Potential for *Streptococcus* Bacteria Reinfection Due to Toothbrush Contamination in Patient's Testing Positive for Streptococcus Pharyngitis

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Abstract

BACKGROUND: According to the Centers for Disease Control and Prevention, approximately 5.2 million outpatient visits for people under 65 years old are attributed to strep throat, a bacterial infection caused by Group A *Streptococcus (GAS).* Though toothbrushes have been thought to be fomites that contribute to failed bacteria eradication, there is limited conflicting data available regarding whether a toothbrush needs disposed of after infection.

OBEJECTIVE: To investigate the presence of Group A Streptococcus on the toothbrushes of young adults who have tested positive for streptococcal pharyngitis to influence pharmacy counseling regarding toothbrush disposal and provide background for future studies that could investigate rates of reinfection.

METHODS: During this study, students were asked to bring in their toothbrush if they had any upper respiratory symptoms. If appropriate, the provider would perform a strep test. Point-of-care strep tests and culture tests were performed on toothbrushes collected from 12 students who tested positive for streptococcal pharyngitis. Medium specific for Group A *Streptococcus* and full medium were used in a microbiology lab to culture the toothbrush. Results were recorded as positive (1) or negative (0) and interpreted as percentages and means.

RESULTS: 12 toothbrushes were collected in total; 5 (42%) tested positive on rapid POC strep tests, 12 (100%) showed growth on rich media, and 7 (58%) showed growth on selective media.

CONCLUSION: Over half of the toothbrushes collected showed evidence of growth on selective media. This supports the claim that it could be possible for patients to reinfect themselves via a toothbrush, thus supporting the recommendation that a patient should replace their toothbrush after infection.