Table 1
Recall and testing results of the 20-mL normal saline (NS) solution of the reporting medical center

Ward	Lot No. 273A79D: No. of recalled NS solutions from the reporting medical center	No. of NS solution collected by TCDC*	No. of samples tested by TCDC†	No. of positive results†	Test results of other lots: Lot No.	No. of NS solution collected by TCDC*	No. of samples tested by TCDC†	No. of positive results†
A‡§‖	2	2	1	1	273A84D	5	3	0
B‡§‖	124	10	5	1	273A80D	5	3	0
C‡§	1	1	1	1	-	-	-	-
D‡§	0	0	0	0	-	-	-	-
E‡§	12	5	3	0	273A78D	5	3	0
F‡§	0	0	0	0	-	-	-	-
G‡§	0	0	0	0	-	-	-	-
H‡§	0	0	0	0	-	-	-	-
I‡§	52	5	3	0	273A08D	5	3	0
J‡§	14	5	3	0	273A68D	5	3	0
Others‡	556	0	0	0	-	-	-	-
Total	761	28	16	3		25	15	0

TCDC, Taiwan Centers for Disease Control.
*Recalled and sealed 273A79D NS solution that have been collected by TCDC in the purposeful sampling.
†Samples collected from the purposeful sampling that were tested by TCDC.
‡Wards that used the 273A79D NS solution.
§Wards that served patients with positive *Ralstonia pickettii* cultures.
‖Wards that cultured *Ralstonia pickettii* from recalled and sealed 273A79D NS solution verified by the reporting medical center.

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Carbapenem-resistant gram-negative bacilli in Tripoli, Libya

To the Editor:

Antimicrobial-resistant gram-negative bacilli (GNB) are a serious health problem worldwide. They have been associated with expanded patient mortality, delayed length of hospitalization, and increased clinic-related expenses.[1,2] During the past decade, the problem worsened due to the emergence and rapid spread of metallo-β-lactamases (MBLs) that mediate resistance to carbapenems (ie, ertapenem, imipenem, and meropenem) among GNB, particularly among *Acinetobacter* spp, *Pseudomonas aeruginosa*, and *Klebsiella* spp.[3]

Resistance to carbapenems, particularly those associated with MBLs, gravely limits therapeutic options available to clinicians because carbapenems are considered the last line of defense against GNB resistant to third-generation cephalosporins and other groups of antimicrobials. There is little information on the susceptibility of carbapenem-resistant (CR) GNB to antimicrobial agents other than carbapenems in the countries of North Africa (including Libya) and the Middle East. Such information is important in guiding

clinicians to select the best alternative drug(s) to treat serious infections associated with CR GNB.

We examined the antimicrobial susceptibility of 183 GNB isolates (105 *Acinetobacter* spp, 46 *P aeruginosa,* and 32 *Klebsiella pneumoniae*) that are resistant to ertapenem, imipenem, and meropenem. The isolates were obtained from patients who attended the Burn and Plastic Surgery Center, Tripoli Medical Center, and Libyan National Organ Transplant Center (all in Tripoli, Libya) between October 2013 and May 2014. The participants (112 male patients and 71 female patients) were aged a few days to 100 years (mean age, 34.2 years). Organisms were isolated from different clinical samples whenever infection occurred; that is, mainly from wound, urine, sputum, blood, endotracheal, rectal, and catheter central line clinical specimens. Only a single isolate from each patient was included in this study. Clinical specimens were collected under approved ethical standards and the study was reviewed and approved by the Academy of Graduate Studies, Tripoli, Libya.

All specimens were cultured on blood agar and MacConkey agar plates and incubated at 37°C for 24-48 hours. Isolated organisms were identified to the species level and tested for their susceptibility to a variety of antimicrobial agents (Table 1) by the Phoenix Automated Microbiology System (BD Diagnostic Systems, Sparks MD). Detection of MBLs was carried out by MIC Test Strip MBL (MTSM) (Liofilchem, Rosetodegli Abruzzi, Italy) according to the manufacturer's recommendations. MBL-positive isolates by MTSM were also tested by modified Hodge test.[4]

We observed extremely high rates of resistance to most of the antimicrobial agents tested among CR GNB isolates (Table 1). Multidrug resistance (ie, resistance to 3 or more antimicrobial classes) was observed in all (100%) isolates examined. In the present study only colistin showed excellent activity against *Acinetobacter* spp and *P aeruginosa* isolates (0.0% and 1.7% resistance, respectively). Recently, Mathlouthi et al[5] reported similar findings among 22 *Acinetobacter baumannii* and 21 *P aeruginosa* isolates—all were susceptible to colistin. They also found that more than 60% of *P aeruginosa* isolates susceptible to aztreonam. We found a slightly higher susceptibility (70%) to aztreonam among our *P aeruginosa* isolates.

Pena et al[6] investigated the antimicrobial susceptibility of CR *K pneumoniae* clinical isolates in a tertiary hospital in Madrid, Spain. They found that 23% of isolates were resistant to amikacin, 92% to ciprofloxacin, and 91% to aztreonam. In the present investigation a lower resistance rate (4%) to amikacin was observed among *K pneumoniae* isolates.

