

WHY HAVE HEPATITIS B BIRTH DOSE RATES DECREASED IN JOHNSON COUNTY?
A PRELIMINARY QUALITY IMPROVEMENT PROJECT

by

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Abstract

The World Health Organization recommended that the Hepatitis B vaccination be added to the universal vaccination programs in all countries in 1991. Incidence of acute Hepatitis B in the United States decreased 75% from 1991 – 2004 (Mast et al., 2005). This success not only is due to the WHO, but also due to the United States government supporting Hepatitis B perinatal programs. The United States Advisory Committee on Immunization Practices (ACIP) which recommends all infants are given the Hepatitis B birth dose (Hepatitis B infant vaccine) before being discharged from the hospital. The Vaccines for Children Program from Centers for Disease Control and Prevention (CDC) offers childhood vaccinations at no charge for qualifying individuals. This includes uninsured, underinsured, Medicaid-eligible, Native American, and Native Alaskan children (CDC, Vaccines for Children Program, 2012).

Despite efforts made by federal, state, and local governments, between the years 2005 and 2010, Hepatitis B birth dose rates for infants in Johnson County, Kansas have drastically declined – 92.2% coverage in 2005 to 69.9% coverage in 2010.

The purpose of this study is to identify problems that act as barriers to receiving the birth dose and to develop Quality Improvement measures to eliminate them. Thoughts were organized and an internal source survey (JCDHE employees) was conducted to put the results into Quality Improvement tools. The outcome of this study will be useful for answering the question of why the Hepatitis B birth dose rate has dropped in Johnson County, Kansas and suggestions to increase the rate of vaccination.

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Thank you to my friends, Sindhu, Chad, Clayton, Dan, John, and Nikki, for making me feel at home while out of my element.

To my committee members, thank you for working with my off kilter schedule to get in to sign forms and listening to me banter.

Dr. Cates and Barta, without you this program would not be where it is today. Your constant work and forward progression have made it successful. I especially loved your stories, Barta. Remind me, does barley taste good with gravy?

To my brother, Kurstan, the brilliant engineer, for your endless support during my college career and for proofreading my paper. I love you, Bud!

Dr. Nguyen, for the last two years you have dealt with my frantic self in such a kind and compassionate manner. You are the best advisor and mentor ever! I will forever be in your debt. Good luck with your cat!

Chapter 1 - Field Experience

My field experience took place at the Johnson County Department of Health and Environment (JCDHE) in Olathe, KS. Nancy Tausz, the Director of Disease Containment, and Kevin Kovach, the epidemiologist, were the mentors during this experience. My major collaborator was Kevin during the 8 week experience.

In early 2012, Johnson County merged their Health Department and Environmental Department to form one Department of Health and Environment. The field experience was held at the Public Health branch, venturing to the Environmental Branch for meetings.

Meetings

Meeting attended during the first week of the experience included a Disease Reporting Project meeting and an Immunize Kansas Kids (IKK) Grant meeting. During the 8 week period other meetings were attended. These included the Quality Improvement Committee meetings, a leadership meeting, a Strategic Planning meeting, and an Accreditation Committee meeting. Quality Improvement to the JCDHE is detrimental for the accreditation process. According to the CDC, “Quality Improvement in public health is the use of a deliberate and defined process, such as Plan-Do-Study-Act, which is focused on activities that are responsive to community needs and improving population health; it refers to a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality services or processes which achieve equity and improve the health of the community.” It uses tools to find problems, help solve them, and continue on smoothly. This accreditation process will take approximately one year to complete

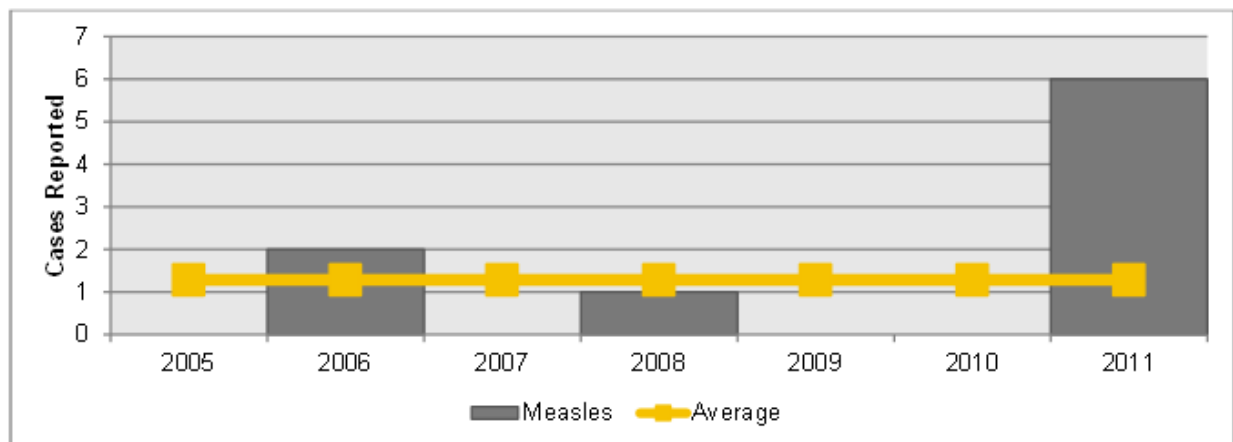
(approx. February of 2014) when an on-site inspection will take place. Quality Improvement provides useful tools to see if there are problems and helps define any problems discovered.

Disease Investigation and Disease Reporting Quality Improvement Project

Disease investigation is a major component of the JCDHE's mission. They (include but are not limited to) take calls regarding communicable diseases, make action plans, contact physicians regarding open communicable disease cases, and close unfinished reports. The CDC's definition of a communicable disease is as follows: an illness caused by an infectious agent or its toxins that occurs through the direct or indirect transmission of the infectious agent or its products from an infected individual or via an animal, vector or the inanimate environment to a susceptible animal or human host. In order to close reported cases, the Disease Investigators of JCDHE usually speak with the attending physician or nurse to get additional information. This data collected can then be used to assess whether or not an outbreak is occurring or what the likelihood it will occur in the future, if numbers of a certain disease has increased, and communicating with the proper authorities (local, state, federal). The cases are completely closed once they are submitted to the Kansas Department of Health and Environment (KDHE), the state health department. The main communicable diseases, handled by the JCHDE Disease Investigators are Hepatitis B, Hepatitis C, and Tuberculosis.

Communicable disease cases are received daily; unfortunately, the daily submitted cases exceed the capacity of the Disease Investigators to process the workload within a day. This is why the JCDHE created a Disease Reporting Quality Improvement Project. The purpose of this project is to make disease reporting a faster, much simpler task for not only the health department, but also the physicians and laboratories that are reporting the disease. The

committee is currently working with the Information Technology (IT) staff to create a website for physicians and laboratories to report communicable diseases. This website will allow easier collection of data compared to previous submission. The amount of time for follow up calls by the Disease Investigators to physicians, laboratories, and patients will be decreased due to the data already being electronically submitted. Overall, the outcome of the proposed web-based submission will increase the efficiency and accuracy of communicable disease cases. For example, the measles outbreak of 2011 took hundreds of hours of manpower. Tiffany Geiger, a Registered Nurse and Disease Investigator for the JCDHE, along with many other staff members had to figure out why there was a disease outbreak. Even though there were only six confirmed cases, that number is still more than the norm per year. The data show that there was an increase from no reported case in 2010 to 6 reported cases in 2011, suggesting small outbreak happened in 2011.



Source: EDSS

Figure 1: Number of Reported Cases of Measles in Johnson County – 2005 to 2011 (JCDHE, 2012)

The collaboration with epidemiologist was crucial in understanding the submitted cases at the JCDHE. Access to the TriSano network, a global public health disease reporting system used by JCDHE, was limited; thus documents were created based on the required information

needed for each disease. For example, the Hepatitis C case document includes demographics (race, age), signs and symptoms (jaundice, dark urine), liver enzyme levels, and risk factors (sexual preference, IV drug use). **Appendix A** shows an example of Hepatitis C. Six total documents were made for these diseases: Campylobacteriosis, Mumps, Hepatitis C, Hepatitis B, Measles, and Pertussis. Using these documents, approximately 12 cases of Hepatitis B and Hepatitis C were closed by calling physicians or their nurses to collect data and additional information. Ninety percent of these physicians and/or nurses were compliant with this process and furnished all the requested information for the closing of communicable disease cases. Unfortunately, there were a few unreported cases that were due to the unawareness of regulations by the state health department. This is another reason why the Disease Reporting Quality Improvement Project is important, informing all healthcare providers regarding mandatory reportable communicable diseases in the State of Kansas as seen in **Figure 2**. Health care providers, hospitals, and labs are required by law to report any suspected cases to the state. There are more than 80 different reportable diseases in Kansas, including, but not limited to campylobacteriosis, rickettsiosis, Lyme's disease, and tuberculosis.

