

Ref	Type	Language	Half sentence essential	1 sentence summary	Title	Keywords	Authors	link	DOI	PMID	Journal
Bansaghi 2018b	Poster	ENG	Hand hygiene technique should be monitored periodically, as it improved continuously during the first 20 days.	At the first time, only 16% of HCWs rubbed their hands properly. This pass rate grew continuously and reached 74% for the 20th occasion.	Effect of Periodic Monitoring and Feedback on Hand Hygiene Technique	HH technique improvements, HCW, follow-up	Bánsághi S., Lehotsky Á., Kalamár-Birinyi E., Szerémy P., Haidegger T.				
Bansaghi 2018a	Poster	ENG	Hand hygiene technique monitoring can be used efficiently to improve hand hygiene quality.	Only 28.4% of people passed on the first 4 days of the trial, while 81.1% passed in the last 4 days.	Hand Hygiene Quality Improvement Using an Innovative Digital Monitoring Program	HH technique improvements, HCW, follow-up	S. Bansaghi, A. Saiyed, N. Wallace, P. Szeremy, T. Haidegger				
Lehotsky 2018	Research article	HUN	53% HH quality improvement with school childrens after first use	Among primary school children's, after getting immediate feedback by the Semmelweis Scanner, total number of missed areas decreased from 6.06/person to 3.25/person and 2.68/person at the second and third measures, respectively.	[Direct Effect of Contemporary Health Education Programmes on the Knowledge About Hand Hygiene and Technique of Hand Washing in Primary School Age Children]	HH technique improvements, school, children	A. Lehotsky, A. Falus, A. Lukacs, A. R. Füzi, E. Gradwohl, S. D. Meszarosne, I. K. Biharine, K. Berta, A. Deak, J. H. Faith	https://akademai.com/doi/abs/10.1556/650.2018.31031	10.1556/650.2018.31031	29552923	Orvosi hetilap, 2018 Mar;159(12):485-490.
Nagy 2017	Conference abstract	ENG	Only 8% of HCWs were able to pass the very high 97% margin for success.	On the palmar side, only 7.83%, 13.54% and 20.81% of the participants managed to achieve sufficient coverage, according to the 97, 95 and 90% pass ratio, respectively. Setting a goal for perfect quality hand hygiene may be overambitious, and may make the HCW disappointed and undemotivated.	Identifying Optimal Pass–Fail Criterion for Hand Hygiene Technique	pass-fail criterion; success rate; hand hygiene quality	K. Nagy, A. Lehotsky, Sz. Bansaghi, T. Haidegger	https://aricjournal.biomedcentral.com/track/pdf/10.1186/s13756-017-0201-4	10.1186/s13756-017-0201-4		Antimicrobial Resistance and Infection Control 2017, 6(Suppl 3):P334
Lehotsky 2017a	Conference abstract	ENG	The flourescent trial is a reliable method for verifying individual hand hygiene technique. (In vivo study)	The flourescent trial is a reliable method for verifying individual hand hygiene technique. Regions on the hand treated sufficiently with the UV-dye containing hand rub are in fact disinfected; not developing colonies after a regular culturing.	Evidence-Based Hand Hygiene: Microbiological Validation of the Fluorescein Training	Fluorescent method; microbiological validation	A. Lehotsky, Sz. Bansaghi, P. Szeremy, L. Szilagy, Gy. Weber, T. Haidegger	https://aricjournal.biomedcentral.com/track/pdf/10.1186/s13756-017-0201-4	10.1186/s13756-017-0201-4		Antimicrobial Resistance and Infection Control 2017, 6(Suppl 3):P335
Lehotsky 2017b	Research article	ENG	The flourescent trial is a reliable method for verifying individual hand hygiene technique. (In vitro study)	The fluorescent method is a true and reliable indicator of correctly disinfected and pathogen-free areas on the hand surface; the in vitro method indicates correctly disinfected areas with 95.05% sensitivity and 98.01% specificity.	Towards Objective Hand Hygiene Technique Assessment: Validation of the Ultraviolet-Dye-Based Hand-Rubbing Quality Assessment Procedure	Fluorescent method; microbiological validation	A. Lehotsky, L. Szilágyi, S. Bánsághi, P. Szerémy, G. Wéber, T. Haidegger	http://www.journalofhospitalinfection.com/article/S0195-6701(17)30294-3/fulltext	10.1016/j.jhin.2017.05.022	28579470	The Journal of hospital infection, 2017 Sep;97(1):26-29.
Lehotsky 2017c	Research article	HUN	33% of HCWs disinfect their hands incorrectly, based on a nation-wide sample.	33% of healthcare workers disinfect their hands incorrectly, as averaged over 26 Hungarian hospitals. Feedback by the scanner has a fundamental role in the development of the hand hygiene technique.	[Hand Hygiene Technique Assessment Using Electronic Equipment in 26 Hungarian Healthcare Institutes]	wrong HH technique, moitoring, HCW	A. Lehotsky, J. Morvai, L. Szilágyi, S. Bánsághi, A. Benkó, T. Haidegger	http://akademai.com/doi/abs/10.1556/650.2017.30792	10.1556/650.2017.30792	28714331	Orvosi hetilap, 2017 Sep;97(1):26-29.
