Title: A Stamaril Vaccine Expanded Access Investigational New Drug (IND) Program Prevented a Yellow Fever Vaccine Shortage in the United States, 2017-2020

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Background: In 2017, Sanofi Pasteur experienced an interruption in YF-VAX® (Yellow Fever Vaccine) manufacturing, causing a stock-out for civilian travel clinics in the United States (US). Sanofi Pasteur, FDA and CDC agreed the solution was importation of STAMARIL® (Yellow Fever Vaccine [Live]), through an Expanded Access IND Program (EAP), to ensure continued availability of yellow fever (YF) vaccine. STAMARIL, like YF-VAX, is prepared by culturing the 17D-204 strain of YF virus in chicken eggs. STAMARIL is approved in > 100 countries and has a long history of safety and effectiveness with over 600 million doses distributed worldwide since 1986.

Objective: Summarize the public health impact and safety of the STAMARIL EAP.

Methods: Travel clinics with YF vaccine-certified providers were invited to join the STAMARIL EAP based on geographic location and prior YF-VAX usage. Participation required completion of training, IRB approvals and adherence to protocol requirements, including obtaining informed consent and reporting the following: doses administered, vaccinee demographic information, suspected adverse reactions, serious adverse events, vaccination during pregnancy and vaccination of women who breastfed infants during the 14 days after vaccination.

Results: The EAP began in June 2017, enrolling > 250 US civilian travel clinics as EAP sites. As of June 2020, a total of 609,010 STAMARIL doses were administered. There have been seven cases of YF vaccine-associated acute neutrotropic disease (YEL-AND) and two cases of YF vaccine-associated acute viscerotropic disease reported (reporting rate: 1.1 and 0.3/100,000 vaccinees, respectively), which, with the exception of one suspect case of YEL-AND, all occurred in individuals at increased risk (age ≥ 60 years). One vaccinee developed an anaphylactic reaction. No safety concerns were identified from inadvertent vaccine exposure during pregnancy or potential neonatal exposure via breast milk. No case of YF disease has been reported in a returning US traveler during the EAP.

Conclusion: The STAMARIL EAP supported the public health need for YF vaccination by making an internationally licensed vaccine available to US civilian travelers during a complete stock-out of the US-licensed YF-VAX. With over 600,000 doses administered, no new safety concerns were identified. Serious adverse reactions remain very rare and consistent with the known safety profile of STAMARIL.

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