REPORTABLE DISEASES IN KANSAS for health care providers, hospitals, and laboratories
(K.S.A. 65-118, 65-128, 65-6001 - 65-6007, K.A.R. 28-1-2, 28-1-4, and 28-1-18. Changes effective as of 4/28/2006)

☎ - Indicates that a telephone report is required by law within four hours of suspect or confirmed cases to KDHE toll-free at 877-427-7317

① - Indicates that an isolates must be sent to: Division of Health and Environmental Laboratories
Forbes Field, Building #740, Topeka, KS 66620-0001
Phone: (785) 296-1633

Acquired Immune Deficiency Syndrome (AIDS)

Amebiasis

Anthrax ☎

Arboviral disease (including West Nile virus, Western Equine encephalitis (WEE) and St. Louis encephalitis (SLE)) - indicate virus whenever possible

Bacillus ☎

Bruceellosis

Campylobacter infections

Chancroid

Chlamydia trachomatis genital infection

Cholera ☎

Cryptosporidiosis

Cyclospora infection

Diphtheria

Ehrlichiosis

Escherichia coli O157:H7 (and other shiga-toxin producing *E. coli*, also known as STEC) ①

Giardiasis

Gonorrhea

Haemophilus influenzae, invasive disease

Hantavirus Pulmonary Syndrome

Hemolytic uremic syndrome, postdiarrheal

Hepatitis, viral (acute and chronic)

Hepatitis B during pregnancy

Human Immunodeficiency Virus (HIV) (includes Viral Load Tests)

Influenza deaths in children <18 years of age

Legionellosis

Leprosy (Hansen disease)

Listeriosis

Lyme disease

Malaria

Measles (rubeola) ☎

Meningitis, bacterial ☎

Meningococemia ① ☎

Mumps ☎

Pertussis (whooping cough) ☎

Plague (*Yersinia pestis*) ☎

Polomyelitis ☎

Psittacosis

Q Fever (*Coxiella burnetii*) ☎

Rabies, human and animal ☎

Rocky Mountain Spotted Fever

Rubella, including congenital rubella syndrome ☎

Salmonellosis, including typhoid fever ①

Severe Acute Respiratory Syndrome (SARS) ① ☎

Shigellosis ①

Smallpox ☎

Streptococcal invasive, drug-resistant disease from Group A *Streptococcus* or *Streptococcus pneumoniae* ①

Syphilis, including congenital syphilis

Tetanus

Toxic shock syndrome, streptococcal and staphylococcal

Transmissible Spongiform Encephalopathy (TSE) or prion disease (includes CJD)

Trichinosis

Tuberculosis, active disease ① ☎

Tuberculosis, latent infection

Tukaremia

Varicella (chickenpox)

Viral hemorrhagic fever ☎

Yellow fever

In addition, laboratories must report:

- Viral load results of reportable diseases
- ALL blood lead levels, as of 12/2002 (KCLPPP/ABLES)
- CD4+ T-lymphocyte count < 500/μl or CD4+ T-lymphocytes < 29% of total lymphocytes

Outbreaks, unusual occurrence of any disease, exotic or newly recognized diseases, and suspect acts of terrorism should be reported within 4 hours by telephone to the Epidemiology Hotline: 877-427-7317

Mail or fax reports to your local health department and/or to:

KDHE Office of Surveillance and Epidemiology, 1000 SW Jackson, Suite 210, Topeka, KS 66612-1274
Fax: 877-427-7318 (toll-free)

Figure 2: Reportable Diseases in Kansas (KDHE, 2013)

A revised list of reportable communicable diseases in JCDHE can be seen in **Table 1**.

This list was revised to show a comparison between the averages of 2010-2012 with 2013 on a particular month of interest. There are eleven more documents that are the same except for each month plus a master document. The original document made by the JCDHE had all months together. This new document allows easy viewing of diseases month by month. Each month's document has the averages from the respective months in 2010, 2011, and 2012 in place for easy use. The right column has been left blank for the JCDHE to fill in with this year's data.

JCDHE All Diseases Reported		
	June 2010- 2012 Average	June 2013
Disease		
Amebiasis (<i>Entamoeba histolytica</i>)	1	
Anaplasmosis (<i>Anaplasma phagocytophilum</i>)	2	
Animal Bite, potential rabies exposure	---	
Anthrax (<i>Bacillus anthracis</i>)	---	
Babesiosis (<i>Babesia microti</i>)	---	
Blood Lead Poisoning	2.33	
Botulism, wound (<i>Clostridium botulinum</i>)	---	
Brucellosis (<i>Brucella</i> spp.)	---	
Calicivirus/Norwalk-like virus (Norovirus)	---	
Campylobacteriosis (<i>Campylobacter</i> spp.)	37.67	
Coccidioidomycosis (<i>Coccidioides</i>, spp.)	0.33	
Cryptosporidiosis (<i>Cryptosporidium parvum</i>)	5	
Dengue	---	
Dengue Hemorrhagic Fever	---	
Diphtheria (<i>Corynebacterium diphtheriae</i>)	0.33	
Ehrlichiosis/Anaplasmosis Undetermined	---	
Ehrlichiosis (<i>Ehrlichia chaffeensis</i>)	8	

Ehrlichiosis (<i>Ehrlichia ewingii</i>)	---	
Enterohemorrhagic <i>Escherichia coli</i> O157 (EHEC)	0.67	
Foodborne Illness	---	
Giardiasis (<i>Giardia lamblia</i>)	10.33	
<i>Haemophilus influenza</i> (invasive)	0.33	
<i>Haemophilus influenza</i> (other)	---	
Hansen's Disease/Leprosy (<i>Mycobacterium leprae</i>)	---	
Hantavirus Pulmonary Syndrome (HPS)	---	
Harmful Algal Bloom Illness – human	1.67	
Hemolytic Uremic Syndrome - post diarrheal	---	
Hepatitis A	21	
Hepatitis B, acute	3.67	
Hepatitis B, chronic	19	
Hepatitis B, pregnancy event	---	
Hepatitis C, acute	0.67	
Hepatitis C, virus infection, past or present	69	
Hepatitis D, co- or super- infection, acute	---	
Hepatitis E, acute	---	
Histoplasmosis (<i>Histoplasma capsulatum</i>)	---	
Influenza, A and B	---	
Influenza, associated non-pediatric mortality	---	
Legionellosis (<i>Legionella</i> spp.)	2.67	
Listeriosis (<i>Listeria monocytogenes</i>)	0.33	
Lyme Disease (<i>Borrelia burgdorferi</i>)	23.33	
Malaria (<i>Plasmodium</i> spp.)	---	
Measles (Rubeola)	0.67	
Meningitis (other, bacterial)	0.67	
Meningitis (other, fungal)	---	
Meningococcal Disease (<i>Neisseria meningitides</i>)	0.33	
Mumps	2	
Non-Reportable Condition	---	
Outbreak Case, unknown etiology	0.67	
Parapertussis (<i>Bordatella parapertussis</i>)	1.67	
Pertussis (<i>Bordatella pertussis</i>)	78	
Q Fever (<i>Coxiella burnetii</i>), acute	---	

Q Fever (<i>Coxiella burnetii</i>), chronic	---	
Rabies, animal	5.67	
Rabies, human	---	
Rubella	1.33	
Salmonellosis (<i>Salmonella</i> spp.)	25	
Shiga-Toxin Producing <i>Escherichia coli</i> (STEC)	4	
Shigellosis (<i>Shigella</i> spp.)	5	
Smallpox	---	
Spotted Fever Rickettsiosis/RMSF (<i>Rickettsia rickettsii</i>)	39.33	
St. Louis Encephalitis Virus, neuroinvasive	---	
St. Louis Encephalitis Virus, non-neuroinvasive	0.33	
Streptococcal Disease, invasive, Group A	1.33	
Streptococcal Disease, invasive, Group B	---	
<i>Streptococcus pneumoniae</i>, invasive	4.33	
Tetanus (<i>Clostridium tetani</i>)	0.33	
Toxic-Shock Syndrome (<i>Staphylococcus aureus</i>)	0.33	
Toxic-Shock Syndrome (<i>Streptococcus pyogenes</i>)	---	
Transmissible Spongiform Encephalitis (TSE/CJD)	---	
Tuberculosis, active (<i>Mycobacterium tuberculosis</i>)	6	
Tuberculosis, latent (LTBI) (<i>Mycobacterium tuberculosis</i>)	77.33	
Tuberculosis, <i>Mycobacterium</i> spp. other than <i>M. tuberculosis</i> (MOTT)	11.33	
Tuberculosis suspect	16.67	
Tularemia (<i>Francisella tularensis</i>)	1.33	
Typhoid Fever (<i>Salmonella typhi</i>)	0.33	
Vaccinia Infection	---	
Varicella (Chickenpox)	16.33	
Vibriosis (non-cholera <i>Vibrio</i> spp. infections)	--	
West Nile Virus, neuroinvasive	--	
West Nile Virus, non-neuroinvasive	3.33	
Yersiniosis (<i>Yersinia</i> spp.)	0.33	

Table 1: JCDHE Reportable Disease List - June

Performance Monitoring Project

In the state of Kansas, children entering school are required by law to be immunized against the following diseases: diphtheria, tetanus, and pertussis (DTap5); polio (Polio4); measles, mumps, and rubella (MMR2); varicella (Var2); and hepatitis B (HepB3). These five immunizations are lumped together periodically in the state of Kansas as 5-4-2-2-1. These numbers refer to the amount in the vaccine series (5 in the diphtheria, tetanus, and pertussis series). Parents are strongly recommended, but not required, to have their children vaccinated for the following additional diseases: *Haemophilus influenzae* (Hib3), hepatitis A (HepA2), and pneumococcal conjugate vaccine (PCV3).