Zingg 2016	Research article	ENG	2 ml handrub is never enough to cover larger hands.	2 ml handrub is never enough to cover larger hands, and even medium-sized hands fail with 3 ml.	Hand Coverage by Alcohol-Based Handrub Varies: Volume and Hand Size Matter.	Hand coverage, hand size, ABHR volume	W. Zingg, T. Haidegger, D. Pittet	https://www.ncbi.nlm.nih.gov/pubmed/27566875	10.1016/j.ajic.2016.07.006	27566875	American Journal of Infection Control, 2016 Dec 1;44(12):1689-1691.
Lehotsky 2016a	Research article	ENG	38% of surgical studetns failed to perform acceptable hand rubbing.	Semmelweis Scanner was used within the frames of the Basic Surgical Techniques class offered to third-year Hungarian medical students. 38% of them failed to perform acceptable hand rubbing.	Education of Hand Rubbing Technique to Prospective Medical Staff, Employing UV-based Digital Imaging Technology.	wrong HH technique, medical students	A. Lehotsky, L. Szilágyi, A. Demeter-Iclánzan, T. Haidegger, G. Wéber	https://www.ncbi.nlm.nih.gov/pubmed/27352974	10.1556/03063.2016.206	27352974	Acta Microbiologica et Immunologica Hungarica, 2016 Jun;63(2):217-28.
Haidegger 2016	Poster	ENG	After traditional HH education, 20% still fails to properly hand rub	Every 5th HCW fails to completely cover their hands with handrub event after an educational session based on a multi-center Hungarian study.	In the Footprints of Semmelweis: A Multi-Institutional Study on the Efficacy of Hand Rubbing	wrong HH technique, HCW	T. Haidegger, A. Lehotsky, P. Rona, R. Pethes, P. Szeremy, L. Szilagy, Gy. Weber	http://www.aicjournal.org/article/S0196-6553(16)30087-6/fulltext	10.1016/j.ajic.2016.04.076		American Journal of Infection Control, 2016 June 2; 44, Issue 6, Supplement, Pages S72–S73
Lehotsky 2016b	Conference abstract	ENG	Repetitive training decreases HH errors by 60%	Repetitive practice with immediate objective feedback improves the effectiveness of hand hygiene; number of people making mistakes at all was reduced significantly, by 60%, based on a multi-center Hungarian-Austrian study	Conclusive Results of a Multi-Center Hand Hygiene Technique Assessment Study	Failure rate; HH technique improvement; few weeks period usage, HCW	A. Lehotsky, L. Szilagy, M. Langgartner, C. Lindtner, Gy. Weber, T. Haidegger	www.ijic.info/article/download/16158/10209			International Journal of Infection Control, Volume 12, Supplement 1
Lehotsky 2015a	Research article	ENG	Rate of inadequate hand rubbing reduced from 50% to 15% when immediate objective visual feedback	rate of inadequate hand rubbing reduced from 50% to 15% when immediate objective visual feedback was given to participants showing missed areas on their hands, based on a multi-center Hungarian trail.	Quantitative Impact of Direct, Personal Feedback on Hand Hygiene Technique	wrong HH technique, HH technique improvement, HCW	A. Lehotsky, L. Szilagy, T. Ferenci, L. Kovacs, R. Pethes, Gy. Weber, T. Haidegger	https://www.ncbi.nlm.nih.gov/pubmed/26136103	10.1016/j.jhin.2015.05.010	26136103	The Journal of hospital infection, 2015 Sep;91(1):81-4.
Lehotsky 2015b	Conference abstract	ENG	Error rate dropped by 73% after 5th use of the scanner.	Direct feedback by the Semmelweis System supports correcting wrong practices and eliminating errorneous habits; baseline value 1.5 of average number of mistakes dropped to 0.35 after five hand rubbing events, based on Hungarian data.	The Role of Direct Feedback in Improving Handhygiene Technique	wrong HH technique, HH technique improvement, HCW	A. Lehotsky, L. Szilagy, Gy. Weber, P. Rona, R. Pethes, P. Szeremy, T. Haidegger	https://aricjournal.biomedcentral.com/articles/10.1186/2047-2994-4-S1-P288	10.1186/2047-2994-4-S1-P288		Antimicrobial Resistance & Infection Control, Volume 4 Supplement 1:P288

Haidegger 2015	Conference abstract	ENG	The current landscape of digital HH monitoring devices.	Overview of main technological directions, systems and concepts for hand sanitization and hand disinfecting monitoring.	Information Technology Tools Employed in Infection Control	technological solutions, hand hygiene control	T. Haidegger, V. Varga, A. Lehotsky, P. Rona, R. Pethes, P. Szeremy, L. Szilagyi, T. Ferenci, L. Kovacs	http://ieeexplore.ieee.org/document/7382946/	10.1109/CIN TI.2015.7382946		16th IEEE International Symposium on Computational Intelligence and Informatics (CINTI), 2015
Szilagyi 2013	Research article	ENG	28% of staff fails objective assessment right after traditional training	28% of staff fails objective assessment after traditional training, based on a large, single-site Singapore trial. Female nurses with significant experience perform the best. Nurses outperform MDs.	A Large-Scale Assessment of Hand Hygiene Quality and the Effectiveness of the "WHO 6-steps"	wrong HH technique, HCW	L. Szilagyi, T. Haidegger, A. Lehotsky, M. Nagy, E.-A. Csonka, X. Sun, K. L. Ooi, D. Fisher	https://www.ncbi.nlm.nih.gov/pubmed/23718728	10.1186/1471-2334-13-249	23718728	BMC Infectious Diseases, 2013 May 30;13:249.
