

January 24, 2009

Geri Ferrara
Editor, The Dominion Post
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Morgantown, WV 26505-6298

Dear Ms. Ferrara,

As a pediatric infectious disease specialist, an advocate for children's health, and a mother, I am most proud of the single greatest achievement in health care in the last 100 years: prevention of diseases through vaccination! Our population is healthy; thankfully we no longer need to fear crippling polio epidemics, permanent devastating brain damage from a bacterium called Hib, male sterility from mumps, the majority of cervical cancer in women, or birth defects and mental retardation from congenital rubella (German measles).

Vaccines have perhaps allowed us to become complacent and forget about the *real* horrors, permanent damage, and deaths caused by these nearly non-existent diseases. Many people can only recognize the names (i.e. measles, polio, whooping cough (pertussis), rubella, diphtheria), yet have no idea the real nature of the *beasts* that we can now prevent by vaccines.

In thinking about these diseases, we should think about the definition of *safe*. Safe should not be defined as *harmless*, but as *having been preserved from a real danger*. The danger (of the disease) is clearly far greater than the means of protecting from the disease (the vaccine). Therefore the real question that we must ask about vaccines is "Do the benefits outweigh the risks?"

- Before vaccinations against poliomyelitis, parents could expect that 15,000 children per year would be paralyzed, and potentially die. (Each year 350 people are killed in bath-related accidents and yet most parents last night probably gave their child a bath before bedtime.)
- Without vaccination, *diphtheria* infection would again become the leading cause of death in school-aged children, and *pertussis* (whooping cough) would kill 8,000 children (mostly infants) a year. (This morning most Americans ate breakfast, and yet 200 people each year die when food lodges in their windpipe.)
- Measles would again infect about 4 million children a year in the United States, with greater than 3,000 deaths. An additional forgotten complication of measles infection is a delayed brain deterioration called subacute sclerosing panencephalitis (or SSPE) that occurs about 7-10 years *after* measles infection. Twenty cases a year of SSPE would return in teenagers or young adults, resulting in brain damage, coma & death. (We walk in the rain outside, and yet 100 people a year are struck and killed by lightning every year.)

We must not lose sight on the benefits gained by vaccination in preventing human suffering, permanent damage and death.

Side effects from vaccination are for the most part are minor (for example, a sore arm or tenderness, redness or swelling at the injection site, or low-grade fever) and go away within a few days. Other mild problems include fussiness, tiredness, or poor appetite. Serious allergic reactions occur in less than 1 out of a million doses.

There are many safeguards in our healthcare system to determine the on-going safety of vaccines. Active surveillance, by means of the Vaccine Safety DataLink (VSD), monitors patients receiving vaccinations in the west & southwestern US. In addition the VAERS (Vaccine Adverse Event Reporting System) is in place to detect new, unusual, or rare vaccine adverse events, monitors any increase in known adverse events, identifies risk factors for particular types of adverse events, and assess the safety of newly licensed vaccines.

Many interactive and instructive websites have accurate, up-to-date information (immunize.org and cdc.gov); publications are available as well ([Vaccines: What You Should Know](#), Wiley, publisher).

Despite claims to the contrary from well-intentioned advocacy groups, there is no link between SIDS (Sudden Infant Death Syndrome) deaths and any vaccine. Nor is there scientific evidence for a link between autism and measles vaccination or thimerosal preservative. Millions of dollars have been spent researching these issues and sound medical studies demonstrate the safety of these vaccines.

Last year saw outbreaks of measles in our country, caused by unvaccinated travelers returning from Western Europe and is an indication how global travel can rapidly spread a highly contagious disease. In an outbreak of measles in San Diego in January and February 2008, twelve children became ill. Nine of them were not vaccinated, and the other three were too young to receive vaccines.

Clusters of unvaccinated children do pose a risk to our population. The necessary vaccination rate for *elimination of a contagious disease* is **95%**. It is estimated that doubling the number of non-vaccinated individuals against measles would increase the risk of measles in vaccinated children anywhere from 5–30%. Two doses of the measles vaccine are currently given to children so that approximately 99.8% of the children are protected. That means that if my child is one of the 0.2% who happens to not develop immunity to the vaccine, he'll still be protected because the rest of the population is vaccinated. When the unvaccinated travel and import measles, this can put our own healthy children at risk!

Future vaccines hold promise to prevent other diseases as well. Imagine if all cancer, malaria, AIDS, and even Methicillin-resistant *Staph aureus* (MRSA) infections could be prevented by vaccination, providing *hope over fear* of these and other devastating conditions.

Parents of young children, like me, can find comfort in our current system of safe & effective vaccinations, and can look forward to an even better understanding of how to keep our children happy & healthy in the future.

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