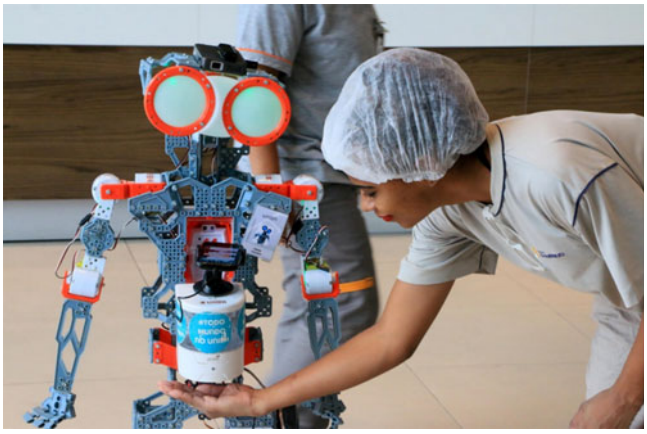

Fig. 1.

Fig. 2.

purpose: He became a professor who teaches healthcare workers how, when, and why wash their hands! Here, we describe the multimodal strategy centered around Ozires. **Methods:** The multimodal strategy consists of 7 key elements: (1) the robot, accompanied by a infection control practitioner, performs audio and video lectures about hand hygiene techniques, motivational videos, data feedback; (2) the robot's wood copies with sound alert with motion detector for hand hygiene are spread out in the whole hospital; (3) fridge magnet with robot prints (gifts for patients and healthcare professionals); (4) app for hand hygiene monitoring (Hands Clean); (5) adherence rates by professional category and individual feedback; (6) patient empowerment for hand hygiene; and (7) sound alert for hand hygiene in the patient room's door. **Results:** After the insertion of Ozires in 3 ICUs of hospital A (pilot study), the hand hygiene (HH) rate increased from ~36%, between January and July 2016, to ~68% between August 2016 and October 2019. At hospital B, Ozires started his lectures in May 2018, throughout the hospital. Hand hygiene adherence increased from 23% between July and December 2017 to 60% between June 2018 and October 2019. In the 3 months before this multimodal strategy was implemented in hospital C (June–August 2019), and the mean rate of hand hygiene was 65%. With the robot, the hand hygiene rate increased to 94% (September–October 2019). **Conclusions:** The multimodal strategy centered around the robot Ozires works! Hand hygiene compliance increased significantly after the interventions. People listen the robot much more attentively than to their human colleagues, and healthcare worker behavior changed! We need to go further improve the program, but it is sustainable. Finally, we succeeded in convincing people to improve their hand hygiene practices.

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Identification of Aminoglycoside Resistance Genes From Bacteria Isolated From Selected Municipal Drinking Water Distribution Systems in Southwestern Nigeria

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Background: Multidrug-resistant bacteria can lead to treatment failure, resulting in infectious diseases being transferred through nonpotable water. Aminoglycosides are an important class of antibiotics that are abused in Nigeria. Few studies have investigated aminoglycoside-modifying genes (AMGs) that are likely responsible for resistance in Nigeria bacteria isolates. Therefore, we aimed to characterize AMGs from isolates in drinking water distribution systems (DWDS) in southwestern Nigeria. **Methods:** Multidrug-resistant bacteria (n = 181) that had been previously characterized by 16S rDNA sequencing and that were positive for resistance to at least 1 aminoglycoside antibiotic were selected from 6 treated and untreated water distribution systems. Strains were PCR genotyped for 3 AMGs: *aph*(3")c, *ant*(3")b and *aph*(6)-1dd. **Results:** Of 181 MDR bacteria tested, 69 (38.12%) were positive for at least 1 of the AMGs. The most common was *ant*(3")c (27.6%), followed by *aph*(3")c (18.23%). Both *aph*(3")c and *ant*(3")b were found in 7.73% of tested isolates, *ant*(3")b was most commonly found in *Alcaligenes* spp (50%). Furthermore, *aph*(3")c was most commonly detected in *Proteus* spp (50%). Other genera positive for AMGs included *Acinetobacter*, *Aeromonas*, *Bordetella*, *Brevundimonas*, *Chromobacterium*, *Klebsiella*, *Leucobacter*, *Morganella*, *Pantoae*, *Proteus*, *Providencia*, *Psychrobacter*, and *Serratia*. **Conclusions:** High occurrence of *ant*(3")c and *aph*(3")c among these bacteria call for urgent attention among public health workers because these genes can be easily disseminated to consumers if present on mobile genetic elements like plasmids, integrons, and transposons.

