

Week 7 Discussion:

Pathogens Hello class and

professor,

My name is *Staphylococcus aureus*, also known as (staph), and I live around the nose, mouth, genitals, anus and even in skin surfaces of humans. Besides humans I can also stay in animals such as cats, horses and dogs. My most important site is the nose. When I stay within the surface of the body, I am harmless unless I find a cut or wound where I can use to enter into the body. I can move from one person to another when my host get into contact with another person, when someone touches a common contaminated surface where my host left me. Even though people have always thought I cannot move, my movements occur in two ways. These include spreading and through comet formation within the soft tissues.

Once I get into the blood stream, I replicate and disseminate to many different places thus causing severe disease infections such as skin infection, respiratory infections and food poisoning (Taylor and Unakal, 2021). I can stay undetected and dominant within the body for many years. My ability to resist antibiotics like penicillin helps me to stay within the host for a long period. My resistance is aided by penicillinase production, an enzyme which cleaves the penicillin molecule ring and thus making it ineffective (Lee et al., 2018). For methicillin, my resistance gets mediated through the mec operon that codes for an altered penicillin-binding protein with a lower β -lactams binding affinity. Once that happens, I become resistance to any β -lactam antibiotics and removes any of their use during MRSA infections.

Human body has an immune response that activates when nonspecific markers get detected (Lee et al., 2018). To fight against me, first infection's line of defense which is the innate immune response get activated rapidly through pattern recognition pathways which will