

Motivational factors of influence on high-quality hand hygiene performance among EMS providers:
A multicenter study

Background:

Healthcare-associated infections (HAIs) have a severe impact on patient outcomes, and high-quality hand hygiene (HH) is a valid preventive measure. Nevertheless, compliance in the emergency medical service (EMS) is inadequate. We aimed to assess practical measures feasibility, and to quantify components of EMS providers’ motivation to comply with HH.

Methods:

A self-administered questionnaire consisting of 24 items (developed from WHO’s Perception Survey for Health-Care Workers) provided information on intentions to perform high-quality HH among providers from Finland, Sweden, Denmark and Australia. Analysis; descriptive statistics, multivariate analysis, $p < 0.05$ considered statistical significant.

Results:

Overall, 933 questionnaires were returned (response rate 15%). Most respondents were advanced-care providers, male and had > 5 years EMS experience. In total, 61% had received HH training < 3 years ago, and 93% perceived HH a daily routine. The most feasible practical measures were; access to HH supplies, and training and education. The majority of the providers acknowledged both scope and severity of HAI and the preventive effect of HH. Organizational priority, peer pressure and self-efficacy were separately associated with self-reported high-quality HH.

Factors associated with self-reported high-quality hand hygiene compliance			
	Self-reported HH compliance $\geq 80\%$ *, n (%)	Multivariate analysis	
		OR (95% CI)	P
Q10 HH has high priority in my organization	412/626 (66)	2.0 (1.2-3.4)	0.007
Q18 Good examples models practice	422/625 (68)	1.8 (1.1-2.9)	0.021
Q21 My colleagues’ HH compliance is $\geq 80\%$	308/526 (59)	19.5 (8.6-44.3)	0.000
Q22 HH is very important to the patients	424/622 (68)	2.6 (1.5-4.5)	0.000
Q23 High-quality HH is relatively easy	401/624 (64)	0.3 (0.2-0.5)	0.000

Table 2: Factors associated with self-reported high-quality hand hygiene (HH) among EMS providers. Self-reported HH compliance $\geq 80\%$ defined by self-reported HH action per HH indication. OR, odds ratio; CI, confidence interval; P, p-value.

Practical measures to improve hand hygiene compliance	
1.	Q13 Hand hygiene supplies always available at point of care
2.	Q15 Training and education
3.	Q16 Simple and clear instructions
4.	Q17 Feedback on performance
5.	Q12 Managers supporting and promoting hand hygiene
6.	Q14 Hand hygiene related posters in the environment
7.	Q19 Patients reminding the staff about hand hygiene*

Table 1: Practical measures EMS providers perceived feasible to improve their hand hygiene compliance (listed with the most feasible first). Q= Question. *Swedish providers excepted.

Conclusion:

HH supplies, simple and clear instructions, and training and education are highly warranted. Moreover, organizational priority, role models, and self-efficacy are motivational components with the potential to empower HH compliance within this cohort. Particularly given 58% of the respondents believed HH was important for patients.

Figure 1: Survey questions in relation to the Theory of Planned Behavior. Q=Question.

Authors: Heidi Storm Vikke, Ph.D. student, MSc., RN^{1,2}. Svend Vittinghus, Paramedic². Martin Betzer, BSc, Paramedic² Matthias Giebner MSc, MD³. Hans Jørn Kolmos, Professor^{1,4}. Karen Smith, Adjunct Professor⁵. Maaret Castrén, Professor⁶. Veronica Lindström, Associate Professor, RN⁷. Marja Mäkinen, MD, PhD,⁶ Heini Harve, MD, PhD⁶.

Affiliations: ¹Dept. of Clinical Research, University of Southern Denmark. ²Falck Denmark A/S. ³A&E Department, Sygehus Sønderjylland, Denmark. ⁴Dept. of Clinical Microbiology, Odense University Hospital, Denmark. ⁵Ambulance Victoria, Adjunct Associate Professor. Discipline - Emergency Medicine, University Western Australia. Adjunct Senior Research Fellow - Department of Epidemiology and Preventive Medicine, Monash University. ⁶Helsinki University Hospital, Department of emergency medicine and services and Helsinki University, Helsinki, Finland. ⁷Karolinska Institutet, Department of Neurobiology, Care Sciences and Society, Division of Nursing & Academic EMS, Stockholm, Sweden. **Contact:** Heidi S. Vikke, e-mail: hevi@falck.dk