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Improving hand hygiene through the novel approach of combining goal setting and performance feedback at the group level

Quasi-randomized controlled before-after study
performed at a German hospital

WHAT WAS INVESTIGATED?

- **Potential of goal setting and performance feedback on improving hand hygiene (HH)**
- **Four non-intensive-care units** were assigned to **one of the conditions**:
  - Goal setting
  - Performance feedback
  - Both goal setting and performance feedback
  - None (control)

- The study was divided in four phases:
  - Habituation to novel count dispensers and observers (T0)
  - Baseline (T1)
  - Intervention (T2)
  - Postintervention (T3)

WHAT WAS THE RESULT?

- **Both goal setting and feedback** led to an **increase in hand hygiene events (HHE)** from baseline to intervention and levels were still elevated postintervention (mean T1 = 7.9, mean T2 = 17.0, mean T3 = 12.9)

- **Increase** in HHEs **after the intervention in the feedback condition**
- **Only descriptively increase** in HHEs **after the intervention** in the **goal setting condition**

- Count dispenser usage frequency was highly correlated with hand hygiene compliance (HHC)

Combining performance feedback and goal setting at the group level can strongly improve hand hygiene frequency. Counting dispenser usage and providing performance feedback continuously can be realized by automated tools, e. g. hand hygiene monitoring systems.

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BACKGROUND

Hand hygiene (HH) is one of the key measures in the prevention of healthcare-associated infections. Various intervention strategies can improve HH compliance (HHC), but HHC rates are still low. New strategies that extend and complement existing programmes are needed. Behavioral approaches such as goal setting and performance feedback help to develop such strategies.

GOAL

The study aimed to test the potential of goal setting and performance feedback to improve HH at the group level.

DESIGN AND METHODS

The prospective, controlled, before-after intervention study was conducted at a German tertiary hospital between April and August 2017. It was divided into four 4-week phases:
- habituation (T0)
- baseline (T1)
- intervention (T2)
- post-intervention (T3)

Existing wall-mounted dispensers were replaced by electronic count dispensers and supplemented by further of those to achieve a ratio of at least one per two beds. Dispenser usage data were transferred via WiFi and continuously collected as HH events (HHEs; 1 HHE=all dispenser activations within 2 sec). Four non-intensive care units of the hospital were assigned to one of four conditions: combined (feedback + goal setting), feedback only, goal setting only, or none (control), each of which was initialised on day 1 of T2. For goal setting, after receiving introductory information, the team defined a collective target HHC rate that was written on a poster and hanged at the notice board. Performance feedback was continuously given by screens on the wards, displaying the mean HHC rate of the last 7 days which was calculated from electronically counted HHEs. Trained observers also documented the agreement between HHEs and HHC by applying the recommendations of WHO's five moments.

RESULTS

Overall, 1,894 HHEs were electronically registered: 422 at T0, 427 at T1, 576 at T2, and 469 at T3. For the combined condition (feedback + goal setting), the mean number of daily HHEs per patient room increased significantly from T1 (baseline; mean 7.9) to T2 (intervention; mean 17.0) and was still significantly elevated in T3 (post-intervention; mean 12.9) (Table1). The two conditions with single interventions did not lead to statistically significant differences from baseline.

As a secondary outcome, these results were compared to HHEs per patient day for all conditions. For the combined condition, HHEs per patient day nearly doubled from T1 (baseline; mean 4.8) to T2 (intervention; mean 9.2) and remained elevated in T3 (post-intervention; mean 6.5). In addition, the observation data revealed that count dispenser usage frequency and HHC strongly correlated across all wards and study phases.

Condition	Daily HHEs per patient room (mean ± SD)		
	T1: base-line	T2: intervention	T3: post-intervention
Combined (feedback + goal setting)	7.9 ± 1.9	17.0* ± 4.9	12.9* ± 5.1
Feedback only	7.3 ± 3.9	10.3 ± 3.6	8.2 (SD not specified)
Goal setting only	6.8 ± 1.9	8.7 ± 2.3	7.8 (SD not specified)
None (control)	10.2 ± 3.9	8.2 ± 3.8	7.1 ± 3.6

Table 1: Modified from Diefenbacher *et al*. (2019) *Difference from baseline was statistically significant (p<0.05). SD=standard deviation

CONCLUSION

The study shows a strong intervention effect on HH frequency by combining performance feedback and goal setting at the group level, suggesting this as a useful approach to improve HH. HH programmes can benefit by including not only feedback, as recommended by the WHO, but also goal setting.

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Source: Diefenbacher S *et al*. (2019) A quasi randomized controlled before after study using performance feedback and goal setting as elements of hand hygiene promotion. J Hosp Infect 2019. pii: S0195 6701(19)30059 3. Epub ahead of print.