similar in some respects to those observed in the CAN-ICU study.[5] However, some differences are important to note, such as a higher prevalence of MRSA among *S. aureus* isolates. These observations emphasize the importance of continuing local surveillance even when national data are available.[6] We encourage surveillance of common bacteria and their antimicrobial resistance patterns in all ICUs. The choice of empirical antibiotic therapy in our ICU should be based on local microbiologic findings rather than on the data provided by the CAN-ICU study.

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Comparison of Methods of Measuring Pharmacy Sales of Antibiotics without Prescriptions in Pratumthani, Thailand

To the Editor—It is well recognized that the sale of antibiotics without prescription at pharmacies, together with the use of antibiotics in animal husbandry, has contributed to antimicrobial resistance in developing countries.[1-3] Several studies have revealed high incidence of inappropriate dispensing of antibiotics at pharmacies without prescription by means of either mock-patient presentations[4-8] or structured interviews of pharmacy personnel.[9-10] To compare the methods of evaluating sales of antibiotics at pharmacies without prescription, we compared mock-patient presentations with structured interviews at the same pharmacies in Pratumthami, Thailand.

Pratumthani is situated in central Thailand, occupying an area of 1,525 km² divided into 7 administrative health districts. As of July 2006, there were 315 first-class, pharmacy-based drugstores. First-class drugstores are permitted to dispense antibiotics and have registered pharmacists or physicians on duty who can dispense drugs without prescription. Pharmacists on duty advise patients presenting with illnesses and may recommend further evaluation by a physician.

From July 1 through December 31, 2006, we trained 6 internists as mock patients who pretended to have a friend with 1 of 5 common syndromic illnesses: (1) acute low-grade fever, cough, and sore throat (mimicking acute viral pharyngitis; antibiotic treatment inappropriate); (2) acute fever, myalgia, rhinorrhea, and cough (mimicking influenza; antibiotic treatment inappropriate); (3) acute fever, tender maxillary sinus with nonpurulent discharge (mimicking acute viral sinusitis; antibiotic treatment inappropriate); (4) acute watery diarrhea without fever, mucus, bloody stool, or abdominal pain (mimicking acute viral gastroenteritis; antibiotic treatment inappropriate); and (5) skin abrasion without exudates (mimicking noninfected skin abrasion; antibiotic treatment inappropriate).[5] Each internist or pair of internists was responsible for only 1 of the 5 syndromic presentations, visited all 315 pharmacies, and completed a standardized data collection form after each pharmacy encounter. Soon after the internist left the index pharmacy, another internist visited the pharmacy and used a structured data collection tool to interview the pharmacist who prescribed the antibiotic to the index internist. Data on antibiotics prescribed and on duration of treatment prescribed were compared between the 2 methods.

TABLE   Rationales Given by Pharmacies for Dispensing Antibiotics and Their Implications

Rationales[a]	Implications
"Your friend might have bacterial coinfection"	Fear of untoward clinical outcomes
"Your friend may have an untoward clinical outcome, if not taking antibiotic"	Fear of untoward clinical outcomes
"Your friend will only get better from this condition with antibiotic"	Inadequate knowledge for which conditions no antibiotic should be prescribed
"Antibiotic could cure both bacterial and viral infections"	Inadequate knowledge for which conditions no antibiotic should be prescribed
"Your pharmacy only has this antibiotic and it should work for your friend's condition"	Inadequate and/or limited antibiotic supply
"This antibiotic should work for your friend's condition; however, you could buy less expensive antibiotics at another pharmacy"	Inadequate and/or limited antibiotic supply

[a] Quotations are statements by pharmacists interviewed during the study.