Using MTSM, 40% of *Acinetobacter* spp, 32.6% of *P aeruginosa,* and 12.5% of *K pneumoniae* were positive for MBLs. Of the MBL-positive *Acinetobacter* spp, *P aeruginosa,* and *K pneumoniae* isolates detected by MTSM, 28%, 0.0%, and 75%, respectively, were positive by modified Hodge test. Employing phenotypic and polymerase chain reaction methods, Meradji et al[7] did not detect MBLs in 15 CR *P aeruginosa* samples isolated from clinical specimens in 3 hospitals in Annaba city, Algeria. A study from Brazil investigated 69 *P aeruginosa* samples isolated from blood specimens.[8] MBLs were found in 28%-77% of the isolates using different phenotypic tests and in 30% of isolates using polymerase chain reaction. The variation in the detection rates of MBLs reported in the present and previously mentioned studies can be attributed to several factors, including among others, geographic location and methods used to detect MBLs. Our findings and those of the above-cited investigators indicate that mechanisms other than MBLs may also play a role in the carbapenem resistance of the examined isolates.

Information obtained from clinicians at the 3 centers and included in the present investigation showed that center personnel avoid using colistin in the treatment of serious infections because of worries over the nephrotoxicity associated with it. Our study results indicate that clinicians in Libya may need to use amikacin and colistin for the treatment of MBLs producing CR GNB in serious and life-threatening infections. However, treatment should be guided by the results of susceptibility testing. A combination of colistin and amikacin may be more effective in the treatment of such infections. Combination therapy can be beneficial in maximizing bacteria killing, in minimizing resistance, or both.[9-11] Hospitals in Libya as well as in other countries of North Africa and the Middle East should set up guidelines for antimicrobial agent use to provide the most cost-effective antimicrobial agents to their patients and implement infection control measures to prevent further transmission of CR GNB in hospitals.

Table 1
The susceptibility to antimicrobial agents of carbapenem-resistant gram-negative bacilli isolated from different clinical specimens

Antimicrobial agent	*Acinetobacter* spp (n = 105)	*Pseudomonas aeruginosa* (n = 46)	*Klebsiella pneumoniae* (n = 32)
Amikacin	80 (76)	40 (87)	1 (3.0)
Gentamicin	103 (98)	45 (98)	30 (94)
Cefuroxime	105 (100)	46 (100)	32 (100)
Cefoxitin	105 (100)	46 (100)	31 (97)
Ceftazidime	105 (100)	42 (91)	31 (97)
Ceftriaxone	105 (100)	46 (100)	32 (100)
Cefepime	104 (99)	39 (85)	31 (97)
Aztreonam	105 (100)	14 (30)	31 (97)
Amoxicillin-clavulanic acid	105 (100)	46 (100)	32 (100)
Piperacillin-tazobactam	103 (98)	35 (76)	32 (100)
Trimethoprim-sulfamethoxazole	62 (50)	46 (100)	15 (47)
Nitrofurantoin	105 (100)	46 (100)	30 (94)
Ciprofloxacin	104 (99)	45 (98)	31 (97)
Levofloxacin	84 (80)	45 (98)	29 (91)
Colistin	0 (0.0)	1 (2.0)	NT

NOTE. Values are presented as n (% resistant). All tested isolates are resistant to ertapenem, imipenem, and meropenem.
NT, not tested.

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Vaccine safety and social media in China

To the Editor:

Vaccine safety became a major concern among Chinese parents this year when authorities revealed that expired, nearly expired, and improperly stored vaccines had been distributed by private vendors to health care providers across China for 5 years.[1] This incident prompted many to query China's ability to enforce regulations on vaccine quality and distribution, and aggravated citizens' widespread distrust of public health institutions.

Improper storage or expiration can render vaccines ineffective.[2] It is important to learn how to effectively communicate to parents the importance of having their children vaccinated, especially in response to events that raise doubts about vaccination. To understand why parents decline vaccinations is the first step. In addition to traditional surveys, researchers can study vaccine refusal sentiments on social media and their influence on other users.[3,4]

Illegally distributed vaccines are unlikely to cause toxic reactions or mortality.[2] Nevertheless, the fear of possible adverse effects from illegally distributed vaccines caused panic among citizens, and self-help guides for Chinese parents on how to have their children vaccinated in Hong Kong were circulated on WeChat, a popular social media platform.[5] Postmarketing vaccine adverse event surveillance usually relies on self-reporting or reports by health care providers to national surveillance systems. Advances in social media monitoring can enhance pharmacovigilance practices.[6-8] However, best practices for this remain in development.[6]

Due to China's restrictions on foreign social media, many citizens use alternatives such as Sina Weibo. Sina Weibo is a valuable resource for health researchers because users share health-related information,[9] react to outbreak news, and express concern about poor doctor–patient relationships.[10] However, research on Sina Weibo became difficult when Sina Weibo restricted researcher access to the Application Programming Interface in 2013. Additionally, the requirement for real-name registration and government censorship made China's social media users less willing to share potentially sensitive information online[11] and complicated the future use of China's social media data for pharmacovigilance purposes. Nonetheless, social media can help us understand how citizens interpret vaccine safety information and why their trust in public health institutions remains low.

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