Healthy People 2020 is a United States government program generated at the Centers for Disease Control (CDC) that sets science-based goals to help Americans become healthier over a 10 year timeframe (*Healthypeople.gov*, 2010). According to *Healthypeople.gov*, benchmarks have been established over time in order to encourage collaborations across communities, empower individuals toward making informed health decisions, and measure the impact of prevention activities. When states are looking at immunization goals and standards, they refer to Health People 2020.

Johnson County, KS was part of the statewide Kindergarten Immunization Coverage Survey between the years 2009 to 2012. The study was executed to estimate the immunization coverage rates of children at school entry for each school year (Lawlor, 2010). The data shows the observed rates in Johnson County compared to the Healthy People 2020 goals. The researcher entered data to create graphs for each disease. **Table 2** shows the observed rates for academic years 2009-2010, 2010-2011, and 2011-2012. Goals for Healthy People 2020 can be

viewed in **Table 3**. The graphs that were made from the data in Tables 2 and 3 can be observed in **Figure 3**.

	Observed Rates		
	2009-2010	2010-2011	2011-2012
DTaP5	86%	91%	92%
Polio4	88%	89%	89%
MMR2	89%	93%	92%
Var2	86%	90%	89%
HepB3	91%	95%	95%
5-4-2-2-3	74%	83%	82%
Hib3	81%	85%	87%
HepA2	55%	77%	85%
PCV2	70%	79%	78%

Table 2: Data collected from E.M. Lawlor (2010, 2011, 2012) through KDHE

	Healthy People 2020		
	2009-2010	2010-2011	2011-2012
DTaP5	95%	95%	95%
Polio4	95%	95%	95%
MMR2	95%	95%	95%
Var2	95%	95%	95%
HepB3	95%	95%	95%
5-4-2-2-3	95%	95%	95%
Hib3	100%	100%	100%
HepA2	85%	85%	85%
PCV2	90%	90%	90%

Table 3: Healthy People 2020, *Healthypeople.gov*

The data in **Figure 3** is interpreted as follows from the graphs left to right then the next row, and so and so forth. In Figure 3 the red lines in each graph indicate the Healthy People 2020 goals. The data suggests diphtheria, tetanus, and pertussis (DTaP5) immunization levels have been steadily increasing. At this rate, the Healthy People 2020 goal of 95% coverage will be achieved if continued effort is made. The data suggests measles, mumps, and rubella (MMR2) immunization levels have decreased in the present year suggesting the Healthy People 2020 goal of 95% coverage cannot be achieved at the current rate. The data suggests *Haemophilus influenzae* (Hib3) immunization rates are steadily increasing. Work needs to be done to achieve the Healthy People 2020 goal of 100%. The data suggests polio (polio4) immunization rates have remained the same. At this rate, the Healthy People 2020 goal of 95% coverage will not be achieved. The data suggests varicella (Var2) immunization rates have decreased in the 2011-2012 year. The Healthy People 2020 goal of 95% coverage will not be achieved at the current rate. The data suggests Hepatitis A (HepA2) immunization rates have

reached the Healthy People 2020 coverage goal of 85%. Maintenance needs to be done to keep this rate or to exceed the goal. The data suggests Hepatitis B (HepB3) immunization rates have reached the Healthy People 2020 goal of 95% coverage. In order to keep these rates, maintenance needs to be done. The data for 5-4-2-2-3 (the required vaccinations lumped together) immunizations suggests the rates need to be increased. At this rate, the Healthy People 2020 goal of 95% coverage for the 5 vaccinations will not be achieved. The data suggests pneumococcal conjugate vaccine (PCV3) immunization coverage has decreased. At this rate, the Healthy People 2020 coverage goal of 90% will not be achieved.

Conclusion

The field experience was filled with a wide variety of experiences including involvement in meetings, the Disease Reporting Project, Disease Investigation, and the Performance Monitoring Project. Academic experience was utilized during the experience such as Epidemiology, Global Health Issues, and Human Parasitology, all taken at Kansas State University.

Johnson County Department of Health and Environment 2009-2012 Kindergarten Immunization Coverage



Healthy People.gov. (2013, January 25). <http://www.healthypeople.gov/2020/default.aspx> Lawlor, E. M. (2011). Kindergarten Immunization Coverage Survey: School Year 2010-2011. Topeka: Kansas Department of Health and Environment.

Lawlor, E. M. (2010). Kindergarten Immunization Coverage Survey: School Year 2009-2010. Topeka: Kansas Department of Health and Environment.

Lawlor, E. M. (2012). Kindergarten Immunization Coverage Survey: School Year 2011-2012. Topeka: Kansas Department of Health and Environment.

Figure 3: KDHE Kindergarten Immunization Coverage, E.M. Lawlor (2010, 2011, 2012), and Healthy People 2020

Chapter 2 - Hepatitis B Birth Dose Quality Improvement Project

Introduction

The Hepatitis B birth dose immunization rate is an important public health topic in Johnson County. The hepatitis B birth dose rate (newborn vaccine rate) has decreased from 92.2% in 2005 to 69.9% in 2010. This decline in vaccinations is a real concern for public health officials. What has happened in Johnson County that made this percentage drop so drastically?

Literature Review

Hepatitis B virus (HBV) is a double-stranded DNA virus that is carried in the blood, saliva, tears, seminal and vaginal excretions (Zanetti, 2008). Vertical transmission (mother to infant) and horizontal transmission (child to child) are most common in areas with high prevalence (Zanetti, 2008). In the United States, the most common mode of transmission is sexual contact and intravenous drug use (Zanetti, 2008). HBV infection leads to infection of the liver, cirrhosis, hepatic decompensation, and eventually hepatocellular carcinoma (HCC) (Aspinal, 2011). An effective vaccination for HBV has been available for over 20 years. It is now a third generation vaccine (Shouval, 2003).

HBV infection is a problem not only in the United States, but also at a global level (Chen, 2009). There is approximately 350 million HBV chronically infected people on the global level (Kwon, 2011), and approximately 1.25 million HBV chronically infected people in the United States (Jiles, 2001). One third of the chronically infected persons in the United States acquired Hepatitis B infection through perinatal and early childhood exposures (Jiles, 2001).

In 1991, the World Health Organization (WHO) advocated the policy of universal hepatitis B vaccination by 1997 to substantially decrease the incidence of HBV on a global scale (Zanetti, 2008). By the end of 2006 one hundred sixty-eight countries had executed or were planning to execute a universal HBV immunization program for infants (Zanetti, 2008). Of the 168 countries, 131 countries had announced infant coverage post-third dose was over 80% (Zanetti, 2008), deeming the universal policy a success.

The probability of developing chronic hepatitis B (CHB) is directly related to the age at which the initial infection is attained (Aspinal, 2011). In other words, the younger the child is at the time of the infection, that child is more likely to develop CHB. If an infant's mother is hepatitis B e antigen positive (HBeAg +), the infant has greater than 90% chance of developing CHB (Aspinal, 2011). HBeAg is a viral protein that is secreted by Hepatitis B infected cells (Hepatitis B Foundation, 2010). A positive result for HBeAg means the person has a high level of virus and greater infectiousness (Hepatitis B Foundation, 2010). In the United States, hospitals and healthcare providers are recommended to do routine antenatal screening of all pregnant women to determine HBsAg + women (Aspinal, 2011). This presents opportunities to significantly decrease the likelihood of vertical transmission from mother to child by introducing the proper post-exposure prophylaxis (PEP) to the newborn (Aspinal, 2011). PEP for infants born to HBsAg + mothers would be the HBV vaccination and Hepatitis B immunoglobulin (HBIG) (Aspinal, 2011). It is given with the vaccine to prevent the contraction of Hepatitis B.

In order to prevent perinatal transmission of HBV, healthcare providers (especially delivery hospitals) must have similar protocols/standards of practice (Willis, 2010). There is also a need for delivery hospitals to have perinatal HBV prevention strategies due to the growing number of births to foreign-born women (Willis, 2010). Direct influence from health care

professionals is a huge sway on parents' judgment to complete their child's immunizations (Pearce, 2008).

