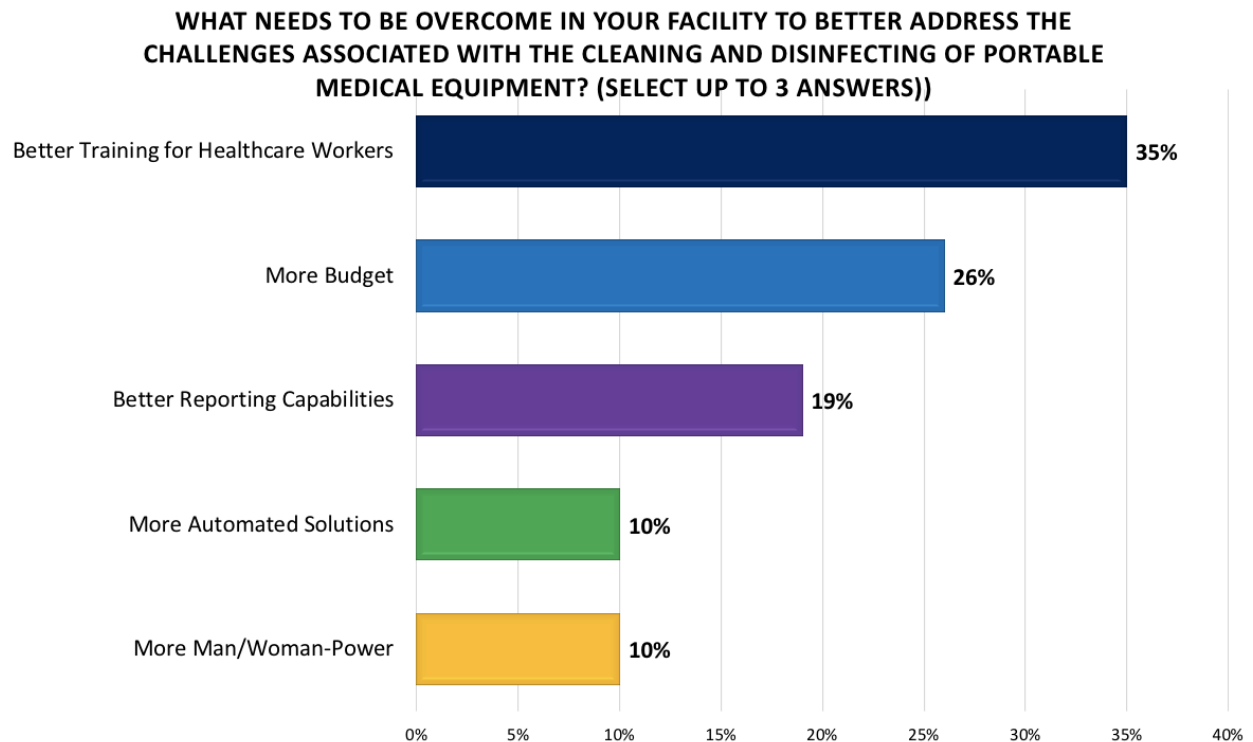


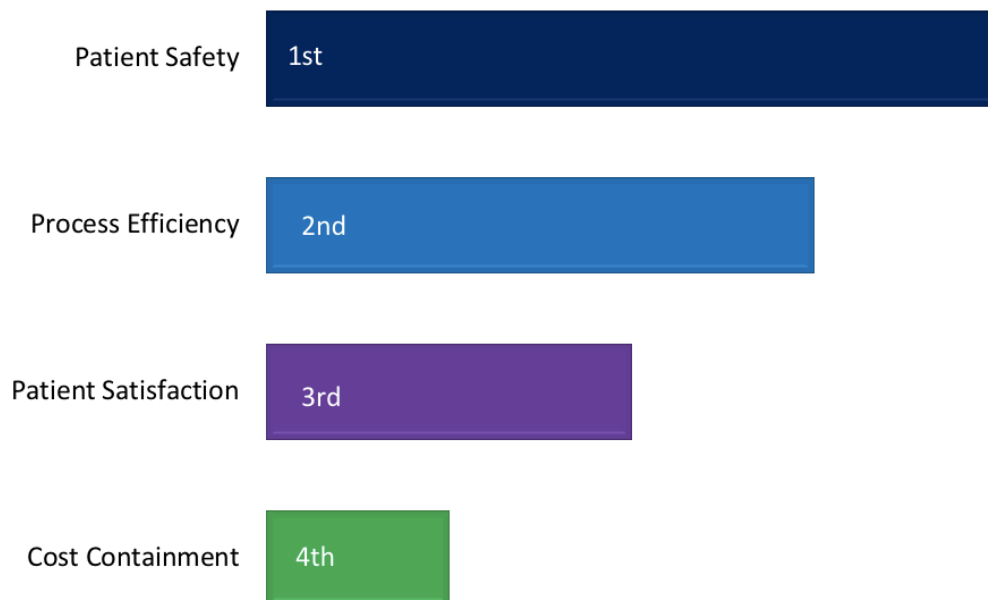
Figure 6

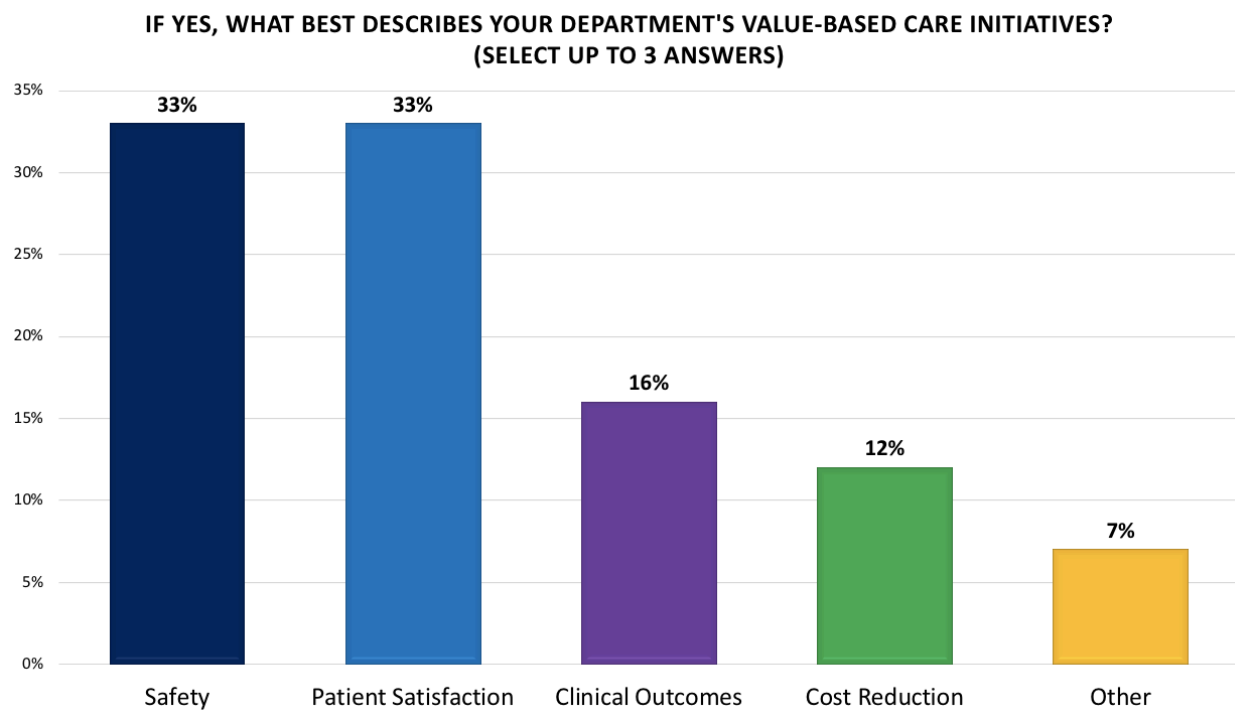


### Additional Survey