

## Vaccinia Immune Globulin (VIG): Rx for Severe Smallpox Vaccine Reactions

Center for Biologic Counterterrorism and Emerging Diseases  
Medstar Health Group  
Washington, DC

Director: Daniel R. Lucey, MD, MPH

**A. Definition:**

1. Vaccinia Immune Globulin (VIG) is the antibody (immunoglobulin) containing fraction of plasma derived from persons vaccinated against smallpox with the vaccinia virus.
2. Importantly, VIG is active only against the "vaccinia virus" contained in the smallpox vaccine, and NOT active against the "variola virus" that causes smallpox disease.
3. Thus, VIG is ONLY useful in treating smallpox vaccine reactions and not in treating smallpox itself.

**B. Administration:**

1. Currently (9/02), VIG can only be given intramuscularly (IM). (Research efforts are being made to develop an IV form of VIG).
2. The dose of VIG is large: 0.6ml/kg body weight in divided doses over 24-36 hours. Thus, a 70kg person requires 42 ml IM and a 100kg person requires 60ml IM.
3. Doses should be started as soon as possible after the diagnosis of one of the severe vaccinia (smallpox vaccine) reactions that are known to respond to VIG (see below).
4. Doses can be repeated, if available, until recovery occurs.

**C. Stockpiles of VIG:**

1. At the June 19-20, 2002 meeting of the CDC's Advisory Committee on Immunization Practices (ACIP) in Atlanta it was estimated that the stockpile of VIG is sufficient only to treat about ~600 serious adverse smallpox vaccine reactions.
2. Thus, the supply of VIG is estimated to be enough to treat the ~600 serious adverse reactions that in the 1960's resulted from vaccinating 4-6 million people.
3. More than 600 serious adverse reactions might occur in vaccinating 4 to 6 million persons today due to more vaccinees and their close contacts (at home or work) who have immunocompromised immune systems or skin conditions such as eczema.

**D. Vaccine Reactions that Improve with VIG Rx:**

1. Eczema vaccinatum
2. Generalized vaccinia
3. Progressive (necrotic) vaccinia
4. Inadvertent autoinoculation, e.g., the eye (except keratitis)

**E. Vaccine Reactions for which VIG is of no benefit:**

1. Vaccinia Encephalitis

**F. Vaccine Reactions for which VIG is contraindicated:**

1. Vaccinia keratitis

**G. Source for VIG:**

1. VIG is only available under an FDA "Investigational New Drug (IND)" protocol through the Centers for Disease Control (CDC) and Prevention: Tel: 404-639-3670; Fax: 404-639-3717.
2. VIG will require informed consent as part of the IND protocol and close monitoring of the clinical response to VIG.