Tetanus Vaccination Status of Patients Treated in the Operating Room

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Introduction

Tetanus is a life-threatening infection that is caused by the bacterium, Clostridium tetani. Tetanus usually occurs because of a cut or a wound to the body. Potential sources of tetanus include soil, feces, and rusty tools. Since most developed countries provide vaccination against tetanus, the likelihood of developing this condition in the United States is low. Initial tetanus immunization involves vaccine administration at ages 2 months, 4 months, 6 months, 15-18 months, and a final dose at ages 4-6 years old. A booster dose is then administered at ages 11-12 years. However, even with childhood vaccination against tetanus, the immunity does not last a lifetime and warrants a booster every 10 years.

Tetanus vaccination status comes into play in the dental environment in terms of dental trauma. Traumatized teeth frequently encounter soil or other sources of tetanus. Often, patients or patients' guardians are unsure if vaccination status is up-to-date. As a result, dentists refer to physicians to evaluate vaccination status and administer booster vaccines if indicated. Since dental trauma is a common injury occurring in childhood, it is imperative that a child's vaccination status is known.

Vaccines play a large role in both dental and overall health. As pediatric dentists, we can easily incorporate vaccination education during routine dental visits. If tetanus vaccination status is readily available, patients can be managed for dental trauma more efficiently and appropriately during emergencies.

In recent years, due to the COVID-19 pandemic and increasing parental apprehension towards vaccines, gaps in vaccination coverage among children and adolescents have been highlighted. It is our goal to determine if there are significant trends in tetanus vaccination status among our population of pediatric dental patients.

Purpose

The purpose of this study was to determine if tetanus vaccination status is dependent on gender, race, or age of the patient.

Hypotheses

1. There is a difference in gender regarding tetanus vaccination status.
2. There is a difference in race regarding tetanus vaccination status.
3. There is a difference in age regarding tetanus vaccination status.

Methods

A prospective chart review was conducted on 50 patients scheduled to receive dental treatment in the operating room. The number of tetanus vaccine doses administered to each patient was found on the patient's medical chart via the electronic medical charting system Epic. Based on the number of tetanus vaccine doses administered to each patient, vaccination status was determined using the Center for Disease Control's immunization schedule. Other patient factors recorded were gender, race, or age. The study was conducted on patients aged 1-15 years old. Statistical analysis for the study was completed using the software SPSS.

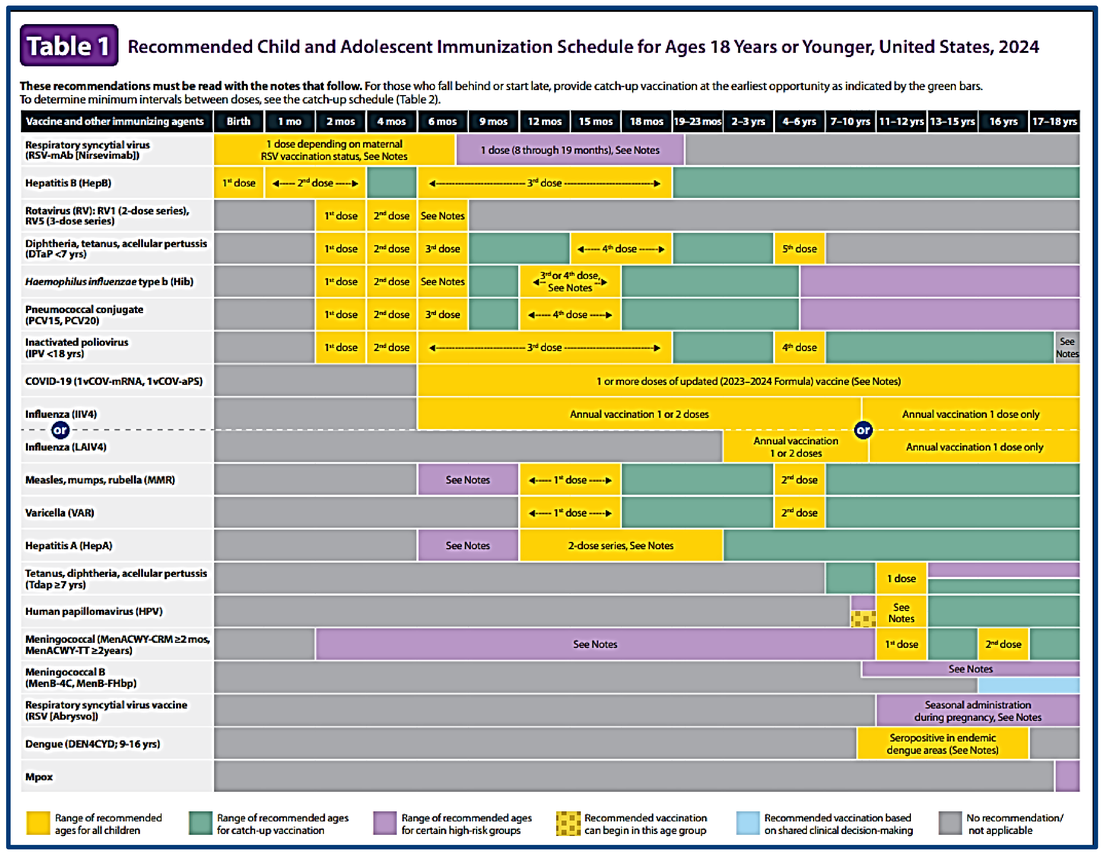

Figure 1: Center for Disease Control Immunization Schedule [1]

Results

This was an observational study. Statistical analysis of the data was completed by running a multinominal logistic regression test using SPSS. 66% of patients were up-to-date on their tetanus vaccination, 18% were unvaccinated, and 16% were overdue on their vaccination. Of the 50 charts reviewed, 32 patients were male and 18 were female. The following are the breakdowns for race: 56% White, 30% Black, 4% Hispanic, and 10% Biracial. The average age of the patients studied was 6.32 years. There was no difference in vaccination status found between males and females. There was no difference in vaccination status found among the various races of patients used in this study. There was no difference in vaccination status found between the various ages of patients used in this study. Tetanus vaccination status was not dependent on gender, race, or age of the patient.

Discussion

The outcome of this study did not demonstrate any significant differences in tetanus vaccination status regarding age, gender, or race. This could be a result of the small sample size utilized in the study or due to the variance in the sample population. Further research on the topic should be encouraged with a larger sample of patients to have a more diverse representation of age since 22% of the population in this study was aged 5 years old. Furthermore, most of the patients in the study were male, making it difficult to draw any conclusions for vaccination status among females. Lastly, having more diversity in patients' races could help discover vaccination trends that were not covered by our patient population.

Conclusion

Based on the findings of this study, tetanus vaccination status is not dependent on age, gender, or race of the patient. Further research is indicated to provide a more comprehensive analysis and represent the general population better. While of the results of this research are not significant, 1 in 3 patients in our study population were overdue for vaccination or unvaccinated. As healthcare providers, pediatric dentists can encourage parents and guardians to pay attention to vaccination status during routine physical exams so status can be readily available during emergencies. Accurate knowledge of tetanus vaccination status is crucial to the management of dental emergencies.

References:

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