Questions

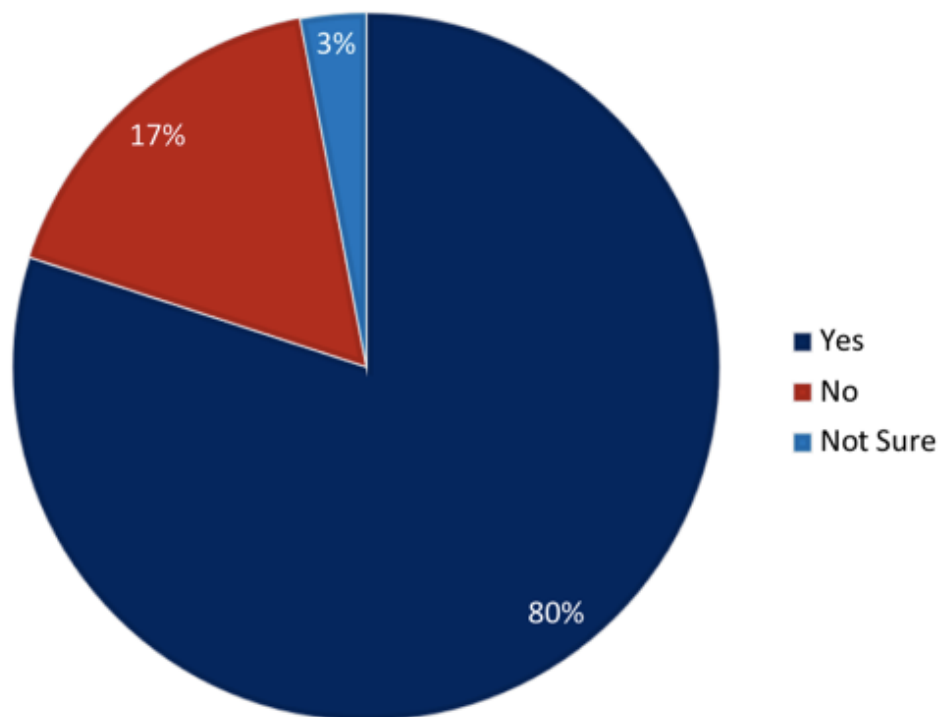


### HOW WOULD YOU RANK THESE KEY ISSUES IN YOUR DEPARTMENT:

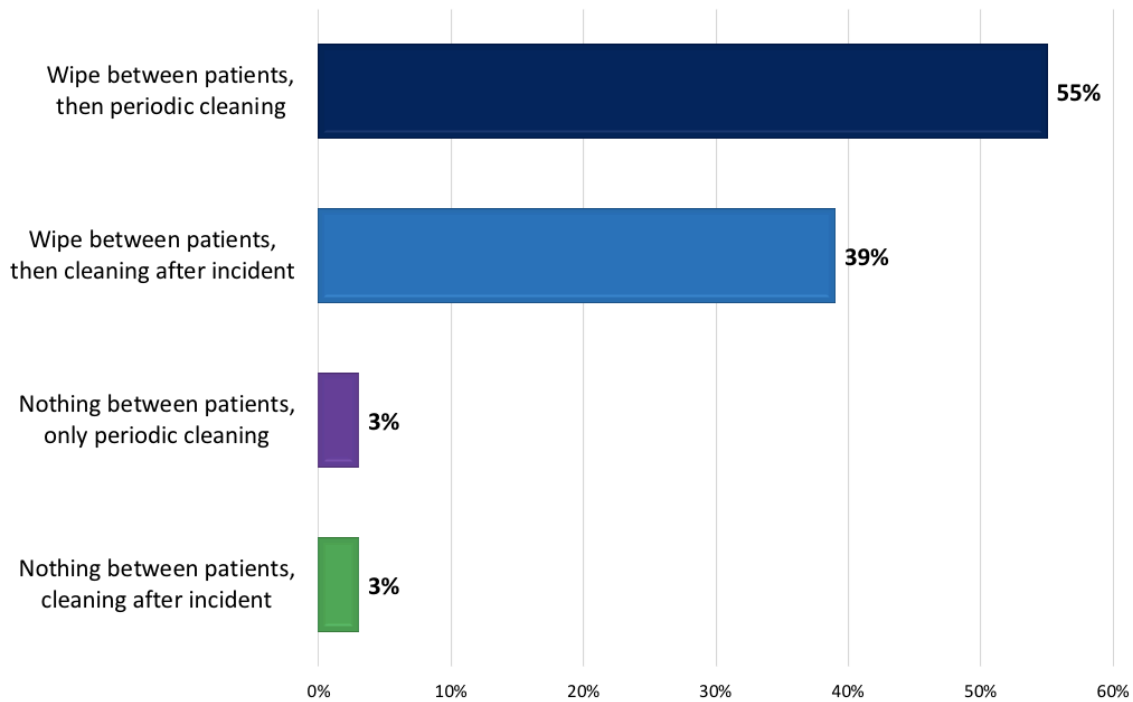




