Rapid Response Treats Life-Threatening Condition

In March 2007, a doctor from the University of Chicago Comer Children's Hospital contacted CDC for help in diagnosing and treating a two-year-old child who had developed Eczema Vaccinatum (EV). EV is a life-threatening skin infection caused by the vaccinia virus, which is part of the smallpox vaccine. EV can occur when people who have had a skin condition called eczema or atopic dermatitis come into contact with someone who has recently been vaccinated for smallpox. The child, who had severe eczema, had been in contact with his father; his father had received the smallpox vaccination several weeks earlier as part of military deployment preparation. The toddler's case was the first instance of EV in the U.S. in over 19 years. The child's mother developed a less serious infection that also required treatment.

CDC bioterrorism and viral disease experts quickly provided scientific expertise and support to local health care and public health officials. CDC laboratories and the Illinois Department of Public Health Laboratory – a member of CDC's Laboratory Response Network – collaborated to rapidly identify and confirm the diagnosis.

Figure 1. ***Saline solution used in smallpox vaccination***

The only licensed product for treatment of vaccinia infection is vaccinia immune globulin (VIG). CDC used its Strategic National Stockpile (SNS), a national repository of life-saving medicines and medical supplies, to provide VIG to the hospital less than five hours after EV was confirmed. During a one month period, CDC coordinated a total of six trips and delivered 69 vials of VIG in order to treat the child and his mother. During the child's hospitalization, additional antiviral therapies were administered, including an antiviral under study that was only available through the collaboration of CDC and the Food and Drug Administration (FDA). CDC worked closely with clinical experts, local caregivers, and other government agencies, such as FDA, in providing treatment and infection control recommendations. By the end of April, both mother and child had been released from the hospital.

Figure 2. ***Eczema vaccinatum lesions on the skin of a smallpox vaccine recipient.*** Photo credit: California Department of Public Health

The quick activation of CDC's assets and mobilization of CDC experts helped save the child's and the mother's lives. The team of infectious disease scientists, logisticians, emergency response specialists, and public health experts are essential in supporting CDC's life-saving efforts. The event tested CDC's capabilities to respond rapidly and effectively in the diagnosis and treatment of disease.

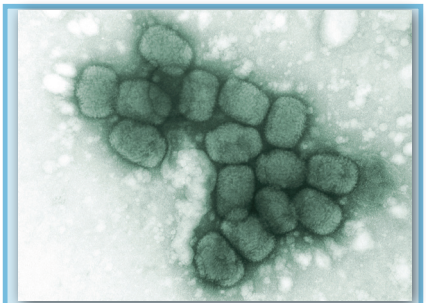

Figure 3. ***Electron micrograph of smallpox***

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