

Antibiotic Usage and Antimicrobial Resistance in Taiwan

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Antibiotics have been widely used in Taiwan in the past, which results in high prevalence rates of antimicrobial resistance in many common pathogenic bacteria. Investigations demonstrated that more than one-third of the patients diagnosed as upper respiratory tract infection in out-patient clinics were prescribed with antibiotics in Taiwan. Almost all surgical patients received one to three different kinds of prophylactic antibiotics, including oral antibiotics, for one week or more in the past. In addition, antibiotics were also commonly used in other hospitalized patients. Some studies found more than 50% of the in-patients in Taiwanese hospitals were prescribed with systemic antibiotics. As to the antibiotic usage in animal, it is even more commonly used. Around 70% of the amount of antibiotics was used in animal in Taiwan.

Due to the overuse of antibiotics in various fields, and without appropriate isolation precautions in hospitals, we can find high prevalence rates of methicillin resistance in *Staphylococcus aureus*, penicillin resistance in *Streptococcus pneumoniae*, gentamicin resistance in *Enterococcus*, macrolide resistance in many Gram-positive bacteria, multiple-drug resistance in *E. coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Acinetobacter baumannii* and many other Gram-negative bacilli in Taiwan.

Since late 1990, many educational programs have been applied to let physicians know the serious problem of antimicrobial resistance in Taiwan and let them know the overuse of antibiotics may result in high prevalence of antimicrobial resistance. In addition, regulation for antibiotic usage in National Health Insurance reimbursement was modified and new regulation for restricting the antibiotic usage in upper respiratory tract infection was implemented in 2001. After implementation of the new regulation, antibiotic usage in out-patient clinics in Taiwan has been reduced to about half of the previous amount. Currently less than 20% of the patient-visit with the diagnosis of upper respiratory tract infection was prescribed with antibiotic. Surgical prophylactic antibiotics were also reduced gradually, less and less amount of antibiotics were used, for patients received surgery. The reduction of antibiotics has been demonstrated since 2001. The antimicrobial susceptibility surveillance in recent years demonstrated a lower resistance rate in some bacteria for some antibiotics. However, we still have many new and old problems in combating with the antimicrobial resistance in bacteria.