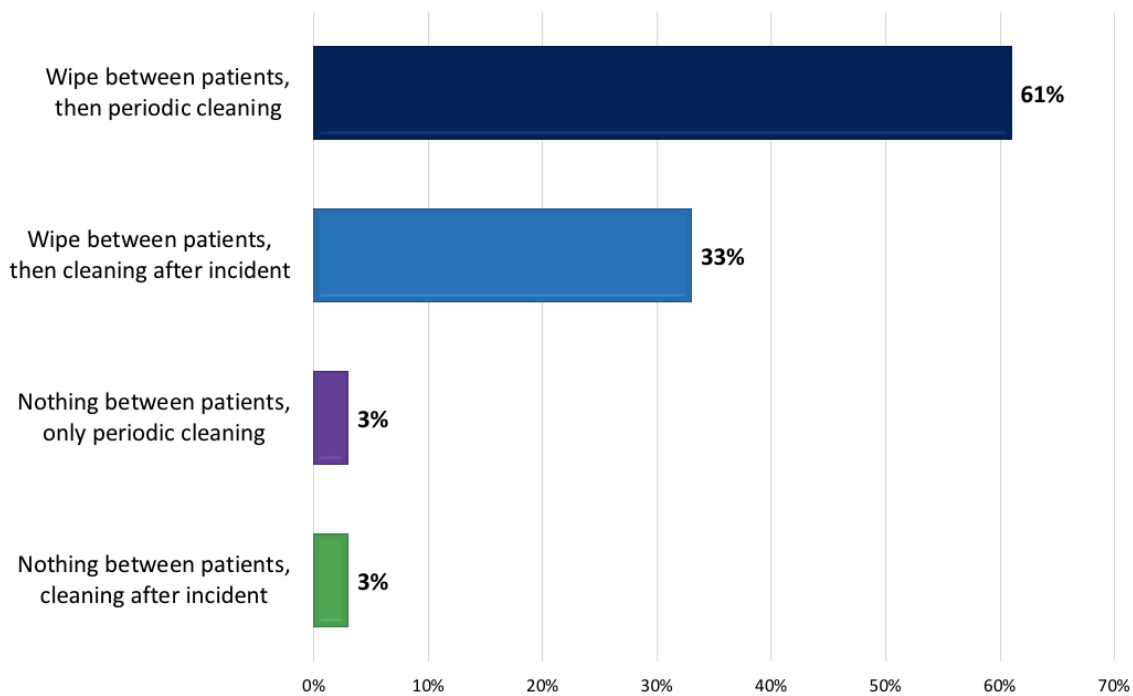
**DO YOU HAVE SPECIFIC VALUE-BASED CARE INITIATIVES IN YOUR DEPARTMENT?**



**WHAT BEST DESCRIBES THE PROTOCOL USED FOR CLEANING AND DISINFECTING WHEELCHAIRS?**



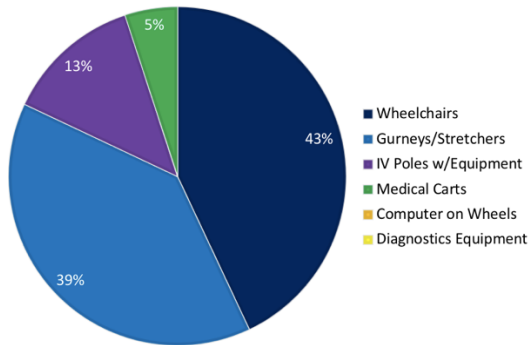
**WHAT BEST DESCRIBES THE PROTOCOL USED FOR CLEANING AND DISINFECTING GURNEYS?**



