Global Community Health; Health and Environment

Vaccinations

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INTRODUCTION

Every year, between two and three million deaths due to diphtheria, tetanus, pertussis, and measles are prevented globally thanks to vaccinations. “Vaccinations” however, is a semi vague term we hear in the doctor’s office or on the news. Recently, the topic of vaccinating has become one of social conflict in the United States and yet the average American couldn't tell you specifically what a vaccine is or how it benefits your health, and the health of society. A vaccine is a substance that contains what ever germ causes the specific disease, for example, the measles vaccine contains the measles virus. This is injected into the body so that the immune system can come into contact with, recognize, and create antibodies against the disease. The germs inside the vaccine are either killed or significantly weakened so that they do not cause the sickness themselves, but still allow the body to prepare a defense mechanism, thus making the person immune or at a much higher chance of survival.

As early as 100CE the Chinese are believed to have created an inoculation against smallpox. They did this by scratching matter from a smallpox sore into the skin of a healthy person (History of Vaccines RSS). While this was quite a ways off from our sophisticated version of vaccinations today, it was a start. The discovery of what we would consider the modern day immunization is credited to Edward Jenner in May of 1796, when he inoculated an eight year old boy with matter from a cowpox sore. The boy, James Phipps, became ill for a few days but made a complete recovery, and when later inoculated with matter from a human smallpox sore, he remained healthy. Thus was the first recognized vaccination (History of Vaccines RSS). In the next two hundred

years, advanced medical knowledge and technology has allowed us to take this concept and apply it to all kinds of diseases, and prevent mass death all over the world.

BODY

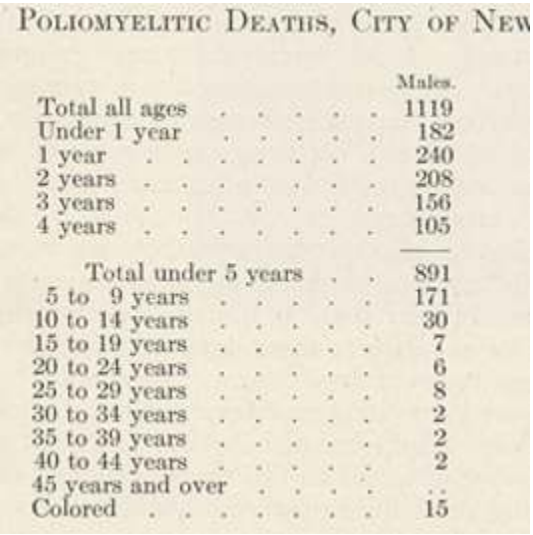
Currently recognized by the United States Centers for Disease Control, there are twenty eight vaccine preventable diseases ranging from anthrax to yellow fever. The more common of these that we are more likely to be familiar with, are measles, tetanus, diphtheria, polio, and influenza. Many of the vaccines available aren't ones typically given unless traveling to an area where the disease is common. In the past, shortages of particular vaccines have occurred due to manufacturers leaving the market, and insufficient stockpiles. During times of shortages, temporary changes in the recommendation of their use were implemented and projected duration was presented to the public. As of January 12, 2015, there are no current shortages on vaccines, however there is a nationwide shortage of the tuberculosis assessment substance, which detects if you have ever been exposed to the tuberculosis disease, and this is different from the inoculation. This assessment is required from many employers and the shortage has resulted in a simple questionnaire given to most people, determining whether they will get the actual substance assessment.

In the Unites States, vaccines are required by law in every state for children as they enter the school system. This applies to children in public schools as well as private schools and day care facilities. Many of these states offer exemptions for religious or philosophical reasons, however these exemptions are hard to come by and require a rigorous application process and much paperwork. There is more and more evidence relating to the correlation between higher numbers of vaccinated school children and the decrease of disease incidence. The more children that have been inoculated in a given geographic area, the less likely there is to be a disease outbreak. The more “exempt” students there are, the greater the risk for the community as a whole. In the state of Virginia, documentary proof must be provided to attend any public or private elementary, middle, or secondary school, child care center, nursery school, family day care home, or developmental center. The vaccines required are the Tdap, Hib, Hep B, HPV, MMR, PCV, polio, and varicella (School Requirements; Virginia Department of Health). George Mason University also has its own immunization requirements for attendance; these include Hep B, MMR, meningococcal, Tdap, and the tuberculosis screening.