Of 315 first-class drugstores identified, 280 (89%) were open for business at the time of the mock-patient visit. As reported elsewhere, appropriate dispensing of antibiotic treatment for all 5 indications occurred at 56 (20%) of the 280 drugstores during mock-patient presentations.[5] Antibiotic treatment was dispensed by 207 drugstores (74%) for acute viral pharyngitis, by 182 drugstores (65%) for influenza, by 224 drugstores (80%) for acute viral sinusitis, by 213 drugstores (76%) for acute viral gastroenteritis, and by 179 drugstores (64%) for noninfected skin abrasion. The median duration of prescribed antibiotic therapy was 7 days (range, 6–9 days) for acute viral pharyngitis, 7 days (range, 5–10 days) for influenza, 10 days (range, 7–14 days) for acute viral sinusitis, 5 days (range, 3–7 days) for acute viral gastroenteritis, and 6 days (range, 4–9 days) for noninfected skin abrasion. In contrast, during the structured interviews, the staff at the majority of the 280 pharmacies (254 [91%]) stated that they would never sell an antibiotic for the above indications, and only a few pharmacies (26 [9%]) reported that they prescribed antibiotics for any of the 5 indications. The median duration of antibiotic therapy reported by the pharmacists who reported prescribing antibiotics was 3 days (range, 2–5 days) for acute viral pharyngitis, 3 days (range, 2–5 days) for influenza, 7 days (range, 5–14 days) for acute viral sinusitis, 3 days (range, 2–6 days) for acute viral gastroenteritis, and 2 days (range, 1–5 days) for noninfected skin abrasion. When the mock-patient presentation method was used, 3 reasons for inappropriate antibiotic dispensing were found (Table): fear of an untoward clinical outcome (139 pharmacies [50%]), inadequate knowledge (54 pharmacies [19%]), and inadequate and/or limited antibiotic supply (31 pharmacies [11%]).[5] In contrast, when the pharmacist interview method was used, high patient demand (26 pharmacies [9%]) was the only reason found for inappropriate antibiotic dispensing.

Our comparison of 2 methods of measuring pharmacy sales of antibiotics without prescriptions suggests that use of the pharmacist interview method may overestimate appropriate antibiotic use and shorter duration of antibiotic therapy compared with use of the mock-patient presentation method. Our findings suggest a need for additional studies that combine cultural sensitivity, a risk management approach, and quantitative data on the patterns of antibiotic use, as well as quantitative methods to explore determinants associated with inappropriate antibiotic use among both patients and pharmacists. Such investigation would help devise the interventions to promote community-level antimicrobial stewardship in developing countries.

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Measuring Hand Hygiene Compliance: A New Frontier for Improving Hand Hygiene

Hand hygiene practices are suboptimal in clinical venues, and improving and sustaining rates of compliance have been difficult to achieve.[1] Feedback to clinicians has been recognized as a mechanism for improving compliance.[1,2] Rarely are healthcare workers provided with personalized feedback on their hand hygiene practices. Electronic technology is being explored as a means to improve the rates of hand hygiene compliance.[3] This emerging area of study has the potential to provide an important level of necessary feedback and to serve as a critical tool for improving hand hygiene practices.

We have developed a device that operates similarly to the way a pedometer operates, by providing feedback data to an individual who wishes to quantify his/her level of activity. The basis for this device stems from the use of room entries and the use of liquid soap or hand sanitizer (hereafter referred to as dispensing events) as surrogate markers for hand hygiene compliance. Each patient room entry constitutes 2 opportunities for hand hygiene (1 before patient or environmental contact and 1 after).

This device is small (size, 8 cm × 3 cm × 1 cm) and can therefore be conveniently placed in one's pocket. It is capable of recording each room entry and all dispensing events by use of wireless technology. Small trigger devices are placed discreetly in patient rooms and in dispensers to signal room entries and hand hygiene events. The device maintains a small LCD monitor readout that provides the user with real-time data on room entries and dispensing events with a calculated score. The data from the device are downloaded by use of a USB computer port and accessed by use of a Windows application. The data are recorded and displayed anonymously, with each device assigned a specific identification number. We have conducted preliminary testing of the device and have found it to be accurate and reliable. Of 425 room entries, 423 (99.5%) were recorded; of 678 dispensing events, 626 (92.3%) were recorded.

We will be conducting a second phase of our study to test the effectiveness of the device in a clinical setting. Healthcare workers will be provided with the device, which will be worn during daily clinical encounters with patients. Participants will be able to view their data as well as those of all other study participants (anonymously) at weekly intervals. Such a mechanism would allow for users to compare themselves with others. By the use of this reliable and accurate objective measure of hand hygiene compliance, we hope to achieve behavioral modification by providing feedback to healthcare workers.

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Influenza Pseudoinfection

We read the article by Shulze-Röbbeke and Schmitz on pseudoinfections.[1] Pseudoinfections are interesting and present a diagnostic challenge.[1] Differing from a misdiagnosis of infection resulting from contaminants or laboratory errors, pseudoinfections occur when the clinical presentation and laboratory findings disagree.[2-4] Recently, a patient was admitted to the emergency department with an influenza-like illness. The result of a rapid influenza test (QuickVue; Quidel) was positive for influenza A virus, and appropriate isolation precautions were taken. However, the clinical findings did not support the