Parents aren't necessarily receiving the information they need or feel is necessary to have a better understanding about HBV vaccination for their infant (Gowda, 2012). Some barriers include, but are not limited to lack of vaccine education and vaccine-preventable diseases (Gowda, 2012), lack of reimbursement from insurance companies (Cooper, 2001), and unwillingness to vaccinate at early age (Cooper, 2001). Other factors that hindered compliance were non-white race, low socio-economic status (SES), low parental education, younger maternal age, large family size, negative beliefs/attitudes towards immunization (objection or disagreement), fear of side-effects/risks/contraindications, forgetting vaccination schedules, sick child (Falagas, 2008), mistrust of health care workers, misconceptions (Braka, 2012), logistical barriers, and logistical facilitators (Bhat-Schelbert, 2012). Parents also underestimate the severity of communicable diseases, were doubtful of vaccine benefits, and feared vaccine side effects more than the disease itself (Falagas, 2008).

According to *Braka et al.* (2012), information can be received by the public through announcements at health care facilities, schools, churches and funerals, posters, notices, immunization cards, fellow community members, and mobile loud speakers. Other methods that have been successful in vaccination education are focus groups (Gowda, 2012), semi-structured interviews (Cates, 2012), and surveys (Thorpe, 2012). According to the CDC, educational programs focused on the reduction of IV drug use and unprotected sexual activities are imperative in decreasing the numbers of HBV infections (CDC, 2008). School-based immunization programs are also extremely successful for unvaccinated children since as a child

gets into the adolescent stage, parents are less likely to promote regular check-ups unless their child is sick (Goldstein, 2001).

Another important factor in the prevention of HBV infection is not only vaccinating infants, adolescents, and high risk individuals, but also ensuring the vaccination of health care/public safety workers, laboratory workers, correctional facility workers (Aspinal, 2011), and residents and staff of facilities for developmentally disabled persons (CDC, 2008). This is due to sharps handling, invasive procedures, etc. (Aspinal, 2011).

The effectiveness of vaccinations has decreased threats correlated with childhood diseases, but if there is a reduction in immunization, these “forgotten” diseases could return to epidemic levels and be a serious threat (Cullen, 2005).

ACIP and CDC Recommendations

The Advisory Committee on Immunization Practices (ACIP) recommends all infants are given the Hepatitis B birth dose before being discharged from the hospital. The Centers for Disease Control (CDC) in Atlanta, Georgia, sets childhood immunization standards based on judgments made by the ACIP (CDC, August 2012). The ACIP Recommended Immunization Schedule for Persons Aged 0 Through 18 Years is shown in **Figure 4**. Notice the Hepatitis B birth dose is the only recommended vaccination to be given at birth.

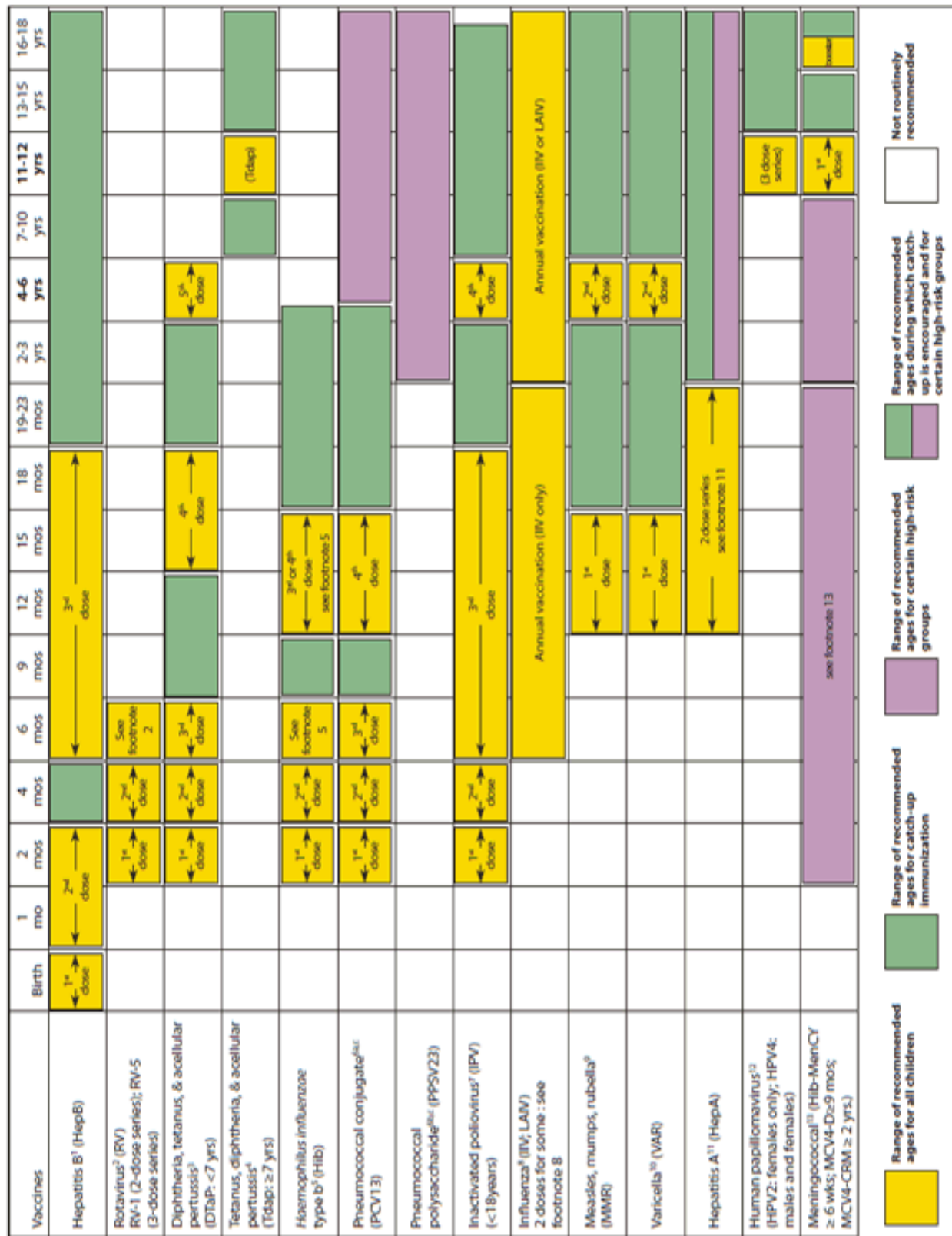


Figure 4: ACIP Recommended Immunization Schedule for Persons Aged 0 through 18 Years (ACIP, 2013)

Healthy People 2020

Healthy People 2020 is a plan for the United States where goals are set to make the population healthier over the 10 year period, from 2010-2020. The goal is to “achieve and maintain an effective coverage level of a birth dose of hepatitis B vaccine (0 to 3 days between birth date and date of vaccination, reported by annual birth cohort)” (*Healthypeople.gov*, 2010). The target percent is 85% of all newborns between the years 2010 and 2020 receiving the hepatitis B birth dose. The JCDHE drafted a problem statement to move toward the Healthy People 2020 goal: the JCDHE wants to improve the coverage rate of the Hepatitis B Birth dose immunization, but does not know what is driving the observed decrease.

Materials and Methods

In order to evaluate the entirety of the decrease in Hepatitis B birth dose vaccination, the JCDHE must start by asking questions to different demographics, health care providers/workers, and others. The JCDHE resident epidemiologist, Kevin Kovach, and this researcher developed questions to be used during future Qualitative Interviews. Questions were developed for pregnant women (**Appendix B**) and obstetricians (**Appendix C**) to determine barriers and to see what could be done differently to promote the Hepatitis B birth dose. When these interviews are performed, a consent form (**Appendix D**) will be completed before questioning begins. After completion of the interview process participants will be handed information that the CDC has compiled on the importance of Hepatitis B vaccination. This information gives recommendations to healthcare providers and parents. It can be found on the CDC website.

Along with these questionnaires, a survey was sent via JCDHE email to a 14 JCDHE employees which can be viewed in **Appendix E**. We received responses to 6 out of the 14

surveys sent out. Their replies are located in **Appendix F**. One of the sets of questions asked: why do you think the Hepatitis B birth dose administration rate declined between 2005 & 2010? Did something change in the community that may have led to this? What do you think could be done to reverse this trend? Some of the answers included moms refusing to vaccinate their infants, standing orders are not being followed by birthing unit, and fear of adverse vaccine reaction. The questions yielded similar responses in that all surveyors agreed that there was a problem at the hospital level and the parent level and changes needed to be made. Thoughts were consistent across the board. Through these findings along with the literature review the JCDHE can begin to triangulate the cause and how it can be reversed. These surveys were in lieu of meeting with JCDHE staff.

