Station 2—Vaccine Risks

*NOTE:* Like any medicine, vaccines may cause serious side effects, such as severe allergic reactions.

**Chickenpox (Varicella) Vaccine**

Most people who get chickenpox vaccine do not suffer any harm. The risk that the vaccine will cause serious harm, or death, is extremely small.

**Mild Harms**
- Soreness or swelling where the shot was given (about 1 out of 5 children and up to 1 out of 3 adolescents and adults).
- Fever (1 person out of 10, or fewer).
- Mild rash, up to a month after vaccination (up to 1 person out of 20). It is possible for these people to infect other members of their household, but this is extremely rare.

**Moderate Harms**
- Seizure (jerking or staring) caused by fever (fewer than 1 person out of 1,000).

**Severe Harms**
- Pneumonia (very rare).

Other serious harms, including severe neurological ones (brain reactions) and low blood count, have been reported after chickenpox vaccination. These happen so rarely, however, that experts cannot tell whether or not they are caused by the vaccine.

**Hepatitis B Vaccine**

Most people who get hepatitis B vaccine do not suffer any harm.

**Mild Harms**
- Soreness where the shot was given, lasting a day or two (up to 1 out of 11 children and adolescents, and about 1 out of 4 adults).
- Mild to moderate fever (up to 1 out of 14 children and adolescents, and 1 out of 100 adults).

**Severe Harms**
- Serious allergic reaction (very rare).
Measles, Mumps, Rubella (MMR) Vaccine

The risk that the MMR vaccine will cause serious harm, or death, is extremely small. Most people who get the vaccine do not suffer any harm.

**Mild Harms**
- Fever (up to 1 person out of 6).
- Mild rash (about 1 person out of 20).
- Swelling of glands in the cheeks or neck (rare).

**Moderate Harms**
- Seizure (jerking or staring) caused by fever (about 1 out of 3,000 doses).
- Temporary pain and stiffness in the joints, mostly in teenage or adult women (up to 1 out of 4).
- Temporary low platelet count, which can cause a bleeding disorder (about 1 out of 30,000 doses).

**Severe Harms (Very Rare)**
- Serious allergic reaction (fewer than 1 out of 1 million doses).
- Several other severe harms have been known to occur after a child gets MMR vaccine. This happens so rarely, though, that experts cannot be sure whether or not the harms are caused by the vaccine. These include deafness, long-term seizures, coma or lowered consciousness, and permanent brain damage. Scientific studies have indicated that the MMR vaccine does not cause autism. However, in individuals who have rare preexisting conditions, the vaccine may trigger complications.

Polio Vaccine

The Inactivated Polio Vaccine (IPV) is currently used against polio in the United States. Some people who get IPV get a sore spot where the shot is given. The vaccine used today has never been known to cause any serious harm, and most people don’t suffer any harm at all with it.

The risk that a polio shot will cause serious harm, or death, is extremely small.
Smallpox Vaccine

The smallpox vaccine contains live vaccinia (pox) virus, not inactive virus as found in many other vaccines. Although complications and death after smallpox vaccination are rare, the smallpox vaccine has a greater potential for harm than many others. For every million people vaccinated, 1 to 2 will die from the vaccine and between 14 and 52 will have serious, life-threatening reactions.

Mild to Moderate Harms
- Mild rash, lasting 2 to 4 days.
- Swelling and tenderness of lymph nodes, lasting 2 to 4 weeks after the blister has healed.
- Fever of over 100°F (about 70 percent of children, 17 percent of adults) or over 102°F (about 15 to 20 percent of children, less than 2 percent of adults).
- Secondary blisters elsewhere on the body (about 1 per 1,900).

Moderate to Severe Harms
- Serious eye infection or loss of vision due to the spread of vaccine virus to the eye.
- Rash on entire body (as many as 1 per 4,000).
- Severe rash on people with eczema (as many as 1 per 26,000).
- Encephalitis (severe brain reaction), which can lead to permanent brain damage (as many as 1 per 83,000).
- Severe infection beginning at the vaccination site (as many as 1 per 667,000, mostly in people with weakened immune systems).
- Death (1 to 2 per million, mostly in people with weakened immune systems).