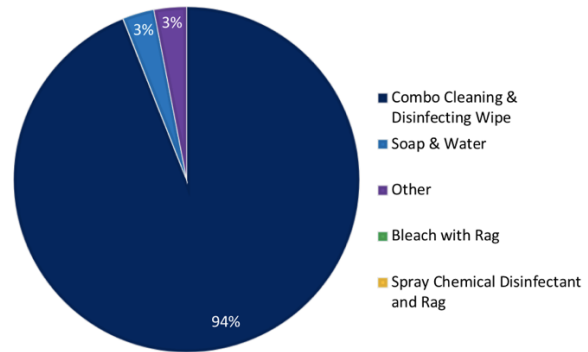


## Survey Results from NAHTM Conference, Seattle, WA, Sept 2018

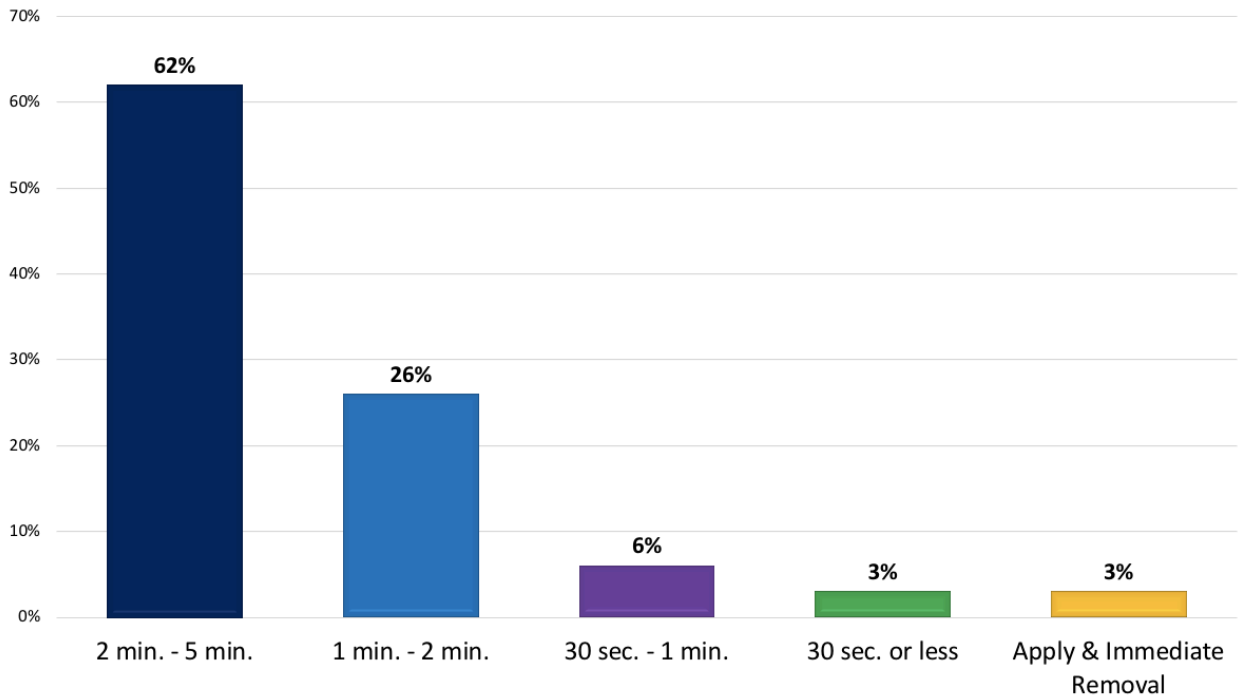
WHAT PORTABLE MEDICAL EQUIPMENT DOES YOUR DEPARTMENT HAVE RESPONSIBILITY?  
(SELECT UP TO 3 ANSWERS)



WHAT METHOD OF MANUAL CLEANING & DISINFECTING IS USED?



WHAT DWELL (WETNESS) TIME IS TYPICALLY USED WHEN USING DISINFECTANTS?



## References

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