INFORMATION ABOUT IMMUNIZATIONS

Most parents already know about immunizations since they must deal with them as their children grow up and enter school. However, many parents and adults lack knowledge of the diseases these immunizations are meant to prevent, the safety and efficacy of these vaccines, and how vaccines work. This short leaflet is meant to provide this information and to discuss ABWE's policy in requiring vaccines.

How vaccines work

Vaccines work in three ways:

1. They generally prevent immunized individuals from getting the disease and/or
2. They may reduce the severity of the disease if it is contracted (as with the seasonal Flu or Shingles)
3. They decrease the likelihood of exposure to the disease through a concept called "herd immunity".

The active component of a vaccine is a modified or partial form of the virus, bacteria or toxin that causes the disease. This vaccine antigen is altered so it no longer causes disease, but it can produce an immune response. The antigen stimulates the body's immune system to produce antibodies against that germ or toxin AND the memory to produce more antibodies if there is a future exposure. As an increasing percentage of the population develops immunity, this decreases the chances that this germ will be around to potentially cause infection (herd immunity). When the proportion of a population with immunity reaches a range of 83-94%, it is thought that sufficient herd (or community) immunity is present to prevent transmission of that disease to someone who cannot be immunized.

Infectious diseases are spread by means of "vectors". The most common vector is an infected person who is coughing and sneezing – the virus or bacteria is in the tiny water droplets that occur with cough or a sneeze. Other common "vectors" may be contaminated foods, animals and even insects. Common insect vectors include mosquitoes, ticks, bedbugs, and, most recently documented, cockroaches.

Vaccine Safety

There are many misconceptions about the safety of modern vaccines. You may have heard that some vaccines are linked to the development of autism. This so called "link" published in 1998 has been exposed as a fraud and the investigator found guilty of dishonesty. http://www.bmj.com/content/342/BMJ.c7452.full A review article published in 2014 indicated that further studies have not supported a link https://www.tandfonline.com/doi/abs/10.1586/14760584.3.1.19 .

There are concerns that vaccines are full of toxic substances. This is also not true. Early in development, vaccines contained extra viral/bacterial proteins that were not needed

to cause immunity. These extraneous proteins have been eliminated resulting in far fewer reactions to the vaccine. Many vaccines do contain egg proteins, bovine casein (cow proteins also found in milk) and other types of ingredients. If you or your child is allergic to eggs, then you should discuss with your doctor which vaccines are problematic for you and what alternatives might exist. If there are no alternatives, you may be given a specific waiver.

There have been complaints about mercury in vaccines. The CDC publishes a listing of vaccine ingredients https://www.cdc.gov/vaccines/vac-gen/additives.htm . There are currently none that contain mercury and only three continue to contain thimerosal. While used as a preservative, thimerosal has been eliminated from most vaccines.

ABWE's Policy

ABWE requires missionaries and their families to have basic immunization coverage. This includes the following: diphtheria/tetanus/pertussis, polio, measles/mumps/rubella, Hepatitis A, and Hepatitis B. Young children should also have rotavirus, hemophilus influenza (HIB), and varicella within the age guidelines recommended by the CDC. Additional information about each of these is found at the end of this document in Appendix A.

ABWE also requires specific vaccinations for missionaries going to countries that have other vaccine-preventable diseases. These include

- Yellow Fever for countries where that is required or prevalent,
- Meningitis
- Japanese Encephalitis

We value the lives of our missionaries and their children, as well as the nationals in countries where we serve. We value the lives of healthcare workers who care for people that contract disease. We believe the risk of not vaccinating, and thus catching a disease, is much higher than the risk of catching a disease because of receiving a vaccine. Some host countries will not allow entrance to their country without current vaccines. We do not wish to be objectionable to host-country authorities. ABWE has experienced missionary deaths and severe, costly illnesses from infectious diseases. Therefore, this policy is firm.