Lehotsky 2013	Poster	ENG	63.8% of MD students failed as HH quality test.	67%, 64.5% and 60% of medical students passed hand hygiene quality cheky by the scanner in different Hungarian sites. Failed students were redirected for education, giving them a chance to acquire a better hand hygiene practice.	Early Adopters of a Hand Hygiene Control System	wrong HH technique, medical students	A. Lehotsky, M. Nagy, P. Rona, L. Szilagyi, Gy. Weber, T. Haidegger	https://aricjournal.biomedcentral.com/articles/supplements/volume-2-supplement-1			Antimicrobial Resistance & Infection Control, Volume 2 Supplement 1: O43
Szilagyi 2012	Conference abstract	ENG	Engineering principles of our technology.	We can obtain objective, measurable and scalable data on hand disinfection quality	Technology Supporting Hand Hygiene Control – Heritage of Semmelweis	image processing, Semmelweis Scanner	L. Szilagyi, A. Lehotsky, M. Nagy, E.-A. Csonka & T. Haidegger				
Haidegger 2012	Research article	GER	Initial concept of the technology	The system has breakthrough potential in the field of hand hygiene control	[STERY-HAND – A milestone in automated hand hygiene monitoring and control]	Semmelweis Scanner	T. Haidegger & K. Özer				
Lehotsky 2012	Research article	ENG	Initial concept of the technology	24% of the subjects failed to correctly repeat the WHO 6-step protocol properly, even right after an education and teaching session.	Objective Hand Hygiene Assessment	wrong HH technique	A. Lehotsky, M. Nagy, L. Szilagyi, P. Rona, T. Haidegger				Bulletin of National Center for Epidemiology, vol. pp. 1-4, Sept 2012
Nagy 2011	Research article	ENG	Image processing principles of our technology.	The performance of the system was evaluated on a large set of different images, leading to an overall accuracy of 98%.	An image-guided tool to prevent hospital acquired infections	image processing, Semmelweis Scanner	M. Nagy, L. Szilagyi, A. Lehotsky, T. Haidegger, B. Benyó	http://spie.org/Publications/Proceedings/Paper/10.1117/12.878444	10.1117/12.878444		SPIE 7962, Medical Imaging 2011: Image Processing, 79623Z
Haidegger 2011a	Research article	ENG	Image processing principles of our technology.	The device can give objective feedback to develop and maintain proper hand disinfection practice; were able to identify the hand boundaries correctly in 99.2% of the cases.	Digital Imaging for the Education of Proper Surgical Hand Disinfection.	image processing, Semmelweis Scanner	T. Haidegger, M. Nagy, A. Lehotsky, L. Szilagyi	https://www.ncbi.nlm.nih.gov/pubmed/22003751		22003751	Medical image computing and computer-assisted intervention, MICCAI International Conference, 2011;14(Pt 3):619-26.
Haidegger 2011b	Conference abstract	ENG	Initial concept of the technology	The scanner was tested in the clinical environment on over a hundred people in three countries.	An Innovative Device for Objective Hand Disinfection Control	Semmelweis Scanner, technology	T. Haidegger, M. Nagy, A. Lehotsky, L. Szilagyi	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3239509/	10.1186/1753-6561-5-S6-O91		BioMed Central Proceedings, 2011; 5(Suppl 6): O91.
Szilagyi 2010	Conference abstract	ENG	Engineering principles of our technology.	First description of the scanner: the main advantage is the ability to obtain objective and comparable result on the quality of hand disinfection.	Stery-Hand: A New Device to Support Hand Disinfection.	image processing, Semmelweis Scanner	L. Szilagyi, A. Lehotsky, M. Nagy, T. Haidegger, B. Benyó, Z. Benyó	https://www.ncbi.nlm.nih.gov/pubmed/21096021	10.1109/IE MBS.2010.5626377	21096021	Conference proceedings: Annual International Conference of the IEEE Engineering in Medicine and Biology Society. 2010;2010:4756-9.