

## Anthrax Vaccine – Waste Not! Want Not!

- According to GAO<sup>1</sup> an estimated 1.5-2 million vaccine doses of the FDA-licensed anthrax vaccine stored in the Strategic National Stockpile (SNS) will go to waste each year. These doses could be saved and offered to Americans at high risk to anthrax bioterrorism.
- **Who should be considered for the vaccine?** Because the anthrax weapon is invisible, odorless, tasteless, and easily re-aerosolized the task of identifying the safe zone is nearly impossible.<sup>2</sup> As a result the vaccine must be considered for all who routinely respond to “white powder scares”.<sup>3</sup> This group includes but is not limited to: police/security officers, fire fighters, paramedics/EMTs, public health officials, public works personnel, utilities employees, HAZMAT, SWAT and first receivers in emergency rooms.
- Learning from the two-wave, multi-site, deadly attacks via the US Postal Service in 2001, the vaccine is also appropriate for all Americans from groups victimized<sup>4</sup> including mail/shipping carriers, media personalities, government officials and their staff.
- To bolster community resilience, the US Department of Labor has a [tool on its website](#) to help determine the credible risk of anthrax exposure/attack. It is suggested that a workplace in the Yellow or Red zone of this matrix should consider a pre-attack vaccination program for its employees.
- **Why not rely on antibiotics after an attack?** Pre-attack vaccination is the best strategy for preparedness to anthrax bioterrorism since the resultant immunity protects against anthrax disease inflicted by both antibiotic-sensitive and antibiotic-resistant organisms.<sup>5</sup>
- Experts agree future biological attacks will use anthrax that is resistant to all currently-stockpiled, pertinent antibiotics.<sup>6,7</sup> In an attack with antibiotic-resistant strains of anthrax of sufficient dose, the antibiotics would afford no protection and the infection could quickly progress to death well before the vaccine mechanism of action would be expected to confer immunity to the victims.<sup>8</sup>
- Since the likely and worse-case attack scenario is with antibiotic-resistant anthrax, the prudent plan is a voluntary, pre-attack, vaccination<sup>9</sup> for any person who self-assesses a high risk of exposure due to occupation, location of home/business, commute, or choice of recreation.
- **There is very little risk in this strategy.** The anthrax vaccine is FDA-licensed as safe and effective.<sup>10</sup> As of 2008, over 1.8 million military personnel received nearly 7 million doses and the Institute of Medicine has stated that the rate of adverse events for this vaccine is similar to rates with other adult vaccines (flu, HAV, Tetanus).<sup>6, 11</sup>
- **What is the demand for the vaccine or support for this?** Presently emergency responders (and many civilians) are expressing a wish to receive the vaccine according to the current FDA approved label.<sup>12</sup> The HHS Office of the Assistant Secretary of Preparedness and Response and the CDC Advisory Committee on Immunization Practices (ACIP) supports the use of the anthrax vaccine for emergency responders if the initiative is voluntary and based on an individual determination of risk. The vaccine in the SNS is already purchased and this reduces the cost of vaccination by 70%. Finally, vaccinating local emergency responders would bring their level of preparedness up to the federal standard of protection enjoyed by the National Guard Weapons of Mass Destruction Civilian Support Teams.<sup>13</sup>
- With the wisdom and courage to think ahead and with smart planning, the anthrax bioterrorism risk to Americans could be significantly mitigated by distributing the vaccine pre-attack through a voluntary program that administers the vaccine according to the current FDA-label.

## References

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- <sup>2</sup> Doolan DL, Freilich DA, Brice GT, et al. The US capitol bioterrorism anthrax exposures: clinical epidemiological and immunological characteristics. *J Infect Dis.* 2007 Jan 15;195(2):174-84.
- <sup>3</sup> Webb GF. A silent bomb: the risk of anthrax as a weapon of mass destruction. *Proc Natl Acad Sci USA.* 2003 Apr 15;100(8):4355-6.
- <sup>4</sup> NOVA Online. Interviews with Biowarriors: William Patrick III. PBS. Nov 2001.
- <sup>5</sup> Institute of Medicine, "The Anthrax Vaccine, Is It Safe? Does It Work?" Committee to Assess the Safety and Efficacy of the Anthrax Vaccine, Medical Follow-Up Agency, Washington, DC: National Academy Press, 2002
- <sup>6</sup> NOVA Online. Interviews with Biowarriors: William Patrick III, Ken Alibek, Sergei Popov. PBS Nov 2001
- <sup>7</sup> Athamna A, Athamna M, Abu-Rashed N, Medlej B, Bast DJ, Rubinstein E. Selection of *Bacillus anthracis* isolates resistant to antibiotics. *J Antimicrob Chemother.* 2004 Aug;54(2):424-8.
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- <sup>9</sup> Wein L.M, Craft DL, Kaplan EH. (2003) *Proc. Natl. Acad. Sci. USA* **100**, 4346–4351.
- <sup>10</sup> Federal Register: Biological Products; Bacterial Vaccines and Toxoids; Implementation of Efficacy Review; Anthrax Vaccine Adsorbed; Final Order. December 19, 2005 (Volume 70, Number 242) p75180-75198.
- <sup>11</sup> Grabenstein JD. Vaccines: countering anthrax: vaccines and immunoglobulins. *Clin Infect Dis.* 2008 Jan 1;46(1):129-36.
- <sup>12</sup> Stanhope, W. Emergency Responder Consensus Statement for Pre-attack Anthrax Vaccination. Saint Louis University Institute for BioSecurity, August 2007.
- <sup>13</sup> MILVAX. Information About the Anthrax Vaccine and the Anthrax Vaccine Immunization Program (AVIP)