Objection(s) on Moral Grounds

In recent years, the objection to receiving vaccines among the pro-life community has grown out of moral objection. Back in the 1960's, tissue from two aborted infants was used to develop fetal cell line cultures (WI-38 and MRC5). The HEK cell line was developed in 1973 from human embryonic kidney and the PER C6 cell line was developed in 1985 from embryonic retinal tissue. Some have said that if you are pro-life you should not receive vaccines that were developed out of these fetal cell lines. Fortunately, no new fetal tissue is required to

maintain these cell lines. In addition, the practice of using abortion tissue to create new cell lines has been condemned at international levels. Most of the original vaccines that were developed now have alternate cell cultures and/or methods for vaccine development. The vaccines where those original cell cultures are still used carry undetectable amounts of those original fetal tissue cells today.

Throughout human and biblical history, we see God using sinful, fallen acts to bring about his purposes. Joseph was the first to state "What man meant for evil, God used for good." This pattern is repeated over and over in scripture. One author noted that even Jesus walked on roads built by Roman slaves.

ABWE condemns abortion. We respect the sanctity of life, and as such, desire to protect our missionaries and missionary kids from contracting preventable diseases that can cause significant injury or death.

Christian parents may object to the Human Papilloma Virus (HPV) vaccine on moral grounds, thinking that giving the vaccine imparts the unspoken message that premarital sex is okay. Nothing could be further from the truth. As one prominent Christian doctor said, "I would give the HPV vaccine to my unmarried daughter for the same reason I tell her to wear a seat belt when she drives. I taught her not to speed as well as Biblical abstinence until marriage. But just as I cannot guarantee that someone else won't drive recklessly and hit her car, I can't guarantee that she won't be infected by HPV if she is raped or that her future husband will not bring HPV into their marriage from a sinful choice he made. I give the vaccine while teaching abstinence."

Do I need a vaccine for a disease that has been "eliminated?"

Polio virus represents one of medicine's greatest success stories. It has been nearly eradicated worldwide because of increasing "herd immunity". However, there are still pockets where that virus remains active or where it has re-emerged [http://polioeradication.org/polio-today/polio-now/ - currently 3 different countries. Modern air travel increases the chances that a virus can re-emerge in first world countries. Therefore, it is important to have immunity to the polio virus.

Smallpox is one vaccine that is no longer given because there has been sustained eradication of the disease. When the World Health Organization (WHO) and Centers for Disease Control (CDC) remove a vaccine from their recommendations, ABWE no longer requires it.

What about the flu shot? It doesn't always work.

The annual influenza, or flu, epidemic experienced in North America can be deadly. There have been upwards of 55,000 deaths annually from this infectious disease. There are two primary types of influenza, Type A and Type B, with over 4000 genetic variants

of these viruses. Each year the scientific community makes its best prediction on what viral strains will be prevalent and develops the annual vaccine for that target. Because it is not an exact science, sometimes the match is not exact, and the vaccine is less preventative. However, having SOME protection usually reduces the severity of an acquired case of the flu, so the vaccine is still strongly recommended. See the CDC website for more information: https://www.cdc.gov/flu/

The flu vaccine does not prevent the common cold (over 200 viral strains may cause this), which many people confuse with true influenza since some symptoms are similar. Also, please realize that influenza is different from "stomach flu", or viral gastroenteritis. Influenza is a viral respiratory infection. The flu vaccine will not prevent stomach flu.

Can immunizations be spread out more?

Some parents are concerned that their children are receiving too many vaccines too close together. If that is a parental concern, ABWE does allow for a more extended immunization schedule. However, please be aware that doing this may cause a delay of arrival on the field so that your children are sufficiently protected before arrival.