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Identification of Colonized Patients During an Outbreak of *Candida auris* Using a Regional Health Information Exchange

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Background: In June 2019, the Maryland Department of Health (MDH) was notified of a hospitalized patient with *Candida auris* bloodstream infection. The MDH initiated a contact investigation to identify additional patients with *C. auris* colonization. Many of the contacts had been discharged home from the hospital and were therefore not available for screening. Healthcare facilities in Maryland, Virginia, and Washington, DC, submit patient data to a regional health information exchange (HIE) called the Chesapeake Regional Information System for our Patients (CRISP). CRISP includes a notification system that alerts providers when flagged patients have healthcare encounters. We aimed to use this system to identify discharged *C. auris* contacts on their next inpatient encounter to rapidly screen them and to detect new cases. **Methods:** *C. auris* contacts were defined as patients located on an inpatient unit on the same day, receiving wound care from the same team, or having a procedure in the same operating room on the same day as the index patient or any patients subsequently identified as having *C. auris* infection or colonization detected either during the normal course of clinical care or through screening. Contacts who remained hospitalized were screened during inpatient point prevalence surveys (PPSs). Contacts discharged to postacute-care facilities were screened by facility staff. Contacts who had been discharged home were flagged in CRISP, and MDH staff received CRISP encounter alerts when these patients were readmitted. MDH staff then contacted the admitting facilities to recommend screening for *C. auris*. Axilla and groin swabs were collected and tested by rt-PCR at the Mid-Atlantic Regional Antibiotic Resistance Laboratory Network laboratory. **Results:** As of October 8, 2019, 4,017 contacts were identified. Among these, 936 (23%) contacts at 56 healthcare facilities (33 acute-care hospitals and 23 postacute-care facilities) were screened for *C. auris*, and 10 patients with *C. auris* colonization were identified (1.1% of contacts who underwent *C. auris* screening). Of these, 6 (60%) were identified through CRISP notification and 4 (40%) were identified by PPSs conducted in acute-care hospitals. **Conclusions:** In this ongoing *C. auris* outbreak, a large proportion of colonized patients was identified using an electronic encounter notification system within a regional HIE. This approach was effective for identifying opportunities to screen contacts at their next healthcare encounter and can augment other means of case detection, like PPSs. HIEs should incorporate mechanisms to facilitate contact tracing for public health investigations.

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Impact of a Critical National Shortage of Cefazolin on Antimicrobial Practice at a Tertiary-Care Center in Japan

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Background: Shortages of essential medicines, a long-standing issue in healthcare, apply equally to antimicrobial agents, a group of essential drugs necessary for sustainable healthcare. The WHO categorized essential medicines into the access, watch, and reserve groups. Older antimicrobials, in particular, were categorized into the access group, meaning that these drugs are in theory widely available at an affordable cost. The shortage of essential antimicrobial agents like cefazolin leads to increased consumption of alternative antimicrobial agents with broad-spectrum activity, which often has the undesirable consequence of defeating antimicrobial stewardship efforts in inpatient settings and potentially promoting antimicrobial resistance. In Japan, cefazolin has been in critically short supply since March 2019. Cefazolin is a first-line agent against common infectious diseases and in surgical antimicrobial prophylaxis, and its shortage has substantially impacted inpatient care. The aim of the present study was to investigate changes in antimicrobial practice at a tertiary-care center in Japan following the emergence of the national cefazolin shortage in March 2019. **Methods:** Data on each antimicrobial use are logged as days of therapy (DOT) per 1,000 patient days (PD) for antimicrobial stewardship purposes at the study institution. We extracted weekly data from September 2018 to September 2019 to evaluate the impact of the national cefazolin shortage on antimicrobial use at our tertiary-care center. Changes in weekly antimicrobial use and the weekly incidence of *Clostridium difficile* infections were analyzed by interrupted time series analysis. We also investigated changes in antimicrobial practice at selected situations. **Results:** As weekly cefazolin use significantly declined after the emergence of the national shortage, use of third-generation cephalosporin (+18.9 DOT per 1,000 PD for intercept [$P < .001$] and +0.65 DOT per 1,000 PD per week for trend [$P = .037$]) and clindamycin (18 DOT per 1,000 PD for intercept [$P = .008$] and 0.12 DOT per 1,000 PD per week for trend [$P = .003$]) significantly increased. Significant changes in antimicrobial practice were also observed in surgical antimicrobial prophylaxis: third-generation cephalosporin use increased from 1.0% (31 of 3,032) to 62.9% (2,237 of 3,554) ($P < .001$). However, no significant change in the incidence of *Clostridium difficile* infection was observed during the study period: +1.72 per 10,000 PD for intercept ($P = .12$) and −0.12 per 10,000 PD per week for the trend ($P = .09$). **Conclusions:** The national cefazolin shortage had a significantly negative impact on patient care and led to increased use of alternative, broader-spectrum antimicrobials, which are not ideal choices either for prophylaxis or treatment.

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Impact of an Enhanced Prevention Bundle on Central-Line–Associated Bloodstream Infection Incidence in Adult Oncology Units

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