An Educational and Physical Intervention to Improve Hand-Hygiene Compliance in Enhanced-Contact Precautions

David Kazanowski MD, Rasha Abdulridha MD, Abraham Baidoo MD, Oneil Doha MD, Lauren Hodge MD, Katrina Siemiesz MD, Eleanor King MD
Wayne State University School of Medicine, Department of Family Medicine & Public Health Sciences, Ascension Providence Rochester Hospital Department of Family Medicine

Background

- Enhanced-Contact Precautions (ECP) are instructions to prevent the spread of infections resistant to routine measures.
- *Clostridium difficile*, for example, is resistant to alcohol-based solutions and requires the use of soap and water to perform hand-hygiene (HH). This action is included in the instructions for ECP.
- HH is the most impactful intervention to prevent healthcare acquired infections.
- Studies have shows that factors like sink-location and now the global COVID19 pandemic can impact HH practices.
- **Hypothesis:** Providers entering rooms with ECP are not utilizing appropriate HH and this may be due to accessibility of alcohol rubs over a sink and water.

Quality Improvement Objectives

- Identify baseline rates of appropriate HH in ECP (soap and water use).
- Create an intervention that encourages an increase in the use of soap and water among healthcare professionals (HCP) at Ascension Providence Rochester Hospital.
- Engage all hospital departments in the initiative.
- **SMART Goal:** Increase rates of appropriate HH in ECP by 50% in six months as measured by direct observation of HCP.

Methods

- Baseline data was collected on ECP HH compliance by direct observation and categorized as: alcohol rub, soap and water or none.
- Observations included HCP in all departments and attempts were made to blind HCPs to the observation occurring.
- **Intervention**: QI team members rounded on every floor of the hospital for 2 weeks and provided one-on-one teaching on ECP.
- **Intervention:** Alcohol rubs were removed from rooms with ECP to encourage the use of soap and water and a "blue dot" magnet placed on doors of ECP rooms to remind providers of HH.
- Post-intervention data was collected.

Results

- 77 HH observations were performed pre-intervention and 154 post-intervention. The majority were on nursing staff, nurse assistants and physicians.
- HH compliance was defined as the use of soap and water.
- Two-weeks of education spaced over 4 months were completed for a total of 302 one-on-one teaching moments. The majority of teaching moments were with physicians (29%) and nurses (23%)
- In this period hand-sanitizers were removed from ECP rooms and the "blue dot" magnet was placed on ECP doors.
- HH compliance increased from 5% pre-intervention to 31% post-intervention

	Pre-Intervention		Post-Intervention	
Department	Count	%	Count	%
Nurse	28	36%	81	53%
Nurse Assistant	14	18%	24	16%
Physician	11	14%	18	12%
Physical Therapy	5	6%	2	1%
Environmental Services	4	5%	11	7%
Occupational Therapy	4	5%	2	1%
Respiratory Therapy	4	5%	3	2%
Transport	4	5%	0	0%
Nutrition	2	3%	0	0%
Mid-level Provider	1	1%	3	2%
Lab	0	0%	3	2%
Nurse Student	0	0%	4	3%
Unknown	0	0%	3	2%
Totals	77	100%	154	100%

Table 1. Count of Observed HCP and Department

Figure 1. "Blue Dot" Magnet

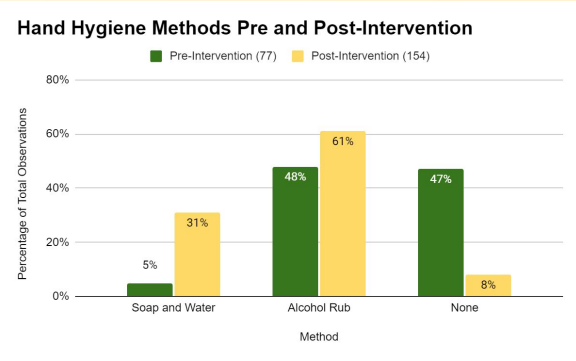

Figure 2. Hand Hygiene Methods Pre and Post Intervention

Discussion

- Our quality improvement interventions were associated with an increase in HH compliance and a decrease in the amount of HCP who perform no HH.
- Our interventions was also associated with an increase alcohol-based rub use *outside* of patient rooms after the substance was removed from *inside* the rooms
- Our data did not indicate which HCPs showed the greatest response to our interventions and this could be an area of future investigation.
- Our intervention, while meeting the SMART goal still only resulted in 31% HH compliance and further work is needed to increase this rate.

Public Health Implications

- Appropriate hand-hygiene can mitigate preventable infections and with a shift in HH behaviors due to the COVID19 pandemic it is important to look at unanticipated consequences this may have on other infections.
- Creative hospital-wide interventions can help improve HH compliance when information is disseminated widely and repeatedly.