APPENDIX A

As recommended immunization schedules can change from year to year, please check the CDC website for current recommendations: https://www.cdc.gov/vaccines/schedules/

BRIEF DESCRIPTION OF DISEASES PREVENTED

1. DTaP / Tdap – prevents tetanus, diphtheria, and pertussis (whooping cough). Tetanus causes severe, prolonged, and very painful muscle contractions (tetany) due to a neurotoxin. Tetanus spores are in the soil and, if introduced into a wound (even a minor skin abrasion or puncture), will induce the disease. Diphtheria is uncommonly seen now days because of a very effective vaccine program. It used to be a common cause of infant and child mortality but is now preventable. Pertussis (whooping cough) is a severe cough that presents a characteristic "whooping" sound. In recent years there has been a higher frequency of this disease because of an increasing number of children who have not been immunized and a falling immunity among adults. Adults should get a single booster of Tdap to boost immunity to pertussis.
2. Rotavirus – a virus that causes gastroenteritis with severe watery diarrhea and often vomiting, fever and abdominal pain. Globally over 500,000 children die every year from this virus. The vaccine is safe and effective.
3. Hemophilus influenza type B (HIB) – can cause meningitis (infection of the brain covering), pneumonia, epiglottitis (a severe throat infection),

and other serious infections. It is spread by coughing and sneezing. Prior to this vaccine, about 20,000 children each year in the US were seriously ill from HIB.

4. Pneumococcus (PCV & PPSB) – can cause pneumonia, meningitis, otitis media (middle ear infection), and bacteremia (bloodstream infection). It is spread primarily by coughing and sneezing. The vaccine is given routinely to all children up to age 2. After age 2, only children and adults who are at high risk need this vaccine.
5. Polio (IPV or OPV) – this viral infection can cause poliomyelitis or paralysis (usually temporary but sometimes permanent). The vaccine is highly effective in preventing disease.
6. Measles-Mumps-Rubella (MMR) – these are all viral infections that are now preventable with vaccine. Measles kills nearly 200,000 children globally every year. Rubella is usually mild in children but if caught during pregnancy, it can cause serious birth defects.
7. Varicella – chickenpox, a common childhood disease, is caused by the Varicella-Zoster virus. Prior to this vaccine, every year in the US about 11,000 people required hospitalization and over 100 died. When a person "heals" from chickenpox, the virus remains dormant (or inactive) in the body – it hides inside a nerve. Later in life, this virus can emerge from the nerve and cause re-infection, called "shingles". The virus causing shingles used to be called "herpes zoster" but it is now known to be the same virus that causes chickenpox. Preventing chickenpox in childhood by vaccine will reduce the risk of developing shingles later in life.
8. Hepatitis A – is caused by a virus that is spread via contaminated water, vegetables, or fruit. Hepatitis is an inflammation of the liver usually causing jaundice (yellow eyes). Hepatitis A is usually a self-limited disease but about 10-15% can have relapses that may last up to 9-12 months. In the US, nearly half of reported cases have no specific risk factor identified. The vaccine is safe and effective.
9. Hepatitis B – is often thought of as an STD (sexually transmitted disease). While this is true, in the international setting, infection also occurs from contaminated medical injections, IV drips, dental procedures, surgical procedures, and blood transfusions. Some insects (i.e. cockroaches, bedbugs) are known to be vectors. People in the medical profession are at higher risk of infection. The disease is much more severe in children – there is a higher mortality rate and a much higher

chronic infection rate (90% of infected infants and 30% of infected children under age 5). The vaccine is safe and effective.

10. Meningococcal (MCV) – a bacteria that can cause severe meningitis. 10-14% of cases are fatal. High risk groups include infants & young children (especially in endemic areas overseas), refugees, people without spleens, and teenagers/college students who live in a dormitory situation. The bacteria are spread by coughing and sneezing. Devastating epidemics continue to occur in the "meningitis belt" of Africa.
11. Human papilloma virus (HPV) – a family of more than 120 HPV subtypes and more than 40 are known to be spread by sexual contact. Six specific subtypes are at high risk for causing both cervical and penile cancer. HPV infection has been likened to viruses that cause respiratory infections – HPV is so common that at least 50% of sexually active men and women will get it at some point in their lives. Two different vaccines have been developed: one vaccine works against four of the cancer-inducing subtypes (Gardasil) and the other works against nine subtypes (Gardasil 9). The vaccines are recommended for girls ages 11-12 and females ages 13-26 who were not immunized earlier AND for boys and men ages 9-26.