

resistance to Erythromycin (37.5%), Clindamycin (33.3%), Gentamycin (35.4%), Ciprofloxacin (35.4%), Moxifloxacin (35.4%) and Rifampicin (35.4%). All the MRSA strains and the MSSA strains were susceptible to Linezolid, Trimethoprim-sulfamethoxazol, Fusidic Acid, Vancomycin, Teicoplanin and Tigecyclin. Of the MSSA strains 4.2% were resistant to Tetracycline and 2.1% were resistant to Eritromycin, but all the MSSA strains were susceptible to other AB. Of the *S. aureus* strains, 53.3% were MLSB strains, from which 13.3% presented inducible phenotypes and 40% showed constitutive phenotype.

Conclusion: Data from this study demonstrate the diversity of the *S. aureus* strains circulating in our geographical areas and the wide variability of the resistance phenotypes to various classes of antibiotics among the strains of *S. aureus*. It is observed that the percentage of the MRSA strains (41.7%) is higher to that reported by Romania in 2009 to the EARS-Net (35.6%). There exists also higher frequency of the MLSB (53.3%) strains compared to the MRSA (41.7%) strains isolated in our hospital. The prevalence of the MLSB type, shows an increasing trend among the strains of *S. aureus*, lately. The prevalence of the resistant strains is growing and creates difficulties in both treatment and prevention of the nosocomial infections.

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Antibiotic resistant patterns amongst clinical *Vibrio cholerae* O1 isolates from the Greater Accra Region, Ghana-2013

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Background: Cholera affects over 3.5 million people annually with between 100,000-130,000 deaths. One of the protocols in the treatment and control of cholera infection is antibiotic therapy. When sanitation, fluid replacement and antibiotic therapy standards are properly adhered to, Case Fatality Rates (CFR) are usually < 1%. However, in the absence of these measures, CFR could exceed 50%. Several studies report of increasing rates of antibiotic resistance amongst enteric bacteria including *Vibrio cholerae*, with integrons being mostly implicated as serving as genetic templates for the encoding and acquisition of antibiotic resistance. There has been no continuous surveillance on antibiotic susceptibility profiles for *Vibrio cholerae* O1 in Ghana. This study determined resistance patterns of *Vibrio cholerae* O1 to selected and commonly used antimicrobial agents, assessed differences in resistance patterns across year periods, and molecularly screened for the presence of Class 1 and 2 integrase genes.

Methods & Materials: We screened a cumulative total of 277 isolates archived between 2010 and 2012 from the Greater Accra Region-Ghana, using the disc diffusion method. Molecular screening was done for 89 isolates that were resistant to 6 or more

antimicrobial agents. Univariate and multivariate analysis were done to express frequencies and compare categorical variables.

Results: Resistance patterns were high for co-trimoxazole 232/241 (96.3%), trimethoprim 265/276 (96.0%), erythromycin 255/270 (94.4%) and low for azithromycin 0/11 (0%), ciprofloxacin 1/274 (0.4%), doxycycline 40/235 (14.5%) and tetracycline 43/232 (15.6%). There was significant association between antibiotic susceptibility patterns over the period of years for doxycycline, chloramphenicol, co-trimoxazole, nalidixic acid, streptomycin and tetracycline ($P < 0.5$), except for ciprofloxacin, trimethoprim and erythromycin ($P > 0.05$). None of the tested isolates harboured Class 1 or 2 integron genes.

Conclusion: There are high levels of antibiotic resistance among the *Vibrio cholerae* O1 isolates tested, though Class 1 and 2 integrons could not be implicated for this observation. The high rate of resistance to erythromycin is worrisome as it is the drug of choice for pregnant women and children because of the potential side effects from the use of the other available drugs. Nevertheless, azithromycin, ciprofloxacin, doxycycline and tetracycline can be relied upon in the treatment and control of cholera infections when not contra-indicated.

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Patterns of antimicrobial resistance in *Vibrio cholerae* O1 isolates from patients with acute watery diarrhea during a cholera outbreak in southeast of Iran in summer 2013

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Background: Increasing antimicrobial resistance in potentially life-threatening enteric pathogens such as *Vibrato Cholera* is a growing global challenge in the treatment of patients. The objective of this study was to detect possible drug resistance in isolates collected from laboratory-confirmed cases of cholera during an outbreak that occurred between August and September 2013 in Sistan and Baluchestan province, southeast of Iran.

Methods & Materials: A total of 48 *vibrio cholera* isolates were obtained from patients with acute watery diarrhea. All patients were either Afghani nationals who newly crossed the border or Iranians that came in contact with Afghani patients. All strains isolated were of Inaba serotype. The samples were subjected to Antimicrobial Susceptibility Testing (AST) using the standard disk diffusion technique (Kirby-Bauer method). The disks were purchased from Iranian Padtan Teb Company. The antimicrobial content of different types of disks used for testing included: sulfamethoxazole-trimethoprim (5 µg), tetracycline (30 µg), nalidixic acid (30 µg), ciprofloxacin (5 µg), ampicillin (10 µg), ceftriaxone (30 µg) and erythromycin (15 µg). Using the criteria published by the Clinical and Laboratory Standards Institute (CLSI), the susceptibility of the isolates were determined as susceptible, intermediate, or resistant.

Results: The isolated strains showed resistance to sulfamethoxazole-trimethoprim (89.6%), tetracycline (60.4%),

