ID #428

Remote Video Auditing (RVA) To Assess Personal Protective Equipment (PPE) Compliance in Rooms with *Clostridioides difficile (C.diff)* Patients

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INTRODUCTION

- Personal protective equipment (PPE) and hand hygiene measures (HHM) help prevent *C.diff* transmission.
- Increased *C.diff* incidence prompted use of novel educational and monitoring measures.
- Remote video auditing (RVA) is more objective and reliable than direct observation ("secret shopper") in ensuring isolation adherence.
- We used RVA to assess healthcare provider (HCP) compliance with PPE/HHM, in isolation rooms of *C.diff* patients (pts) and others in same unit.

METHODS

- Prospective observational study over 8 months (07/2019–02/2020) in hematology/oncology unit of a tertiary hospital in suburban New York.
- RVA cameras captured HCP encounters at entry/exit from rooms of *C.diff* patients and other patient rooms in same unit.
- Adherence to PPE (gowns/gloves), HHM and PPE doffing reviewed remotely by independent trained observers.
- Auditing standardized to decrease inter-observer variability.
- Data captured from electronic records and infection prevention data using NHSN criteria. Data compared between 2 time periods (P1,P2) and with historical controls using student's t-test.

Table 1: Comparison of PPE and HHM compliance rates for the entire unit, between entire study period and historical controls

Variable for Compliance	Study Period (07/2019–02/2020)	Historical Rates
PPE	63.10%	73.42%
HHM	36.34%	76.64%

RVA cameras placed outside rooms to monitor compliance of HCPs with PPE

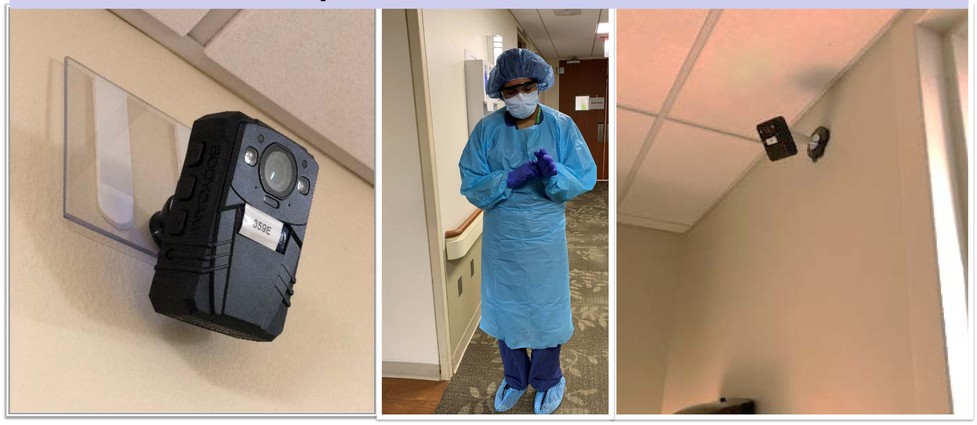

Table 2: Comparison of PPE compliance rates, proper doffing sequence and HHM at entry and exit at a *C.diff* patient's room, between two time periods. #Doffing was recorded by RVA only at time of exit from *C.diff* rooms.

Variable n(%)	P1: 07/2019 – 10/2019	P2: 11/2019 – 02/2020	P1: 07/2019 – 10/2019	P2: 11/2019 – 02/2020
	Entry into room		Exit from room	
Encounters (n)	254	17	220	16
Gloves	190 (74.80%)	13 (76.47%)	35 (15.91%)	4 (25%)
Gown	203 (79.92%)	31 (82.35%)	14 (14.09%)	4 (25%)
Proper Doffing sequence	NA#	NA#	91 (41.36%)	7 (43.75%)
HHM performance	133 (52.36%)	140 (23.53%)	4 (63.64%)	14 (87.50%)
	p-value = 0.25		p-value = 0.04	

RESULTS AND DISCUSSION

- In 5,685 study encounters, PPE and HHM compliance rates lower compared to historical controls [Table 1].
- In 507 *C.diff* pt encounters, increased PPE compliance at room entry in P2 v/s P1, but not statistically significant [Table 2].
- Significantly increased compliance with PPE use, HHM and proper doffing noted when exiting patient room in P2 v/s P1 [Table 2].
- *C.diff* cases/pt. day decreased from P1 to P2 (0.003 to 0.001).
- Discordant findings between study rates and historical rates [Table 1] could be due to Hawthorne effect; unreliability of direct observation used in historical controls; and small sample size.
- RVA noted to increase PPE compliance rates in other studies.
- Some studies combined real-time feedback and RVA, further increasing compliance.

CONCLUSION

- RVA more reliable and less labor-intensive than direct observation.
- By ensuring strict isolation precautions, RVA may be better than direct observation in preventing communicable infections *C.diff.*

BIBLIOGRAPHY

1. Brouqui P, Boudjema S, Reynier P et al. Hand Hygiene Analyzed by Video Recording. J Nurs Care. 2016;5:338.
2. Allar PJ, Frank-Cooper M. Use of remote video auditing to validate Ebola level II personal protective equipment competency. J Contin Educ Nurs. 2015;46(6):244-246.
3. Khan A, Nausheen S. Compliance of surgical hand washing before surgery: Role of remote video surveillance. *J Pak Med Assoc*. 2017;67(1):92-96.
4. Armellino D, Trivedi M, Law I, et al. Replicating changes in hand hygiene in a surgical intensive care unit with remote video auditing and feedback. *Am J Infect Control*. 2013;41(10):925-927.