EMERGENCE OF AZOLE RESISTANT ASPERGILLUS IN HOSPITALS AND ROLE OF THE ENVIRONMENT. ONLY A EUROPEAN PROBLEM OR IS ASIA NEXT?

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Aspergillus fumigatus, a ubiquitously distributed opportunistic pathogen, is the global leading cause of aspergillosis. Azole antifungals play an important role in the management of aspergillosis. However, over a decade azole resistance in A. fumigatus isolates have been increasingly reported especially in Western Europe and is potentially challenging the effective management of aspergillosis. The high mortality rates observed in patients with invasive aspergillosis caused by azole resistant A. fumigatus isolates pose serious challenges to the clinical microbiologist for timely identification of resistance and appropriate therapeutic interventions. The 'TR34/L98H' mutation in the cyp51A gene of Aspergillus fumigatus is responsible for most multi-azole resistance seen in many European countries, the Middle East, China and India. Azole-resistant isolates carrying this mutation have been reported from both patients and the environment. In addition, a new resistance mechanism, TR66/Y121F/T289A, in A. fumigatus conferring high voriconazole and variable itraconazole MICs was lately described in the Netherlands, Denmark, Belgium, Germany, France, Tanzania and India. Surprisingly the Americas and East-Asia have not reported significant azole resistance yet. Considering that azole antifungals are mainstay of therapy, especially for chronic invasive and allergic aspergillosis, emergence of resistance especially in resource limited countries will have profound impact on healthcare. This presentation highlights the emergence in development of azole resistance in A. fumigatus and the relation with environmental fungicide use.

THE INFECTION CONTROL OF DENTAL PRACTICE IN TAIWAN

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In Taiwan, the compliance rates and importance of infection control toward dentists were much lower than physicians before 1990. The situation has been changed until the occurrence of HIV cross infection between an oral surgeon and his patients in 1990, USA. It causes the dentist to change the way of practice and the attention of dental infection control. In Taiwan, the first paper about dental infection control survey was released in 1998 while the first textbook of dental infection control in Chinese edition was published in 1992. In 1995, the Taipei Dental Association was formally established as the dental infection control committee, formally extended civil dental infection control. In 2004, the dental global budget of the National Health Insurance began to change the way of practice and the attention of dental infection control in Taiwan has significant progress. This report will further describe and analyze the progressive results and propose the future direction.

ENVIRONMENTAL CONTROL OF TUBERCULOSIS

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Transmission is the global TB epidemic, in the community, but mostly efficiently in congregate settings such as hospitals, clinics, correctional facilities, and refugee camps. Effective treatment rapidly stops transmission, even before sputum acid-fast smear and culture turn negative. Most transmission is from persons with unsuspected TB, or unsuspected drug resistance, neither of which are on effective treatment. While active case finding followed by rapid molecular diagnosis is the optimal form of TB transmission control, cases may be missed, treatment delayed, and treatment ineffective against highly drug resistant strains. For these reasons environmental control interventions remain important, especially in congregate settings. Natural ventilation is the most available environmental control and can be highly effective, but not in extreme climates, or at night if windows are closed for cold, security, or to control vermin. Mechanical ventilation can also be highly effective if well designed and maintained, but is expensive to install and operate, especially in extreme climates. Exhaust fans seem logical, but often move air only from in their immediate vicinity. Room air ultraviolet (UV) air disinfection is the most cost effective (cost per equivalent air change) means of air disinfection, but has been hampered by lack of evidence-based application guidelines. However, recent studies indicate that highly effective systems can be planned based on UV fixture output, using computer assisted design, or simply providing 15 – 20 mW total fixture output per cubic meter room volume. Room air cleaners employing air filtration, UV, or both technologies, are convenient, but frequently ineffective interventions due to low clean air delivery rates (for room volume), short circuiting, and poor design. Directional airflow in mechanically ventilated buildings helps maintain separation, but can be difficult to maintain. For all environmental control interventions, regularly scheduled maintenance is essential for proper function, but often neglected. Maintenance must be included in any effective environmental transmission control plan.

TOP QUALITY IMPROVEMENT INITIATIVES IN 2014-2015

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Good quality improvement initiatives address issues that are of sufficient importance to stimulate government agencies and healthcare facility chief executive officers, heads of units and opinion leaders to continually strive for strategies to monitor and improve outcomes for people in their care. For change and improvement to occur and to minimise pushback in an organisation, senior organisational leaders need to be fully supportive of quality improvement initiatives. Many quality improvement initiatives will include the standardisation of care, improving communication and the collection of relevant and timely information at the point of care. To support quality improvement in an organisation teams established and should be inclusive of clinical and non-clinical persons. Ideally there should also be a person with practical, system and ground level knowledge overseeing the initiative. In addition keeping up-to-date with the literature is essential in developing your strategies. A recent publication by Pageler NM et al (2014) demonstrated the effectiveness of a multidisciplinary quality improvement strategy using electronic medical record-enhanced checklists and electronic dashboards to decrease central line associated bloodstream infections (CLABSI’s) in the paediatric setting.