

Look Out for Changing Recommendations Regarding the Tetanus, Diphtheria and Acellular Pertussis (Tdap) and the Yellow Fever (YF) Vaccines: A Call from Increased Tdap Vaccination and Suggestion for Decreased YF Vaccination

Alwyn Rapose^{1,2*}

¹Consultant Infectious Diseases, Reliant Medical Group, USA

²Assistant Professor of Clinical Medicine, University of Massachusetts, Worcester, MA, USA

Recently there have been a number of new recommendations regarding routine human vaccines including updates on vaccination with the Hepatitis B vaccine, MMR vaccine and meningitis vaccine. We are already into the flu season and there are a number of different influenza vaccines available. However, recommendations regarding the Tdap vaccine have been impressive in that these have been expanded numerous times over the last two years. Regarding the YF vaccine, a new report from the World Health Organization (WHO) is likely to change routine practice regarding vaccination of those travelling to YF-risk areas. This editorial addresses these two vaccines with a focus on new recommendations and reviews.

Tdap

Pertussis is considered endemic in the United States (US) with frequent small outbreaks. However in 2011, there were an increased number of pertussis cases in the US including an epidemic in Washington State [1]. A large proportion of these cases were infants. Vaccination with the Tdap vaccine is the best way to protect individuals against pertussis. Vaccination in adults also helps prevent spread of these infections to infants who are too young to receive these vaccines. Unfortunately a significant proportion of healthy individuals often do not feel the need to see their physicians and get vaccines. In a study on travelers published by this author, data indicated that a large number of the general population is not up to date with the recommended Tdap vaccine and a Travel Clinic provided a unique opportunity to review immunization records and increase the uptake of the vaccine [2].

In June 2005, the Advisory Committee on Immunization Practices (ACIP) had recommended use of the Tdap vaccine in adolescents and adults up to age 64 years [3]. In October 2010, recommendations were expanded to include select patients above age 64 years. In response to the increased number of new cases of pertussis especially in infants in 2011, the ACIP in October 2011 recommended that all unvaccinated pregnant females be vaccinated during pregnancy with the Tdap rather than the Td vaccine. In February 2012 the ACIP recommended use of Tdap at least once in all patients 65 years and older [4]. Unfortunately, in spite of these expanded recommendations, the number of pertussis cases in the United States continued to increase through 2012 and on July 19th, 2012 CDC officials reported that the country was headed towards the most cases in this year compared to the previous fifty years [5]. In 2012, there were an estimated 41880 cases and 14 deaths of children aged less than 1 year [6]. In an attempt to protect this most vulnerable population, ACIP in their most aggressive recommendation updated their guidelines in October 2012 indicating that females be vaccinated with Tdap vaccine at every pregnancy irrespective of previous vaccination. These guidelines were published in the February 22nd 2013 issue of the Morbidity and Mortality Weekly Report of the CDC (Vol. 62/ No. 7).

Yellow Fever Vaccine

Yellow fever (YF) is a mosquito-borne viral infection endemic in tropical countries of Africa and South America [7]. The majority of outbreaks previously occurred in West Africa, but more recently an increased number of cases are being reported from Central Africa. A large outbreak in Darfur resulted in 71 deaths among more than 800 suspected cases as reported by the Sudanese Ministry of Health and the WHO. In South America, YF is seen in the very rural areas of Peru and Bolivia. However, more recently, cases have been reported in urban areas including major tourist cities in Brazil.

The YF vaccine is available for routine use in endemic areas, in regions with outbreaks and it is recommended prior to travel to these high-risk areas. An updated summary of the epidemiology of YF and recommendations for YF vaccine-including countries where YF vaccination is recommended for travelers - is published by the Centers for Disease Control and Prevention (CDC) [8].

The YF vaccine is a live vaccine administered as a single intramuscular injection. 80%-100% individuals who receive the vaccine develop neutralizing antibodies. Although antibodies have been detected even 19 years after initial vaccine, the vaccine is expected to provide protection for 10 years, after which a repeat vaccine is required for those returning to risk areas. As the YF vaccine is a live vaccine it is relatively contraindicated in persons with immune dysfunction and infants less than 6 months of age. Antibody response is delayed in older persons and risk for adverse events also increases with age [9,10]. Risks and benefits of vaccination in persons with HIV and pregnant females are discussed in detail in the CDC summary guidelines [8].