Quality Improvement tools were used to create these questionnaires and surveys. The main tool we utilized was the fishbone diagram or Ishikawa diagram (Minnesota State Department of Health, 2013). It takes one main idea and helps branch out where the possible problems are located. The six branches are referred to as Ribs. Organization of thoughts and data is necessary when coming up with questions for the Ribs. The main idea was the fact that Hepatitis B birth dose rates decreased in Johnson County from 2005 to 2010. The completed fishbone diagram can be seen in **Figure 5**. Brainstorming information from the literature review was used to come up with this diagram.

Fishbone Diagram Explanation

Looking at the figure, Rib 1 (Perinatal Hepatitis B Testing is Not Enforced) these branches were used: birthing centers are non-compliant; birthing centers not aware of protocol recommended by the CDC; mothers are not aware of perinatal testing; doctors are not enforcing

screening; no post-exposure prophylaxis for infants born to HBsAg+ mothers. Rib 2 (Hepatitis B Birth Dose Rates Low Among Uninsured) includes the following questions: Why are vaccination numbers low among the uninsured? Is it the cost? Do they know they may qualify for a free Hepatitis B birth dose through Immunize Kansas Kids (IKK)? Does the age of the parents have anything to do with noncompliance? Where are they getting prenatal care? Rib 3 (Hepatitis B Birth Dose Rate Lowest Among Hispanic Population) in the fishbone diagram has the following questions: Why are the vaccination numbers the lowest within the Hispanic Population? Do they have adequate information? Is there a language barrier preventing them from getting adequate information? Is there a cost barrier? Where are they getting prenatal care? Medical Staff is the title of Rib 4 that includes the following questions: Is there a lack of expertise within medical staff? Are they aware of the WHO's policy of universal Hepatitis B vaccination? If a mother is HBsAg+, are they referring her on to a specialist to help her with Chronic HBV? Is the staff vaccinated? Are there enough staff members to deal with education? The 5th Rib (What are the General Perceptions of the Hepatitis B Vaccine) includes the following questions: What are the general perceptions of the Hepatitis B vaccine? Are parents fearful of the safety? Do they think it causes autism? Do they believe their infants are too young to receive the vaccination? Are they afraid of hurting their infants with the needle? Are they exempt from vaccinating their infants because of religion? If so, which religions? Does this make up a large portion of the population? Are the parents misinformed? If they get their information from the internet, which website is it, and is it valid? Is their media source a reliable source? Rib 6 (Are Healthcare Providers Informing Parents About the Hepatitis B Birth Dose?) includes the following questions: What are physicians' views on the Hepatitis B birth dose? Are physicians empowering parents to opt out? Are physicians giving parents enough time to ask questions

about vaccinations or are the parents shorted on time? Are nurses replacing doctors to pass along information about vaccines? Are physicians aware of the drop in numbers of infants getting the Hepatitis B birth dose? Are they not pushing for parents to give their infants the Hepatitis B birth dose? Do physicians in Johnson County not think there is a high enough rate of Hepatitis B to be of concern? With this useful information, the project will continue as planned (surveys and questionnaires will be given to hospital staff and pregnant women) after the grant is accepted.

In this project, we worked on the planning part of the Quality Improvement tool, Plan-Do-Study-Act. The Plan portion is where the problem is identified, discussed, input is obtained from stakeholders, potential solutions are identified, and an improvement theory is developed. Some questions to keep in mind are: What are we trying to accomplish?, How will we know that a change is an improvement?, What changes can we make that will result in improvement (Tews et al., 2008)? An example of the Plan-Do-Study-Act chart can be viewed in **Figure 6**.

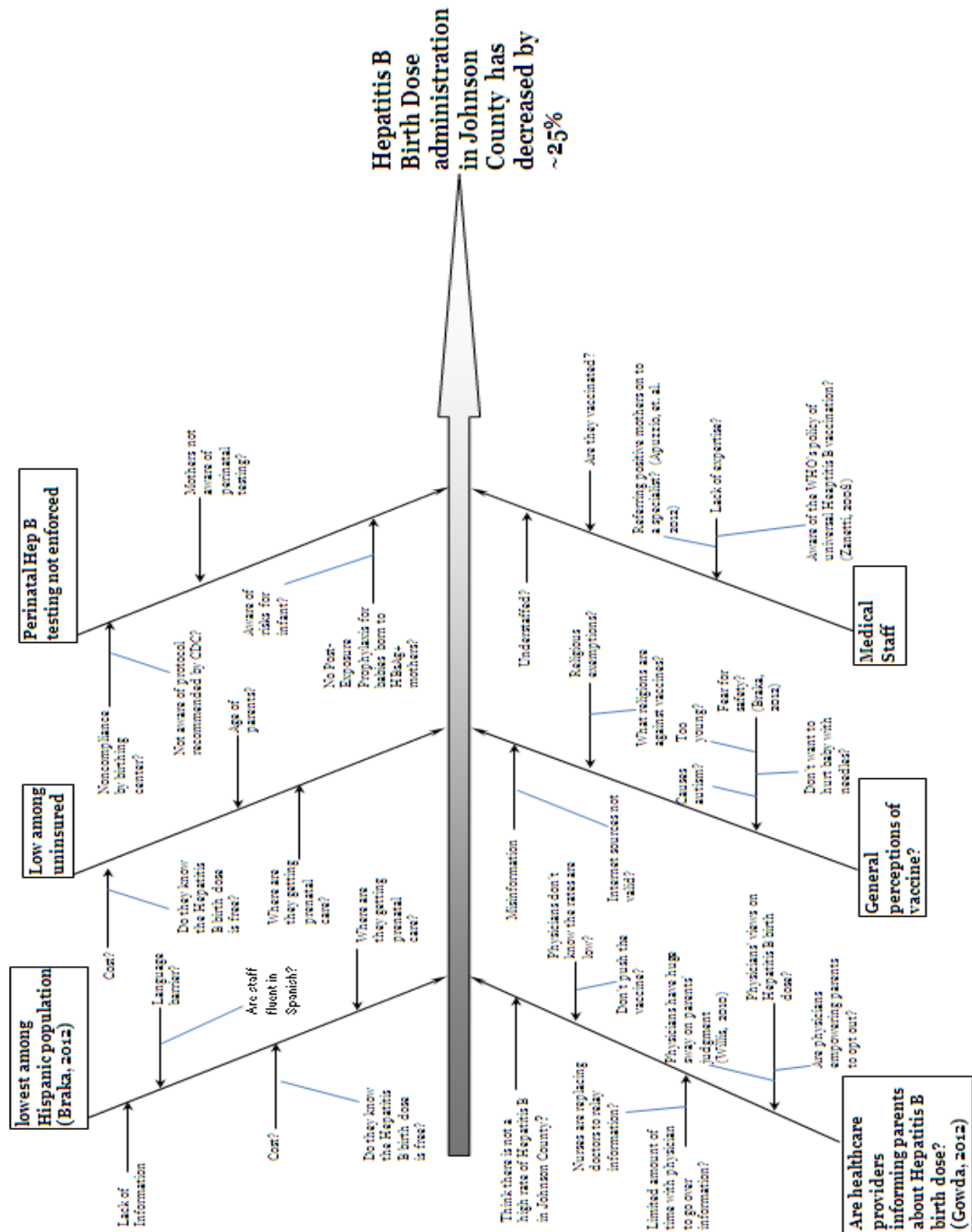


Figure 5: Hepatitis B Birth Dose Fishbone Diagram, Kealan Schroeder and Kevin Kovach

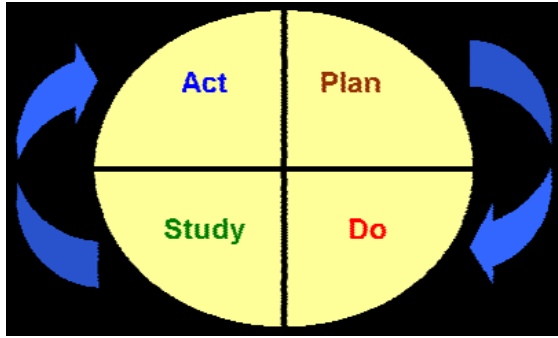


Figure 6: PDSA

Intervention Strategies

Social Marketing is a relatively new tool, along with Quality Improvement, in the Health Department sector. It is focused on consumers' needs. The JCDHE most likely will incorporate a Social Marketing plan as the project progresses by putting a campaign in the community to build Hepatitis B awareness.

Hospital policy change also might take place in Johnson County after the surveys and questionnaires are completed. This is due to the fact that not all hospitals are enforcing the initial Hepatitis B birth dose. They are letting the parents ultimately decide at what age the vaccination is given. Parents normally look for their pediatricians for advice. It is the pediatricians' responsibilities to inform parents of the risks of not having their newborn vaccinated.

Chapter 2 Conclusion

The ACIP and Healthy People 2020 provide goals and guidelines to contribute to the rise of Hepatitis B birth dose rates. The JCDHE will use these guidelines to help increase the rates to decrease the prevalence of disease. The use of Quality Improvement tools will be a large part of the Public Health system's future. It will continue to be used in accreditation for Health Departments to maximize potential and minimize wasted time and effort.

