the frequency and route of transfer of each of the surrogate markers to the second mannequin or to the surrounding environment. **Results**: As shown in Fig. 1, wearing gloves alone or gloves plus gowns significantly reduced transfer of each of the surrogate markers by the hands of participants ($P < .05$ for each marker). However, wearing gloves or gloves plus gowns only modestly reduced transfer by stethoscopes despite cleaning of stethoscopes between exams by approximately half of the participants. Contamination of the clothing of participants was significantly reduced in the glove plus gown group versus the gloves only or no-barriers groups ($P < .05$). **Conclusion:** Barrier precautions are effective in reducing hand transfer of pathogens from patient to patient, but transfer may still occur via devices such as stethoscopes. Cover gowns reduce the risk for contamination of the clothing of personnel.

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Validation of a Semiautomated Surveillance Algorithm for Deep Surgical Site Infections After Primary Hip or Knee Arthroplasty

Janneke Verberk, Department of Medical Microbiology and Infection Prevention, University Medical Center Utrecht, Utrecht, The Netherlands; Stephanie van Rooden, Julius Centre for Health Sciences and Primary Care, University Medical Centre Utrecht, Utrecht, The Netherlands; Mayke Koek, Department of Epidemiology and Surveillance, Centre for Infectious Diseases Control, National Institute of Public Health and the Environment, Bilthoven, The Netherlands; Titia Hopmans, Department of Epidemiology and Surveillance, Centre for Infectious Diseases Control, National Institute of Public Health and the Environment, Bilthoven, The Netherlands; Marc Bonten, Department of Medical Microbiology and Infection Prevention, University Medical Centre Utrecht, Utrecht, The Netherlands; Sabine de Greeff, Department of Epidemiology and Surveillance, Centre for Infectious Diseases Control, National Institute of Public Health and the Environment, Bilthoven, The Netherlands; Maaike van Mourik, University Medical Center Utrecht

Background: Surgical site infections (SSIs) complicate ~2% of primary total hip (THAs) or total knee arthroplasties (TKAs). Accurate and timely identification through surveillance is essential for targeted implementation and monitoring of preventive interventions. Electronic health records (EHR) facilitate (semi)-automated surveillance and enable upscaling. A validated algorithm is a prerequisite for broader implementation of semiautomated surveillance. **Objectives:** To validate a previously published algorithm for semiautomated surveillance of deep SSI after THA or TKA in 4 independent regional Dutch hospitals. The algorithm was developed and implemented in the University Medical Centre Utrecht and relies on retrospective routine care data. **Methods:** For this multicenter retrospective cohort study, the following data required for the algorithm were extracted from the EHR from all patients under THA and TKA surveillance: microbiology results, antibiotics, (re)admissions, and surgical procedures within the 120 days following the primary surgery. Patients were retrospectively classified with a low or high probability of having developed a deep SSI after THA or TKA, according to the algorithm. Sensitivity, positive predictive value (PPV), and workload reduction (defined as the proportion of manuals requiring review) were calculated compared to the traditional (manual) surveillance results, as reported to the national surveillance PREZIES. Discrepancy analyses were performed to understand algorithm results. **Results:** Data from 8,378 total THA and TKA surgeries (deep SSI n = 95, 1.1%) performed between 2012 and 2018 were extracted by 4 hospitals (Table 1). Sensitivity ranged across centers from 93.6% to 100%, with a PPV from 55.8% to 72.2%. In all hospitals, the algorithm resulted in >98% workload reduction. Cases missed by the algorithm could be explained by incomplete data extraction. **Conclusions:** This study shows that the surveillance algorithm performance is good in general Dutch hospitals. Broader implementation of this semiautomated surveillance for SSIs after THA or TKA may be possible in the near future and will result in a substantial workload reduction.

Table 1.

Table 1. Overview of Surveillance Data and Algorithm Performance per Hospital

	Time period	Number of THA/TKA surgeries	Deep SSI reference data, %	Sensitivity, % (95%CI)	PPV, % (95%CI)	Workload reduction, %
Hospital 1	2012-2015	2,395	26 (1.1%)	100.0 (86.8-100)	72.2 (54.8-85.8)	98.5
Hospital 2	2015-2016	1,601	23 (1.4%)	95.7 (78.0-99.9)	68.8 (40.0-83.3)	98.0
Hospital 3	2017-2018	1,029	15 (1.5%)	100.0 (78.2-100.0)	57.7 (36.9-76.7)	98.5
Hospital 4	2012-2017	3,353	31 (0.9%)	93.6 (78.6-99.2)	55.8 (41.3-69.5)	98.4

Abbreviations: THA=Total Hip Arthroplasty; TKA=Total Knee Arthroplasty; SSI=Surgical Site Infection; PPV=Positive Predictive Value, 95%CI= 95% Confidence Interval.

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Water Management and Monitoring Practices in Hospitals—United States, 2018

Matthew J. Stuckey, Centers for Disease Control and Prevention; Matthew Arduino, Centers for Disease Control and Prevention; Chris Edens, Centers for Disease Control and Prevention; Margaret NA Dudeck, Centers for Disease Control and Prevention; Daniel Pollock, Centers for Disease Control and Prevention; Ryan Fagan, Centers for Disease Control and Prevention

Background: Water management programs (WMPs) are needed to minimize the growth and transmission of opportunistic pathogens in healthcare facility water systems. In 2017, the Centers for Medicare & Medicaid Service (CMS) began requiring that certified hospitals in the United States have water management policies and procedures; in response, the National Healthcare Safety Network (NHSN) Annual Hospital Survey included new, voluntary questions on practices regarding water management and monitoring. Of 4,929 hospitals surveyed in 2017, 3,821 (77.5%) reported having a WMP. Of these 3,821 facilities, 86.9% reported regular monitoring of water temperature; 66.2% monitored disinfectant (eg,