agents trapped inside materials left in the devices. Compared with high-level disinfection, sterilization gives a greater assurance that difficult-to-clean devices have been rendered safe for reuse when contaminants escape precleaning, and would be especially beneficial to immunocompromised patients.

With regard to Muscarella's various criticizes of technical aspects of our article, it should be noted that experiments were carried out in conjunction with studies of dental impression materials, which (unlike lubricants) quickly and completely inactivated HIV (ref. 5). Two percent glutaraldehyde was formulated by diluting a reagent grade concentrate, and by preparing a commercial product (Cidex) according to label instructions. Samples containing microorganisms more resistant than HIV to inactivation (*S. aureus, S. faecalis, P. aeruginosa, C. tropicalis*) served as controls for glutaraldehyde potency. Additionally, blood samples instantly turned brown whenever breaks in the lubricant layer allowed contact with glutaraldehyde, which occurred during preparation in ca. 5% of the samples; all discolored samples cultured negative for HIV. Trapped inside lubricants, blood remained bright red, showing that the germicide could not diffuse to it within the two-hour soak.

In dentistry, occasional patient-to-patient infections are virtually impossible to track. The circumstances needed to document an isolated case of endoscope-related infection, and the probability of those circumstances being present when infection occurs have not been assessed. In a follow-up study of possible endoscope transmissions reported by patients, it is noteworthy that medical facility personnel were aware of the incidents, but did not investigate or report them[6]. Therefore, the argument for the lack of documented cases appears to be specious.

(The authors have no vested interest in any commercial products. D.L.L., who lectures widely on the topic, always has all consulting and expert witness fees and honoraria donated directly to charity.)

DAVID L. LEWIS
Institute of Ecology
University of Georgia
Athens, Georgia 30602, USA

MAX ARENS
Department of Pediatrics
Washington University School of Medicine
St. Louis, Missouri 63110, USA

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We say 'xeno', you say 'ξενος'

To the editor — In an editorial accompanying a group of recent reviews of xenotransplantation, the author provides a translation of the prefix 'xeno' to mean 'strange'. While 'strange' or foreign' may be acceptable translations, the original meaning of the word may be more apropos to its contemporary use. In ancient Greece, a 'ξενος' was literally a guest-friend, a visitor who was entitled to all rights of hospitality. The host was obliged to treat his or her ξενος with respect and deference. Indeed, in Homer's Odyssey, it is not the Cyclop's gruesome visage that identifies him as a savage, but rather his decidedly barbarous treatment of his ξενος Odysseus. Later, ξενος came to refer also to the host in the relationship, much as the Latin *hospes*.

In the early years of xenotransplantation, disastrous results followed the attempted introduction of foreign organs into human hosts. With an ever-increasing understanding of the relevant immunopathology of this complex process, it is clear that these 'guest' organs must be treated with a great deal of consideration if the relationship is to be a successful one. Thus, 'xenotransplantation' may be a particularly appropriate moniker for this type of transplantation.

ARTHUR KAVANAUGH
The University of Texas
Southwestern Medical Center at Dallas
5323 Harry Hines Boulevard
Dallas, Texas 75235-8577, USA

Cholinergic symptoms and Gulf War syndrome

To the editor — In the October issue of *Nature Medicine*, Soreq and colleagues describe a patient who is a homozygous carrier of atypical butyrylcholinesterase (BuChE), who reported unspecific symptoms during the Persian Gulf War after prophylactic treatment with pyridostigmine[1]. Their contention is that the low inactivation rate constant of BuChE by pyridostigmine, as found in this genetic variant, hampers the scavenger function of the plasma enzyme. Consequently, this genetic defect predisposed the patient to overdosage and to toxic cholinergic effects of pyridostigmine.

Effective blood concentrations of pyridostigmine in myasthenic patients after oral administration (≥ 60 mg) are 2–4 × 10^{-7} M, with a half-life of 3.7 hours[2]. The second-order inactivation rate constants of blood BuChE and AChE by pyridostigmine were determined at room temperature. Using a factor of 0.3 to account for differences between, say, 23 °C and 37 °C, little inhibition of BuChE is expected to occur *in vivo* after that dose of pyridostigmine, because the blood concentration would correspond to about one-half I_{50} for BuChE (37 °C, pH 7.4, 4 hours). Higher blood concentrations, in the order of 10^{-6} M, will affect all BuChE binding sites but will still not be significantly reduced, because enzyme concentration (about 4 × 10^{-8} M) would be less than 10% of that of pyridostigmine. Probably, soldiers had low blood concentrations of pyridostigmine when given 30-mg tablets every eight hours. Therefore, atypical BuChE, with lower affinity for pyridostigmine, may not have critically influenced the availability of the drug at toxicity target.

Many proteins in the human body interact with carbamate and organophosphate inhibitors (unspecific binding and hydrolysis)[3], but their relative relevance