Chapter 3 - Conclusion

The field experience discussed in Chapter 1 proved to be a success: academic knowledge was used as well as gaining real world experience through hands on tasks (Disease Reporting, etc.). This experience will be useful in what to expect outside academia.

The idea behind this project was to utilize Quality Improvement tools to structure surveys and questionnaires. The JCDHE will continue this project to answer the question of why the Hepatitis B birth dose rates have decreased and generate a plan to increase the percentage of infants vaccinated before leaving the hospital after birth.

Opportunities in the public health field are endless. These opportunities include: Health Inspectors, Emergency Responders, Restaurant Inspectors, Public Policymakers, Scientists, Researchers, Public Health Physicians, Public Health Nurses, Occupational Health and Safety Professionals, Social Workers, Sanitarians, Epidemiologists, Nutritionists, Community Planners (APHA, 2013).

In order to help improve overall community health, communication by workers is crucial. Because public health includes such a wide variety of populations, the importance of disease prevention begins with communication. The health system should emphasize hiring bilingual (Spanish speaking) workers. Lack of emphasis in learning the Spanish language stems from the Master of Public Health (MPH) schools. With the population veering towards Spanish speaking cultures, Spanish classes should be added to the required MPH courses list immediately.

References

- ACIP Childhood/Adolescent Immunization Work Group (2013, February 1). Advisory Committee on Immunization Practices (ACIP) Recommended Immunization Schedule for Persons Age 0 to 18 Years - United States 2013.
<http://www.cdc.gov/mmwr/preview/mmwrhtml/su6201a2.htm>
- APHA. (2013). *What is Public Health?* American Public Health Association:
http://www.apha.org/NR/rdonlyres/C57478B8-8682-4347-8DDF-A1E24E82B919/0/what_is_PH_May1_Final.pdf
- Aspinal, E. J.; Hawkins, G., Fraser, A.; Hutchinson, S.J., Goldberg, D. (2011). Hepatitis B prevention, diagnosis, treatment and care: a review. *Occupational Medicine*, 61(8), 531-540.
- Bhat-Schelbert, K.; Jeng Lin, C.; Matambanadzo, A.; Hannibal, K.; Nowalk, M.P.; Zimmerman, R.K. (2012). Barriers to and facilitators of child influenza vaccine - Perspectives from parents, teens, marketing and healthcare professionals. *Vaccine*, 30(14), 2448-2452.
- Braka, F.; Asiimwe, D.; Soud, F.; Lewis, R.F.; Makumbi, I.; Gust, D. (2012). A Qualitative Analysis of Vaccine Safety Perceptions and Concerns Among Caretakers in Uganda. *Maternal & Child Health*, 16(5), 1045-1052.
- Cates, J. R.; Ortiz, R.; Shafer, A.; Smith Romocki, L.; Coyne-Beasley, T. (2012, March). Designing Messages to Motivate Parents To Get Their Preteenage Sons Vaccinated Against Human Papillomavirus. *Perspectives on Sexual and Reproductive Health*, 44(1), 39-47.
- CDC. (2012, August 16). Advisory Committee on Immunization Practices (ACIP).
<http://www.cdc.gov/vaccines/acip/about.html>
- CDC. (2008, November 21). *CDC MMWR*.
www.cdc.gov/mmwr/preview/mmwrhtml/mm5746a1.htm
- CDC. (2012, August 31). Vaccines for Children Program.
<http://www.cdc.gov/vaccines/programs/vfc/about/index.html>
- Chen, D. (2009, April). Hepatitis B vaccination: The key towards elimination and eradication of hepatitis B. *Journal of Hepatology*, 50(4), 805-816.
- Cooper, A.; Yusuf, H.; Rodewalk, L.; Malik, T., Pollard, R.; Pickering, L. (2001). Attitudes, Practices, and Preferences of Pediatricians Regarding Initiation of Hepatitis B Immunization at Birth. *Pediatrics*, 108(6), 1-7.
- Cullen, J. (2005, January). Why parents choose to not vaccinate their children against childhood diseases. *Professional Nurse*, 31-33.

- Falagas, M. E.; Zarkadoulia, E. (2008). Factors associated with suboptimal compliance to vaccinations in children in developed countries: a systematic review. *Current Medical Research and Opinion*, 24(6), 1719-1741.
- Goldstein, S. T.; Cassidy, W.M.; Hodgson, W.; Mahoney, F.J. (2001, May). Factors Associated with Student Participation in a School-based Hepatitis B Immunization Program. *Journal of School Health*, 71(5), 184-187.
- Gowda, C.; Schaffer, S.E.; Dombkowski, K.J.; Dempsey, A.F. (2012). Understanding attitudes toward adolescent vaccination and the decision-making dynamic among adolescents, parents and providers. *BMC Public Health*, 12(509), 1-10.
- Healthy People.gov. (2010). <http://www.healthypeople.gov/2020/default.aspx>
- Hepatitis B Foundation (2010, June). *Additional Blood Tests*. Hepatitis B Foundation: http://www.hepb.org/patients/additional_blood_tests.htm
- Jiles, R.B.; Daniels, D.; Yusuf, H.R.; McCauley, M.M.; Chu, S.Y. (2001). Undervaccination with Hepatitis B Vaccine, Missed Opportunities of Choice? *American Journal of Preventative Medicine*, 20(4), 75-83.
- Johnson County Department of Health and Environment (2012, January). 2011 Community Health Profile: Johnson County, Kansas. http://jcdhe.jocogov.org/sites/jcdhe.jocogov.org/files/docs/Promoting%20Wellness%20Issues/2011_community_health_profile_final.pdf
- Kansas Department of Health and Environment (2013). Reportable Diseases in Kansas for Health Care Providers, Hospitals, and Laboratories. Topeka, KS. http://www.kdheks.gov/epi/disease_reporting.html
- Kwon, S.Y.; Lee, C.H. (2011, June). Epidemiology and prevention of hepatitis B virus infection. *The Korean Journal of Hepatology*, 17(2), 87-95.
- Lawlor, E. M. (2010). *Kindergarten Immunization Coverage Survey: School Year 2009-2010*. Topeka: Kansas Department of Health and Environment.
- Lawlor, E. M. (2011). *Kindergarten Immunization Coverage Survey: School Year 2010-2011*. Topeka: Kansas Department of Health and Environment.
- Lawlor, E. M. (2012). *Kindergarten Immunization Coverage Survey: School Year 2011-2012*. Topeka: Kansas Department of Health and Environment.
- Mast, E., Margolis, H., Fiore, A., Brink, E., Goldstein, S., Wang, S., et al. (2005, December 23). A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States . *CDC MMWR*, 54. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5416a1.htm>

- Mast, E., Weinbaum, C., Fiore, A., Alter, M., Bell, B., Finelli, L., et al. (2006, December 8). A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States. 55.
<http://www.cdc.gov/MMWr/preview/mmwrhtml/rr5516a1.htm>
- Quality Improvement Resources and Tools*. (2013) Minnesota Department of Health:
<http://www.health.state.mn.us/divs/cfh/ophp/consultation/qi/resources/>
- Pearce, C.; Leask, J.; Ritchie, J. (2008). Tapping midwives' views about the neonatal hepatitis B vaccine: how welcome is a move towards a health promoting orientation? *Health Promotion Journal of Australia*, 19(2), 81-83.
- Shouval, D. (2003). Hepatitis B vaccines. *Journal of Hepatology*, 39, S70-S76.
- Tews, D.; Sherry, M.; Butler, J.; Martin, A. (2008, February). Embracing Quality in Local Public Health: Michigan's Quality Improvement Guidebook. Michigan, United States.
- Thorpe, E.L.; Zimmerman, R.K.; Steinhart, J.D.; Lewis, K.N.; Michaels, M.G. (2012, February 1). Homeschooling parents' practices and beliefs about childhood immunizations. *Vaccine*, 30(6), 1149-1153.
- What is Public Health?* (2013). American Public Health Association:
http://www.apha.org/NR/rdonlyres/C57478B8-8682-4347-8DDF-A1E24E82B919/0/what_is_PH_May1_Final.pdf
- Willis, B.C.; Wortley, P.; Wang, S.A.; Jacques-Carroll, L.; Zhang, F. (2010, April 1). Gap in Hospital Policies and Practices to Prevent Perinatal Transmission of Hepatitis B Virus. *Pediatrics*, 125(4), 704-711.
- Zanetti, A.R.; Van Damme, P.; Shouval, D. (2008). The global impact of vaccination against hepatitis B: A historical overview. *Vaccine*, 26(49), 6266-6273.

