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“The Iowa Disinfection Cleaning Project: Opportunities, Successes, and Challenges of a Structured Intervention Program in 56 Hospitals.”

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Study Location:

56 acute-care hospitals in Iowa ranging in size from 15-415 beds (avg. 105), of which 34 (61%) were Critical Access Hospitals (≤ 25 beds).

Study Design:

Prospective, quasi-experimental pre-/post intervention trial.

Methods:

- Objective to evaluate and improve the thoroughness of terminal room disinfection cleaning.
- Infection Preventionists (IPs) utilized objective cleaning performance monitoring system (DAZO) to evaluate the thoroughness of disinfection cleaning (TDC); IPs marked a standardized group of 14 environmental surfaces - the “high-touch surfaces” defined by CDC and other surfaces frequently contaminated with *C. difficile*, MRSA, or VRE.
- An object was defined as “cleaned” only if the fluorescent target was removed completely.
- Marking of study rooms occurred when unoccupied.
- **Phase 1:** Pre-intervention analysis: IPs covertly marked high risk objects (HROs) in a convenience sample of patient rooms and bathrooms and assessed fluorescent removal to establish a baseline TDC percentage for the study HROs and an overall TDC for their individual hospitals. Results were collated to create hospital-specific graphs and sent to each hospital’s IP.
- **Phase 2:** Programmatic analysis and educational interventions: Findings from Phase 1 reviewed by IP with administrative staff with development of a standardized educational program for line and supervisory environmental services (EVS) personnel. The educational program included: an evaluation tool highlighting the HROs; emphasis on the important role of the EVS staff in infection prevention and review of data regarding how environmental cleanliness contributes to patient and staff safety. IPs re-evaluated the TDC percentage and shared results.
- **Phase 3:** Performance feedback and programmatic analysis. IPs shared the results of Phase 2 with EVS staff and developed additional hospital-specific interventions and then re-evaluated TDC percentage. Findings from performance assessment and feedback cycles, group and 1-on-1 teaching interventions, and administrative process interventions were used to optimize terminal cleaning.

Results/Conclusions:

- Initially, the overall TDC was 61% in 56 hospitals.
- Pre-intervention TDCs were essentially identical for critical access hospitals (60%) and larger hospitals (59%).
- 42 hospitals (75%) with an average Phase 1 TDC of <80%, participated in Phase 2. After development and implementation of educational interventions, the mean overall TDC for these 42 hospitals improved significantly from 60% to 81% ($P \leq .0001$).
- After completing Phase 2 or Phases 2 and 3, 16 of 42 sites (26%) achieved TDC scores >90%; 6 of these hospitals maintained the program beyond the planned study period and sustained TDC percentages >90% for at least 38 months.
- A survey of IP's found that lack of time and staff turnover were the most common reasons for terminating the study early.
- The study demonstrated that objective structured assessment and education programs significantly improve environmental cleaning and are, therefore, important components of infection prevention and patient safety efforts.

Limitations:

- High withdraw rate (21 of 56 sites) - this limitation highlights an important fact: hospital administrators must provide the necessary personnel resources if they wish to improve environmental disinfection cleaning.
- Conducted in a rural Midwestern state: results may not be generalizable to other states or regions.

High Impact Questions for Customers:

- Is the IP program engaged in environmental hygiene monitoring? If so, what monitoring tool(s) are being used and what is the frequency of the monitoring?
- How is the monitoring data reported and acted upon?