

ABSTRACT

Impact of COVID-19 Towards Antibiotics Consumption in Hospital Queen Elizabeth II

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Introduction: The COVID-19 pandemic has disrupted antimicrobial stewardship (AMS) activities in Hospital Queen Elizabeth II (HQEII), which has led to a surge in antibiotics consumption, particularly meropenem, vancomycin, piperacillin-tazobactam, ceftazidime, and ceftriaxone. This study aimed to compare the prevalence of antibiotics consumption in HQEII before (2018/2019) and during (2020/2021) the pandemic to explore its impact on antibiotic costs and bacterial resistance. **Methods:** A cross-sectional study where the antibiotic surveillance report from 1st January 2018 to 31st December 2021 in HQEII was reviewed. Patients above 18 years old who were prescribed the selected antibiotics were included. Antibiotic consumption, costs, and multidrug-resistant organism (MRO) cases were compared before and during the COVID-19 pandemic. Antibiotic consumption was measured by defined daily dosing (DDD) per 1,000 patient days. **Results:** A total of 267,953 reviews were analysed. Despite a slight rise in the bed occupancy rate, the overall consumption of selected antibiotics had significantly increased by 45.2% ($p < 0.0001$). The intensive care unit had the highest increase in antibiotic consumption (+114.3%, $p < 0.0001$). Remarkably, there was a growing trend for using vancomycin, meropenem, ceftazidime, and piperacillin-tazobactam ($p < 0.005$). All this contributed to a significant surge in antibiotic-acquired cost by 64.4% (RM909,898.80 vs RM1,486,791.20, $p < 0.0001$). Notably, MRO cases had also significantly increased MRO

Acinetobacter (+197%) and Carbapenem-resistant Enterobacterales (+92%). **Conclusion:** High antibiotics consumption and MRO cases were observed during the pandemic, but the

factors contributing to the surge were not explored. Nonetheless, the AMS programme is imperative for the vigilant use of antibiotics and combatting antimicrobial resistance.