Appendix A: Hepatitis C Case Report Sample

Hepatitis C Case Report

General:

<hr/>	<hr/>	<hr/>	<hr/>
Last Name	First Name	Age	Telephone
<hr/>			
Address			

Demographics:

Gender:	M	F	Ethnicity:	Hispanic	Non-Hispanic
Race:	Caucasian	African American/Black	Hispanic/Latino	Asian	
	Other				

Other:

Died:	Yes	No	Pregnant:	Yes	No
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<hr/>	<hr/>
Clinician Name	Telephone

Diagnostic Facility

Symptoms & Signs:

Reason for testing (check all that apply)

- ☐ Symptoms of acute Hepatitis
- ☐ Screening of asymptomatic patient with risk factors
- ☐ Screening of asymptomatic patient with no risk factors
- ☐ Prenatal screening

- ☐ Elevated Liver enzymes
- ☐ Follow-up testing
- ☐ Other
- ☐ Unknown

Is patient symptomatic?

Yes No

If yes:

- ☐ Jaundiced
- ☐ Dark urine
- ☐ Diarrhea
- ☐ Anorexia
- ☐ Abdominal pain
- ☐ Clay stools
- ☐ Fatigue
- ☐ Other Symptoms _____

Liver Enzyme Level

ALT (SGPT)

AST (SGOT)

Risk Factors:

Was the patient a contact of someone with confirmed or suspected Hepatitis C?

Yes No Unknown

Sexual Preference:

Male Female Both

Number of male sex partners

Number of female sex partners

Other Risk Factors:

- ☐ IV Drug Use
- ☐ Other drug use
- ☐ Tattoos
- ☐ Piercings (other than ear)
- ☐ Acupuncture
- ☐ Dental Work
- ☐ Exposure to blood (other than own)
- ☐ Accidental needle stick
- ☐ Received a blood transfusion
- ☐ Received any IV infusion or injection in an outpatient setting

Travel:

Did the patient travel outside of their Kansas County in the 6 months before the illness began?

Yes No Unknown

Did the patient travel outside Kansas in the 6 months before the illness began?

Yes No Unknown

Notes:

Appendix B: Interview Guide

MODERATOR FOCUS QUESTIONS (NOT TO BE ASKED TO PARTICIPANTS):

- 1) Why are infants not getting vaccinated for Hepatitis B?
- 2) What would change a parents' mind to vaccinate their child?

Semi-Structured Interview Moderator Guide

Introduction:

Hi, my name is (say your name). I represent the Johnson County Department of Health & Environment. We are interested in learning what women think about vaccinating infants for Hepatitis B. This interview is "safe". Nothing you say here will be shared with anyone else. We will never link your name with any of your answers. Please be as open and honest with us as you can. When the session has ended, we will hand out a gift card.

Date: _____

Time: _____

Location: _____

Question 1: What are your thoughts about having your child vaccinated?

Probe 1: Do you plan on having your child vaccinated? Why or why not?

Probe 2: Do you think your child is too young to be vaccinated at birth? Why or why not?

Question 2: What kind of information have you received from your healthcare provider regarding the Hepatitis B infant birth dose vaccine?

Probe 1: What did he/she tell you?

Question 3: When you have a question about your health, where do you get your information?

Question 4: What are your family & friends views about vaccinations?

Probe 1: How does this affect your views on vaccines?

Question 5: What do you know about Hepatitis?

Question 6: Read the following statements:

Probe 1: If you were told that your child had a good chance of contracting Hepatitis B, would that change your opinion about vaccination? Why?

Probe 2: If you were told that vaccines were free, would you be more inclined to get your child vaccinated? Why?

Probe 3: If you were told that the vaccine was 100% safe, would you be more inclined to get your child vaccinated? Why?

Question 7: Do you have any other feelings about childhood vaccines?

Question 8: Ask respondent the following questions:

Age: _____

Race: _____

Religion: _____

Marital Status (Circle): Married / Single Number of Children: _____

This concludes our interview. Thank you so much for participating. Do you have any questions?

Hand out gift card, and help them find the exit.

Appendix C: Birth Dose Survey Example

Hepatitis B Birth Dose Survey for Managers of Hospital Nurseries

Instructions

- **To complete the survey online, go to (*insert website*)**
- **This survey should take approximately 15 to 20 minutes.**
- **These are open-ended questions. Please elaborate your answers. Longer is better than shorter.**

- 1) Why do you think the Hepatitis B birth dose administration rate declined between 2005 and 2010 in Johnson County?
- 2) Is there a standing order to give the Hepatitis B birth dose prior to patient discharge?
- 3) If your patients are not receiving the Hepatitis B birth dose prior to discharge, what are the reasons for this? What is your opinion on why this happens?
- 4) In the occurrence of a complicated birth, how are decisions made to provide the Hepatitis B birth dose?
- 5) How are birth certificates completed? Is the Hepatitis B birth dose recorded on all birth certificates?
- 6) Why do you think Hepatitis B birth dose administration is low among Hispanics?
- 7) How do you or your staff communicate with non-English speaking patients?
- 8) How many Spanish speaking employees do you have on staff?
- 9) Why do you think Hepatitis B birth dose administration is low among the uninsured?
- 10) Do you provide information about the Vaccines for Children program? If so, what?
- 11) Would you be willing to work with the Johnson County Department of Health and Environment on this issue? If so, please provide your contact information.

Appendix D: Consent Form



The Johnson County Department of Health and Environment would like you to participate in a guided group discussion called a “focus group.” The questions asked are related to your knowledge, attitudes, and feelings about childhood vaccines.

Your participation is completely voluntary. You may withdraw from this focus group at any time without penalty.

By signing this form:

1. You understand that there is no physical or emotional harm in participating in this group discussion. The benefits are an increased awareness of health issues and services in this community. One possible risk is that you may not immediately get information or support on issues you may share in the group.
2. You will agree not to share outside the group any information shared by other participants about themselves, or their identity. However, you understand that there is no guarantee that others might share this information.
3. You will be given a brief questionnaire, called a Participant Profile, at the beginning of the session. You understand that you will be asked some questions about your personal background. These include age, education, health insurance, and health status. Results from this study will be posted to the Johnson County Department of Health & Environment website no later than May 1st, 2013. *(Please do not write your name or street address on the questionnaire.)*
4. You understand that the group discussion will last approximately 60 minutes.
5. You agree to allow the research team to audio-record the group discussion. You understand this is to make sure that the information reflects what was said by you and other participants. You understand that audio recordings will be destroyed after the study resulting from this focus group is completed and that all information obtained will be kept confidential and in secure, locked files.
6. You have the right to withdraw from the group even if it has not finished. Your refusal to participate will not involve a penalty or loss of benefits to which you may be eligible.
7. You understand that you will never be identified by name with anything you say or do during this study by the evaluators. None of the information shared with the public will have your name or any other identifying personal information.
8. You understand there are no anticipated physical risks to participants and there will be compensation and/or payments or medical treatment provided by participating institutions for any injuries occurring during this study, except those as may be stipulated by law.
9. You understand that your participation in this group is voluntary. You understand you will receive a \$50 gift card after you complete the group session for your time and efforts.
10. You freely and voluntarily agree to participate in this group. You acknowledge a research team member has explained the need for this study, and the risks in participating. You agree he or she has offered to answer any questions which I may have. You understand that you may keep a copy of this consent form for your own information.

Legal and Ethical Warning. The procedures used in this study have been subject to review and approval by the Human Subjects (or Institutional Review) committees of *Kansas State University*.

By your signature below, you are indicating that you fully understand the above information and agree to participate in this focus group and study.

Volunteer/Participant (Signature and Date)

(Print Name)

Witness (Signature and Date)

(Print Name)

Research Team (Signature and Date)

(Print Name)

If you have any questions or concerns about this study, please contact:

Kevin Kovach, MSc, CHES, 913-477-8368, Kevin.Kovach@jocogov.org

Appendix E: JCDHE Hepatitis B Survey Example

Hepatitis B Birth Dose Survey

Introduction:

The Advisory Committee on Immunization Practices (ACIP) recommends that all infants are vaccinated at birth for Hepatitis B. Healthy People 2020 has set a target of 85% coverage in the United States. The coverage level in Johnson County, Kansas was only 70% in 2010, down from 92% in 2005. Coverage was the worst among Hispanics (40%) and the uninsured (30%).

The purpose of this survey is twofold. First we want to try to understand the reasons for, and solutions to this problem through multiple viewpoints, starting with JCDHE employees (i.e. you). Second, we want to identify individuals in the healthcare community that may be willing to work with us on this issue.

Instructions:

- This survey should take approximately 15 to 20 minutes.
- These are open-ended questions. Please elaborate your answers. Longer is better than shorter.

