cited because of space limitations but were referred to in a review [11] that was cited. These data reveal important insights into the mechanisms underlying the human immune response to *Cryptosporidium* species.

White et al. [1] also point out that nitazoxanide recently received approval from the US Food and Drug Administration (after the submission of our review) for the treatment of cryptosporidiosis and giardiasis in children [12].

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Persistence of a Methicillin-Resistant *Staphylococcus aureus* Clone in a Drug-Use Network

Sir—The study by Quagliarello et al. [1] has shown links between geographic location, drug-sharing activities, and the transmission of staphylococci among users of injection drugs. Patterns of drug use, use of inhalation paraphernalia, and affiliation with 1 of 4 drug-use networks were identified as major contributors to the transfer of staphylococci in a nonoutbreak setting. The usefulness of a multifactorial approach in combining biological networks, social linkages, and molecular epidemiological techniques was thereby demonstrated.

In a previous study, we identified disability and prior hospitalization in a hospice as risk factors for methicillin-resistant *Staphylococcus aureus* (MRSA) carriage among drug users during the epidemic spread of a single MRSA clone [2]. Prevalence of MRSA colonization among hospice residents was 12.5% in 1998 and 23.3% in 1999. All MRSA isolates had an identical banding pattern by PFGE. Since that time, this clone has become endemic among injection drug users in Zurich. In order to assess the magnitude of the problem, in November 2001 we conducted a follow-up point-prevalence survey of nasal colonization by MRSA at the same hospice and drug dispensary in Zurich that we had studied previously.

We obtained nasal swab samples from 53 patients (22 inpatients and 31 outpatients) and 18 health care workers at the hospice. All participants gave verbal consent to this investigation prior to sampling. Microbiological studies and molecular genotyping were performed as described previously [2]. The same standard questionnaire that we used in our previous study [2] was used to collect information on socioeconomic factors, type and frequency of drug use, type of interaction with other injection drug users, living conditions, and history of hospitalization during the preceding 6 months. Additionally, we determined whether individuals had a history of MRSA colonization. The use of antibiotics during the 7 days prior to the survey and the presence of acute or chronic skin wounds were assessed as well.

Although the 2 study periods are 2 years apart, we found no significant difference in the prevalence rates of MRSA colonization (table 1). The mean age of the patients decreased from 36.4 years to 25.4 years. The percentage of men decreased from 65% in 1999 to 49% in 2001. Table 1 summarizes the results of screening for colonization with methicillin-susceptible *Staphylococcus aureus* (MSSA) and MRSA for each of the 2 study periods. The proportion of patients colonized with MSSA decreased markedly. This decrease was significant among outpatients ($P = .01$). On the other hand, the prevalence of colonization with MSSA and MRSA increased among the screened health care workers.

Within the 7 days preceding the sampling day in 2001, 22.7% of the patients had received antibiotics. The use of antibiotics was not significantly associated with colonization by MRSA ($P = .47$) or MSSA ($P = .27$) in univariate analysis. No significant relationship was found between drug consumption in a group setting and colonization with MRSA ($P = .27$) or MSSA ($P = .48$), although 41.5% of the drug users usually consumed drugs in a group setting. On the other hand, there

Table 1. Rates of methicillin-resistant *Staphylococcus aureus* (MRSA) and methicillin-susceptible *S. aureus* (MSSA) colonization among subjects screened in 1999 and 2001 in a Zurich hospice frequented by injection drug users.

Subject group	1999 (n = 74)	2001 (n = 71)	P
Hospice patients			
Total no. screened	50	53	…
With MSSA	22/50 (44)	11/53 (20.7)	.08
With MRSA	9/50 (18)	10/53 (18.9)	.92
Inpatients			
Total no. screened	30	22	…
With MSSA	8/30 (26.6)	5/22 (22.7)	1.0[a]
With MRSA	7/30 (23.3)	9/22 (40.3)	.39
Outpatients			
Total no. screened	20	31	…
With MSSA	14/20 (70)	6/31 (19.3)	.01
With MRSA	2/20 (10)	1/31 (3.2)	.56[a]
Health care workers			
Total no. screened	24	18	…
With MSSA	0/24 (0)	3/18 (16.7)	.07[a]
With MRSA	0/24 (0)	3/18 (16.7)	.09
Total no. with MSSA	22/74 (29.7)	14/71 (19.7)	.29
Total no. with MRSA[b]	9/74 (12.2)	13/71 (18.3)	.42

NOTE. Data are expressed as no. (%) of subjects screened who had infection, except as noted.

[a] Determined using Fishers 2-t.

[b] The clone of MRSA found in all positive samples obtained in 2001 as was the same as that found in all positive samples obtained in 1999 [2].

was a significant correlation between prior hospital stay and colonization with MSSA ($P = .03$), but not between prior hospital stay and colonization with MRSA ($P = 1.0$). Fresh skin wounds were present in 30.2% of screened patients, and chronic wounds were present in 13.2%. No significant association was found between the presence of acute or chronic wounds and colonization with MRSA ($P = .49$) or MSSA ($P = .17$).

Our follow-up survey documents stable endemicity of MRSA colonization among outpatients and residents of a hospice in downtown Zurich. This situation may have implications for other health care institutions, as the endemic clone might spread beyond the drug community into hospitals and other health care institutions [3]. The detection of MRSA colonization among health care workers at the hospice is probably a result of the difficulty of enforcing adequate infection control measures in this particular setting. Our study expands on the findings of Quagliarello et al. [1] regarding the importance of the geographic setting and the influence of social networks. Much like the crack house identified by Quagliarello et al. [1] as the epicenter of the biological networks in their study, the hospice investigated in our study plays an important role in transmission and propagation of MRSA colonization. Unlike the crack house, the hospice is accessible to infection control interventions. Such interventions were attempted, but without success, as illustrated by the persistently high colonization rate and the discovery of MRSA colonization among health care workers. Furthermore, our follow-up prevalence survey, conducted >2 years after the 1999 survey, demonstrates that, once introduced into a network of drug users, a single MRSA clone may persist over a prolonged time period. We agree with Quagliarello et al. [2] that there are many linkages between groups of drug users. To develop a successful strategy against the spread of MRSA among drug users and into other population groups in the community, it will be important to conduct additional studies of the dynamics of social networks among drug users.

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Reply

Sir—We agree with Colombo et al. [1] that a multifactorial approach that combines biological and social-network methodologies with molecular epidemiology is