

The rise of molecular biology has revolutionized the identification of organisms and genotyping of drug resistance. Techniques to identify these organisms are evolving and not yet optimized for clinical laboratories. AmpC beta-lactamases are clinically important cephalosporinases that mediate resistance to cephalothin, cefazolin, cefoxitin, most penicillins, and beta-lactamase inhibitor-beta-lactam combinations. Carbapenemase resistance is a growing concern in the antibiotic industry, with various classes of beta-lactamases, including IMP, NDM (class B), and OXA-48 (class D), exhibiting resistance mechanisms that are typically plasmid-borne. The alert was based on four key points: at least 15 unusual biochemical resistance forms have been reported in the United States since July 2012, increasing the need for healthcare providers to work aggressively to prevent the emergence of carbapenemase-resistant Enterobacteriaceae (CRE). Overexpression of these enzymes can confer resistance to broad-spectrum cephalosporins, particularly in infections caused by *Enterobacter aerogenes* and *Enterobacter cloacae*.