7KH QHJDWLYH LPSDFW RI VHD ZDWHU GHVDOLQDWLRQ DQG UHVLVWRPH 7KH WUDQVPLVVLRQ DQWLELRWLF UHVLVWDQFH I

5H\HG 0 5H\HG

&LW\ RI 6FLHQWLÀF 5HVHDUFK DQG 7HFKQRORJ\ $SSOLFDWLRQV (J\SW

Antibiotic-resistant bacteria most o en are associated with hospitals and other health-care settings, but a new study indicates that sea water treatment plants and their water reuse also are hot spots of antibiotic resistance. e increase in antibiotic-resistant bacteria and antibiotic-resistant bacterial infections could be the result of a number of factors including the overuse and misuse of antibiotics in humans, antibiotic use in animal and crop agriculture, antimicrobial substances in personal care products, and the incomplete removal of biocides from wastewater treatment plants (WWTPs). Wastewater treatment plants and their water reuse areas ripe for bacteria to shu e and share their resistance genes. ese hot spots of potential resistance transmission included a modern wastewater treatment plant their water reuse in agriculture and food production that means it's relatively easy for disease-causing bacteria that are treatable with antibiotics to become resistant to those antibiotics quickl If these bacteria happen to come into contact with other microbes that carry resistance genes, those genes can pop over in o step. Such gene-transfer events are generally rare, but they are more likely to occur in these hot spots if the water reuse are spots of resistance gene transfer, We speculated that bacteria present in wastewater treatment plants where human regula receive antibiotics would see even more pressure to share resistance genes. We should concern about such bacteria getting i the food system. Further, the wastewater treatment facility may be hot spots of antibiotic resistance transmission regardless o their locations. Trace concentrations of antibiotic, such as those found in sewage outfalls, are enough to enable bacteria to kee antibiotic resistance. is explain why antibiotic resistance is so persistent in the environment. e nonexistence of a important overlap of antibiotic-resistant bacteria (ARB) and antibiotic resistome between the human microbiome and potential environ mental sources should not be interpreted as an indication of risk absence. Hence, screening of antibiotic resistome pools cann be used as an accurate measure of the risk for transmission to humans. e risks of transmission of antibiotic resistance from the environment to humans must be assessed based on antibiotic-resistant bacteria (not only on antibiotic resistome) that ar able to colonize and proliferate in the human body. e risk is a function of their tness in the human body and the presence of resistance and virulence genes. Even at extremely low abundance in environmental sources. antibiotic-resistant bacteri may represent a high risk for human health. e limits of quanti cation of methods commonly used to screen for antibiotic-resistant bacteria in environmental samples may be too high to allow reliable risk assessments. e times of yore decade has ey witnessed a disintegrate of study regarding antibiotic resistance in the environment, mainly in areas under human activities,

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