EXAMPLES

In the last year alone, we have had an escalation of measles outbreaks, particularly in states where the immunization regulations are less strict than others, like California. This however, is just one example of a preventable outbreak. In 1952, there were 57,628 reported cases of polio, 21,000 if which were paralytic (History of Vaccines RSS). This large number of polio diagnoses surged a public outcry for a vaccine, something to get rid of the fear in every American parent. Over the next fifty years,

various trials and vaccines would come out and be given to the population in hopes to eradicate polio. In 1994, this hope became a reality when polio was officially declared eradicated from not only the United States, but from the Americas.



POLIOMYELITIC DEATHS, CITY OF NEW

	Males.
Total all ages	1119
Under 1 year	182
1 year	240
2 years	208
3 years	156
4 years	105
Total under 5 years	891
5 to 9 years	171
10 to 14 years	30
15 to 19 years	7
20 to 24 years	6
25 to 29 years	8
30 to 34 years	2
35 to 39 years	2
40 to 44 years	2
45 years and over	..
Colored	15

Before its vaccine was introduced in 1969, rubella was another global problematic disease. Prior to 1969, outbreaks would occur in the US every six to nine years and every three to five years in Europe. Between 1962 and 1965, rubella was determined to be the cause of an estimated 30,000 still births and 20,000 children born disabled, with 12.5 million total cases (History of Vaccines RSS). Rubella was particularly dangerous as it caused CRS, congenital rubella syndrome, in newborns. CRS was the main reason a vaccine was created, as it caused a variety of problems for babies including cardiac, cerebral, ophthalmic, and auditory defects. In the early 1970s, a triple vaccine was created to combat measles, mumps, and rubella (MMR) that has led to significantly decreased occurrences of the disease, less than 3000 a year in the US by 2006 (History of Vaccines RSS).

ANAYLYSIS

In the recent years, there has been a new social trend of parents not wanting to vaccinate their children. This has resulted from a scientifically unsupported “link” between immunizations and autism, as well as a lack of outreach and education on the benefits of vaccines. Instead of looking to trusted health organizations such as the Center for Disease Control, World Health Organization, various state departments of health and others, people look to Facebook and blogs to help them make the decision whether or not to inoculate their children. These parents all depend on community immunity or “herd immunity” to protect their offspring from vaccine preventable diseases. Community immunity is the concept that if enough people in a geographical location are immunized, this will protect the few who aren't because it contains the spread of contagious diseases. While this is true in theory, it does not work correctly if everyone is relying on it. This idea is meant to protect the few who cannot receive vaccinations due to medical reasons, not ill founded parental fears.

In the western world, where we are considered “developed” countries, and information is never more than a few clicks away, it is devastating to see the empathy in Americans when it comes to preventing the death of children through means of immunizations. All over the world the child death rate is higher than necessary because vaccines aren't available for preventable diseases. In 2010, UNICEF and WHO started a measles vaccination campaign and vaccinated over 620,000 children between the ages of six months and fifteen years in Somalia. In addition, over half of the children under five were given the polio vaccine as well. One mother stated “I believe in vaccinating and had planned on taking my children to a health center to do it, but then they came to us to vaccinate our children. It’s wonderful.” (UNICEF). The people of

Somalia were so grateful for these vaccines because they've seen firsthand the amount of deaths they prevent. As encouraging as situations like these are, there were still roughly 1.9 million children left unvaccinated, and susceptible to the contagious disease. This is a reflection of many parts of the globe, where people are willing and wanting of immunizations, but are unfortunately denied them.

CONCLUSION

In Europe and the Americas, we have seen firsthand how much of an impact 8vaccinations have on death rates due to preventable diseases. In the last sixty years alone, death tolls have become a sliver of what they once were. Outbreaks have been contained and mostly eliminated. Disease that were once rampant have become completely eradicated. So much progress has been made because of immunizing children which has protected ourselves as a community against deadly and horrifying diseases. Having conquered this battle against nature here on our home turf, our next agenda needs to be to bring that kind of success to a global scale. Efforts are constantly being made worldwide to lower the preventable disease rate, but there is still so much to accomplish. Our best defense is to keep our cases of outbreak in the developed nations low, through means of continued vaccination. In addition we need to educate the population, at home and abroad, on what it means to vaccinate, and how doing so affects our health, not just as a state or country, but as a planet.

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