Questions:

- 1) Name: _____
- 2) Why do you think the Hepatitis B birth dose administration rate declined between 2005 and 2010? Did something change in the community that may have led to this? What do you think could be done to reverse this trend?
- 3) Why do you think the Hepatitis B birth dose rate is low among the Hispanic population? What do you think could be done to eliminate this disparity?
- 4) Why do you think the Hepatitis B birth dose rate is low among the uninsured? What do you think could be done to eliminate this disparity?
- 5) What do you think the public's perception is regarding the Hepatitis B birth dose?
- 6) What are your personal thoughts with respect to the Hepatitis B birth dose?
- 7) What do you think healthcare providers' views are relating to the Hepatitis B birth dose? Do you have any personal examples? Do you think healthcare providers spend time reviewing this with patients? Do you think they promote this?
- 8) What can you, as a JCDHE employee, do to help with this issue? Do you work with pregnant women? If so, would you be able to provide surveys or informational packets to them? If you talk to them about this issue, could you write me a short email about what you learn?
- 9) Do you know healthcare providers that would be interested in helping solve this problem? If yes, what are their names and contact information?
- 10) Do you have any other thoughts that we haven't asked about yet? Please write them here.

Final Remarks

I appreciate your help with this. Kealan and I will examine the results and provide you with a short description of them in a few weeks. If something else strikes you as important later, feel free to email me at

kevin.kovach@jocogov.org, I'll include it in the results.

Thank you,

Kevin and Kealan

Appendix F: JCDHE Hepatitis B Survey Results

Hepatitis B Birth Dose Survey						
Name	JDHE Employee 1	JDHE Employee 2	JDHE Employee 3	JDHE Employee 4	JDHE Employee 5	JDHE Employee 6
Why do you think the Hepatitis B birth dose administration rate declined between 2005 and 2010? Did something change in the community that may have led to this? What do you think could be done to reverse this trend?	<p>Having worked on an OB unit for many years, a standing order from the newborn's Pediatrician was that he/she needed to get the 1st dose of the Hep B vaccine before being discharged. Is that not the case at area hospitals as part of their protocol/procedures? I would check with the manager of the Mother/Baby or Nursery units, or have you done so already to get your baseline data?</p>	<p>I speculate that either the immunizations are not being reported, or that there is less education and attention being focused on Hep B vaccinations. March of Dimes had been a big supporter and produced many campaigns to get the word out about the importance of Hep B vaccinations. They have shifted their focus which may have resulted in fewer vaccinations. I am not aware of changes in the community that would have affected this rate. Identify the issue and focus energies towards making a change.</p>	<p>Practically all of my infant patients have had the Hep B at birth so I'm not sure. Some whites do not have the vaccination done but my Hispanics do have it done.</p>	<p>Parents receive and read info about vaccines on the internet that talks about potential side effects and have chosen to refuse vaccine.</p>	<p>Several factors would include: the transient nature of part of the population, concerns regarding the safety of vaccines, physician education/awareness presented to the patient, misinformation obtained from the internet and lack of knowledge. Another factor could be the H1N1 pandemic in 2009. We noticed a lot more people reluctant to get vaccines after the pandemic due to negative media attention. Education is vital to creating any kind of change in the community.</p>	<p>I don't know what may have happened in the community to cause the decline, but I have heard moms tell me that they just don't want their kids getting immunized, or they don't want the first Hepatitis B shortly after birth in the hospital. Some of them are opting to get it done at the first MD appointment once the baby is out of the hospital.</p>

<p>Why do you think the Hepatitis B birth dose rate is low among the Hispanic population? What do you think could be done to eliminate this disparity?</p>	<p>Are they given an option prior to discharge? Does this qualify as an exemption (medical or religious?). The language barrier might be a contributing factor.</p>	<p>My guess is that if there is a language barrier present, the message is not being communicated. Identify the issue and focus energies towards making a change.</p>	<p>Perhaps it is the reporting of Hep B vaccination and not that the population is not having it done.</p>	<p>Education during pre-natal period would be helpful. I think it is lack of education.</p>	<p>Considering you listed the Hispanic population as one of the groups with the lowest rates, it is possible changes occurred due to the transient nature of this group. Factors could include the economy and communication barriers. I think it is important for healthcare providers to educate and communicate via a translator the importance of the birth dose of Hepatitis B.</p>	<p>I don't believe that many Hispanic families understand the importance of the immunization. I think that more of the nurses in the hospital should be able to speak Spanish so that they can communicate better with the parents. If Spanish families don't feel a nurse speaks good Spanish they may not even try to ask questions. I know this from my experience in WIC. Clients don't usually ask questions if they know that an interpreter will be used and the process will take longer.</p>
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Why do you think the Hepatitis B birth dose rate is low among the uninsured? What do you think could be done to eliminate this disparity?	Does this population understand the VFC program? What is being done to advertise to them, heighten awareness in the medical community including hospitals?	Cost of the vaccine may play a role, unfamiliarity with VFC programs, less health education opportunities.	Again, this is an injection done shortly after birth per protocol. If the family does not want to have it done d/t cost it may not be done but most generally, parents do have it done.	Cost, even though the vaccine is affordable through the VFC program. Parents are not aware.	=-Lack of education -Perceived additional costs associated with the vaccine Strong efforts by hospital staff to inform and educate.	I'm not sure why it is lower with the uninsured. Maybe they are worried that it will end up costing them money.
What do you think the public's perception is regarding the Hepatitis B birth dose?	If educated by their Ped or nurses on the postpartum unit, most mothers will understand the importance of the first of this series of three.	It appears from the lower vaccination rate that Hep B birth dose is not a high priority.	My patients accept it as normal to be done after birth. The parents who do not have it done are the more educated and are more anti-vaccination, more holistic thinking.	It is not needed for infants because they are not engaged in risky behaviors associated with Hep B.	Lack of awareness -Unnecessary vaccine the hospital is trying to profit from -Not necessary for their child due to low or no risk factors	Most of the clients I see in WIC have their first Hepatitis dose done in the hospital at birth, so I'm not sure what the public perception is. I think that more and more people are hearing myths that vaccines can cause spectrum disorders and so they opt not to get them.

What are your personal thoughts with respect to the Hepatitis B birth dose?	Should remain one of the criteria (along with other meds a newborn receives) prior to discharge.	It is a recommended childhood vaccine that has high benefits to babies in our community.	I think that it is an important vaccine to have. I'm not sure that it would have to be done as an infant; perhaps as an older child would be better. But I do know that most parents will have their infant vaccinated and while they are in that mode, it is good to include it.	It should be mandatory for all newborns.	It is another tool, along with other vaccines, in helping to prevent further infections and prohibit the spread of disease.	I think that it is absolutely necessary to keep the public healthy and prevent spread of disease.
What do you think healthcare providers' views are relating to the Hepatitis B birth dose? Do you have any personal examples? Do you think healthcare providers spend time reviewing this with patients? Do you think they promote this?	Hopefully a prospective Pediatrician or even the mother's health provider where she receives her prenatal care would discuss and educate the mother about this.	It appears from the decreased rate that Hep B Birth dose is not a high priority in their routine discharge planning and education. I do not have any personal examples.	In my experience with L&D, nursery, most of us thought that it was important. I spent time explaining to my parents and I think my co-workers did, too.	I think most think it is important, but activity during and immediately after birth sometimes make it a low priority.	I think you would find varying opinions amongst healthcare providers. My sister was told by her physician to delay the birth dose until later because she was not infected with the disease so there was no risk to her infants. It is hard to say if they do or don't but based on the numbers it makes one wonder.	I have no idea how much time healthcare providers spend discussing this with patients. I know that my daughter's MD really promotes an updated immunization record.

What can you, as a JCDHE employee, do to help with this issue? Do you work with pregnant women? If so, would you be able to provide surveys or informational packets to them? If you talk to them about this issue, could you write me a short email about what you learn?	Please refer this to the MCH supervisor, Maria, who should be collaborating closely with the Imm. Supervisor, Julie on this issue and assuring their nurses are educating our clients both with written information and as part of the routine visit.	I can support programs that provide patient education and vaccination planning to pregnant women. I do not work directly with pregnant women.	I do work with pregnant women and I do talk with them. I could include more information in their packet if you wish.	Efforts could be made to have this topic be addressed in the pre-natal clinic. We always talk about the importance of vaccines on our PP HV. The majority seem to have received the vaccine.	Inform and educate. We rarely see pregnant women in the immunization clinics because most vaccines are contraindicated. When the CDC changes the recommendation for all pregnant women to receive the Tdap vaccine this might change. We could certainly hand out surveys/informational packets in the clinic.	We see Prenatal clients on a regular basis in WIC. We could talk with mothers about this in the prenatal period because typically we don't talk about it till after the baby is born, and they come back into WIC. We could provide informational packets to these mothers and/or surveys.
Do you know healthcare providers that would be interested in helping solve this problem? If yes, what are their names and contact information?	I don't know. Are they even aware of what's happening in Johnson county?	I do not know healthcare providers outside of JCDHE that I would be able to provide contact information for.	The other JCDHE ON nurses would probably help.	None specifically.	Not off hand. You might check with some of the larger providers in the county.	No idea.

Do you have any other thoughts that we haven't asked about yet? Please write them here.	Would be glad to discuss further in person if needed.	No more thoughts.	None at this time.	Not at this time.	I am really pleased that we are addressing this problem and hope as a result of our efforts we can create change. It is critically important we protect the newborns in our community as much as we can.	No other ideas.
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