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# Water Article



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Researchers alongside other scientists from the University of Maryland have confirmed that there is the existence of methicillin resistant, MRSA or Staphylococcus aureus in the United States waste water treatment plants. Also known as Staph, Staphylococcus aureus is a bacterium that is responsible for infections found in a hospital setting. Notably, this bacterium is potentially fatal and difficult to treat. The bacteria can also be present without causing active infection. In the late 1990s, these bacteria were considerably infecting healthy individuals in a community setting, which this is known as community-associated MRSA. Amy Sapkota, an assistant professor in Maryland Institute for Applied Environment Health, was in charge of the study. He explained that individuals can acquire MRSA infections also outside hospital settings. According to Sapkota, these infections as severe as hospital-acquired MRSA.

However, the environmental sources of MRSA are not yet clearly understood. Additionally, individuals have no idea of how they come into contact with this microorganism. Individuals with the infections shed bacterium from their skin, wastes, and noses. It means that the bacterium is likely to be found in waste water treatment plants (Huff Ethan). It was noticeable in the 1880s. Symptoms that were accompanied by this disease were soft and painful skin conditions as impetigo, scalded-skin syndrome, and boils. Some available antibiotics such as penicillin helped in treating staph infections. Continued misuse and overuse of the antibiotics advanced the evolution of this disease

into a drug resistance microbe. At first, these infections became resistant to penicillin and finally to methicillin.

American scientist collected samples from different water treatment facilities and discovered that recycled water or treated effluents from waste water were used in irrigation. As a result, they found MRSA together with a related pathogen, methicillin-susceptible, and *Staphylococcus aureus* in the samples. Reportedly, MRSA is present in a large percentage of raw sewage (Huff Ethan). The percentage of MSSA-positive and MRSA samples decreased as the treatment progressed. Scientists conclude that the research findings raise prospective public health concerns for waste water treatment. Moreover, individuals and plant workers are more exposed to reclaimed waste water. Therefore, the study is significant so as to evaluate the risk of exposure to the antibiotic-resistant bacterium in treated waste water.

There are various causes of waste water. Sewage from factories, commercial buildings, and domestic households treated from water treatment plants is at most times disposed off in the sea. It worsens when individuals flush pharmaceutical chemicals and substances down the toilet (UNEP). Burning fossil fuels into the air releases acidic particles in the atmosphere. Therefore, when mixing with water vapor, they end up forming water that results into formation of acidic rain. There are many effects of waste water. First, ground water contamination from pesticides causes reproductive damage in wildlife ecosystems. Second, drinking and swimming in contaminated water leads to health problems such as cancer, reproductive problems, and other diseases,

for instance, stomach sickness and typhoid fever. Third, ecosystems are destroyed due to the rising temperature of water. Consequently, ecosystem affects this by the bleaching effect because of the warmer temperatures (UNEP). According to the legislation, waste water quantity and quality standards must be met by its generators who discharge to the treatment and collection system. The by-laws establish limits for different parameters to protect waste water. The legislation should also improve treatment facilities so as to curb waterborne diseases.

In my viewpoint, it is important to develop more advanced waste water treatment methods to reduce wastage. Additionally, scientists must come up with the ways to control *Staphylococcus aureus* bacterium. Since farmers require plenty of water for irrigation, they should be advised to get it from other sources rather than using waste water that might be contaminated. Crops can be affected by this bacterium, therefore, leading to poor productivity. Water is very important to human beings. As a result, individuals should keep it safe and clean for consumption.