Definition of urinary tract infection in nursing homes

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Table I
Effect of air disinfection (AD) unit on microbial air contamination in a vascular wound outpatient clinic

Sample day	Mean TVC ± SD (range)	Mean cfu/L ± SD (range)
Baseline/preliminary sampling		
1	20 ± 33 (0–140)	148 ± 228 (156–770)
2	17 ± 29 (0–95)	284 ± 718 (102–2518)
3	16 ± 25 (0–95)	517 ± 958 (140–2518)
4	11 ± 19 (0–71)	285 ± 718 (102–2518)
Without AD unit		
5	28 ± 37 (0–150)	319 ± 708 (300–2518)
6	11 ± 19 (0–71)	300 ± 712 (102–2518)
7	17 ± 26 (0–100)	503 ± 949 (300–2518)
8	16 ± 33 (0–140)	544 ± 945 (140–2518)
With AD unit		
9	12 ± 19 (0–71)	300 ± 712 (102–2518)
10	11 ± 18 (0–68)	302 ± 711 (170–2518)
11	11 ± 20 (0–66)	332 ± 714 (298–2518)
12	16 ± 27 (0–95)	477 ± 958 (140–2518)

TVC, total viable counts; cfu/L, colony-forming units per L (value corrected according air sampler manufacturer's table).

Conflict of interest statement
H.H. has had recent research collaborations with Steris Corporation, 3M, Inov8 Science, Pfizer and Cepheid. He has also recently received lecture and other fees from 3M, Novartis and Astellas.

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Madam,

We have read the article by Eikelenboom-Boskamp *et al.* with great interest.[1]

Publications of prevalence rates of infections in long term care facilities are very important, especially if they report longitudinal data. There is, however, one methodological issue that needs attention. Eikelenboom-Boskamp *et al.* state that the definition of urinary tract infection (UTI) employed was based on the UTI guideline by the Dutch Association of Elderly Care Physicians, whereas the guideline's definition is different from that used by the authors.[2]

The guideline states that there must be: (i) symptoms or signs (related directly to the urinary tract or aspecific symptoms); (ii) bacteriuria; and (iii) some sign of inflammation.

The definition used in the study by Eikelenboom-Boskamp *et al.* used the following definition:

> 1. No other recognised cause and antibiotics commenced (unless antibiotics are not desirable, e.g. a terminally ill resident) and physician diagnosis of a urinary tract infection in resident with signs or symptoms (with or without an indwelling urinary catheter) and positive dipstick for leucocyte esterase and/or nitrate. 2. In the absence of signs or symptoms: positive dipstick for leucocyte esterase and/or nitrate or positive urine culture.

The estimated prevalence may therefore have been too high, because of the bias of asymptomatic bacteriuria. We would like to stress the importance of using a definition in which symptoms, bacteriuria and signs of infection are incorporated, in order to reduce the use of antibiotics for asymptomatic bacteriuria.

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Dissemination of extended-spectrum β-lactamase-producing *Escherichia coli* at home: a potential occupational hazard for healthcare workers?

Madam,

Extended-spectrum β-lactamases (ESBLs) in Gram-negative pathogens are increasingly prevalent in Ireland.[1] They present significant therapeutic and infection control challenges. While much of the literature has focused on the dissemination of ESBL-producing organisms to patients in different clinical and epidemiological settings, several reports have also investigated the transmission of such strains among household members of patients carrying them.[2,3] However, the potential risk of occupational exposure of healthcare workers to ESBL-producing bacteria and of onward transmission to household contacts has not received significant attention. We report a case of ESBL-producing *E. coli* bloodstream infection in a healthcare worker associated with subsequent isolation of an indistinguishable strain from one causing a urinary tract infection in his spouse.

A 61-year-old medical doctor practising in a tertiary care hospital was admitted to hospital for investigation of jaundice and weight loss. Endoscopic retrograde cholangiopancreatography was performed and within hours the patient developed pyrexia and rigors. There was no recent history of hospitalization or antimicrobial chemotherapy. A clinical diagnosis of ascending cholangitis was made and he was commenced on intravenous piperacillin-tazobactam 4.5 g three times daily. Blood cultures yielded a pure growth of *E. coli*. The results of antimicrobial susceptibility testing with the Vitek-2 automated susceptibility test system (bioMérieux, Basingstoke, Hampshire, UK) are as shown in Table I. On day 4, in view of slow clinical progress and susceptibility test results of the *E. coli* bloodstream isolate, treatment was changed to meropenem 1 g three times daily. He received meropenem for 10 days, and was discharged following prompt resolution of pyrexia and an uneventful recovery.

Six weeks later, the 59-year-old spouse of the healthcare professional (a non-healthcare worker) presented to the same hospital with clinical features of acute pyelonephritis against a background history of chronic pelvo-ureteric junction obstruction. She informed the team of her husband's recent medical history. The admitting medical team commenced her on piperacillin—tazobactam 4.5 g three times daily pending further investigations. With no clinical improvement after 48 h, treatment was empirically changed to intravenous meropenem 1 g three times daily on the advice of the clinical microbiologist. A renal ultrasound investigation revealed gross hydronephrosis of the right kidney. A percutaneously inserted nephrostomy tube drained 20 mL of pus, which yielded a pure growth of *E. coli* with an antibiogram indistinguishable from

Table I
Antimicrobial susceptibility, beta-lactamase and plasmid profiles of the *Escherichia coli* strains of the two patients

Antimicrobial susceptibility, beta-lactamase and plasmid profiles	*E. coli* of index patient	*E. coli* of index patient's spouse
Source	Blood	Intra-renal pus
MICs (mg/L) of antimicrobial agents		
Amoxicillin	≥32	≥32
Amoxicillin—clavulanic acid	≥32[a]	≥32[a]
Piperacillin	≥128	≥128
Piperacillin—tazobactam	32[b]	16[b]
Cefotaxime	≥64	≥64
Ceftazidime	16	8
Meropenem	≤0.25	≤0.25
Gentamicin	≥16	≥16
Amikacin	16	16
Tobramycin	≥16	≥16
Ciprofloxacin	≥4	≥4
Trimethoprim—sulfamethoxazole	≥320[c]	≥320[c]
β-Lactamases	CTX-M-15, TEM-1, OXA-1	CTX-M-15, TEM-1, OXA-1
Plasmid profiles (kb)	2.6, 4, 60, 100	2.6, 4, 60, 100

MICs, minimal inhibitory concentrations.
[a] Amoxicillin component.
[b] Piperacillin component.
[c] Sulfamethoxazole component.