

Results Among 4,773 workers ever exposed to TFE, we found lower SMRs from most causes of death and increased SMRs for cancer of the liver (SMR 1.27; 95% CI: 0.55, 2.51; 8 deaths) and kidney (SMR 1.44; 95% CI: 0.69, 2.65; 10 deaths), and for leukaemia (SMR 1.48; 95% CI: 0.77, 2.59; 12 deaths). A non-significant upward trend ($P = 0.24$) by cumulative exposure to TFE was observed for liver cancer. TFE and APFO exposures were highly correlated, therefore their separate effects could not be disentangled.

Conclusions The pattern of findings in this large study substantially narrows the range of uncertainty on the possible cancer risk entailed by working in TFE synthesis and polymerisation, and justifies continuing efforts to minimise exposure, which has already dropped considerably over the years. However, the findings could neither conclusively confirm nor refute the hypothesis that TFE poses a carcinogenic risk to human beings. If a cancer hazard exists, then the risk is small, even in workers with relatively high exposure.

285 NASAL MRSA CARRIAGE IN FARMERS STRONGLY ASSOCIATED WITH MRSA AIR LEVELS

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Objectives MRSA carriage prevalence is as high as 60% in livestock farmers in the Netherlands. Human carriage was associated with carriage in animals. However, animal-to-human transmission and especially airborne exposure are poorly studied. We determined MRSA air levels and a possible dose-response relationship with nasal MRSA carriage in farmers.

Methods Human MRSA carriage and stable MRSA air levels were assessed in three independent populations of 38 assumed frontrunner pig farms (A), 50 random pig farms (B), and 49 veal calf farms (C). Farmers were identified as human participants spending on average ≥ 20 hours/week working on the farm. Per farm 1–6 electrostatic dust collectors (EDCs) were placed. Nasal swabs were taken from farmers and analysed for presence of MRSA by culturing and PCR. EDCs were analysed by qPCR, which resulted in an equivalent of the number of colony forming units (CFUeq) per EDC.

Results Mean MRSA air levels were lowest on veal farms and highest on pig farms. Generally, the average MRSA air levels corroborated with the MRSA nasal carriage prevalence in the three populations. Mean MRSA/EDC/farm for population A was 225 CFUeq (95%CI: 170–281); for population B it was 385 CFUeq (95%CI: 239–530), and for population C it was 59 CFUeq (95%CI: 26–93). Nasal MRSA carriage prevalences were 53% for population A, 72% for population B, and 31% for population C. Working hours ranged from 20–80 hours/week, with means of 48, 46, and 39 hours for population A, B, and C, respectively.

In a multivariate pooled analysis, a strong association between MRSA carriage and the mean MRSA concentration (expressed as log (MRSA)/EDCs/farm) was shown ($RR = 1.37$; $p = 0.0008$), independent of the association with working hours ($RR = 1.01$; $p = 0.03$) and adjusted for age, sex and smoking.

Conclusions Results suggest an important role of MRSA transmission through air, which has not been established earlier.

286 REDUCED HEALTHCARE-ASSOCIATED INFECTIONS FOLLOWING A UK WIDE CAMPAIGN PROMOTING HAND WASHING COINCIDED WITH INCREASED IN CONTACT DERMATITIS IN HEALTHCARE WORKERS

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Objectives Over the past decade there has been increasing concern among the public and government about high rates of healthcare associated infections and low levels of hand hygiene compliance. In response the “Cleanyourhands” campaign was rolled out from 2004 in all acute NHS hospital trusts. A national level evaluation of this intervention found a substantial increase in the use of hand cleaning products in acute trusts between 2004 and 2008, which was associated with a reduction in meticillin resistant *S aureus* and *C difficile* infections¹. This study aims to compare the increased usage of hand hygiene products¹ in acute NHS trusts with changes in the incidence of CD attributed to hand washing in healthcare workers.

Methods Reports of occupational CD to a surveillance scheme by dermatologists and occupational physicians (OPs) were analysed, using a prospective interrupted time series design with time periods matching those used in the evaluation of the “Cleanyourhands” intervention¹. Comparisons were made between reports attributed to frequent hand washing and other causal agents, to mitigate bias arising from the voluntary nature of the reporting scheme.

Results The incidence of CD attributed to hand washing was significantly increased relative to all other causes in healthcare workers following the “Cleanyourhands” campaign (statistical interaction; 95% CIs: dermatologists 2.19; 1.62 - 2.96, OPs 2.44; 1.15 - 5.18). The increase reported by dermatologists was predominantly irritant CD (2.58; 1.74 - 3.81) rather than allergic CD (1.04; 0.38 - 2.84).

Conclusion The increase in irritant CD reported by dermatologists, and all CD by OPs, is consistent with the increase in use of hand cleaning agents following the “Cleanyourhands” campaign. Attention should be paid to the adverse effects of frequent hand washing as well as prevention of infections.

¹Stone *et al* BMJ 2012;344:e3005 doi: 10.1136/oemed-2013-101717.333

287 OCCUPATIONAL EXPOSURES AND AMYOTROPHIC LATERAL SCLEROSIS MORTALITY IN A LARGE PROSPECTIVE COHORT

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Objectives This study aims to study multiple occupational exposures and their possible associations with Amyotrophic Lateral Sclerosis (ALS) mortality within the Netherlands Cohort Study (NLCS).

Methods For this case-cohort analysis, 120,852 persons aged 55 to 69 years at time of enrollment in 1986 were followed up