In June 2013, the WHO published a position paper regarding vaccination against YF based on discussions by the WHO Strategic Advisory Group of Experts on Immunizations (SAGE) at its meeting in April 2013 [11]. In this report, the group stated that a single dose of the vaccine was sufficient to confer life-long protection. They specifically stated "a booster dose is not necessary". Other authors have

*Corresponding author: Alwyn Rapose, Assistant Professor of Clinical Medicine, University of Massachusetts, Worcester, MA, USA, E-mail: Alwyn.rapose@reliant-medicalgroup.org

Received October 21, 2013; Accepted October 25, 2013; Published October 28, 2013

Citation: Rapose A (2013) IBD Look Out for Changing Recommendations Regarding the Tetanus, Diphtheria and Acellular Pertussis (Tdap) and the Yellow Fever (YF) Vaccines: A Call from Increased Tdap Vaccination and Suggestion for Decreased YF Vaccination. J Vaccines Vaccin 4: e122. doi: [10.4172/2157-7560.1000e122](https://doi.org/10.4172/2157-7560.1000e122)

Copyright: © 2013 Rapose A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

also challenged the prevalent traditional recommendation for a booster every ten years for travelers to endemic areas. Eduardo Gotuzzo and colleagues recently published a systematic review on the efficacy and immunity following the YF vaccine and also concluded that booster doses are not needed [12]. The new recommendations based on findings of prolonged and lasting immunity against YF following one dose of the YF vaccine are especially encouraging considering that the vaccine is not universally available and it does carry some risk in the elderly who often form a large proportion of tourism-travelers to endemic areas. As expected, with this new recommendation from the WHO, there have been calls for definitive guidelines from the CDC and international health regulations for travelers. Other groups have questioned the evidence that was used to base the new recommendation and whether this will change the requirements for international travelers.

Conclusion

While exciting research towards development of new human vaccines continues to progress and there continue to be new recommendations on routine vaccinations, the latest updates on the Tdap and YF vaccines are likely to make the most impression on the routine practice of human vaccination.

References

1. MMWR (2012) Pertussis Epidemic -Washington, 2012. Centers for Disease Control and Prevention 61: 517-522.
2. Rapose A (2013) Measles and pertussis outbreaks: An important role for travel clinics. *Am J Infect Control* S0196-6553.
3. MMWR (2006) Preventing Tetanus, Diphtheria, and Pertussis Among Adolescents: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis. Centers for Disease Control and Prevention.
4. MMWR (2012) Sodium Azide Poisoning at a Restaurant -Dallas County, Texas, 2010. Centers for Disease Control and Prevention 61: 25.
5. <http://www.cdc.gov/media/mmwrnews/2012/0719.html>
6. Rapose A (2013) Travel to Tropical Countries: A Review of Travel-Related Infectious Diseases. *Trop Med Surg* 1: 128.
7. MMWR (2010) Yellow fever vaccine: recommendations of the Advisory Committee on Immunization Practices (ACIP). Centers for Disease Control and Prevention 59: 1-27.
8. Roukens AH, Soonawala D, Joosten SA, de Visser AW, Jiang X, et al. (2011) Elderly subjects have a delayed antibody response and prolonged viraemia following yellow fever vaccination: a prospective controlled cohort study. *PLoS One* 6: e27753.
9. Martin M, Weld LH, Tsai TF, Mootrey GT, Chen RT, et al. (2001) Advanced age a risk factor for illness temporally associated with yellow fever vaccination. *Emerg Infect Dis* 7: 945-951.
10. [No authors listed] (2013) Vaccines and vaccination against yellow fever. WHO position paper -- June 2013. *Wkly Epidemiol Rec* 88: 269-283.
11. Gotuzzo E, Yactayo S, Córdova E (2013) Efficacy and duration of immunity after yellow fever vaccination: systematic review on the need for a booster every 10 years. *Am J Trop Med Hyg* 89: 434-444.
12. Patel D, Simons H (2013) Yellow fever vaccination: Is one dose always enough? *Travel Med Infect Dis* 11: 266-273.