

**MPH FIELD EXPERIENCE:
WHY HAVE HEPATITIS B BIRTH
DOSE RATES DECREASED IN
JOHNSON COUNTY? A
PRELIMINARY QUALITY
IMPROVEMENT PROJECT**

Kealan Schroeder

OVERVIEW

- ◉ Field Experience
- ◉ Hepatitis B Birth Dose Quality Improvement Project
- ◉ Conclusion

FIELD EXPERIENCE

- Johnson County Department of Health and Environment



JCDHE - HEALTH

◉ Olathe, KS clinic



JCDHE - HEALTH

- ◉ Mission, KS clinic



DIVISIONS

◉ Environment

- Air Quality
- Hazardous Materials
- On-Site Sewage Treatment
- Rabies Testing
- Recycling and Waste Reduction
- Solid Waste Management
- Swimming Pool and Spa Inspection

DIVISIONS

○ Health

- WIC
- Child Care Licensing
- Immunizations
- Walk-in Services
- Pregnancy Services
- Disease Reporting
- Other Services (Community Health Assessment and Improvement Plan, Emergency Preparedness, Continuing Nurse Education, etc.)

MEETINGS

- ◉ Disease Reporting
- ◉ Immunize Kansas Kids (IKK) Grant
- ◉ Quality Improvement Committee
- ◉ Strategic Planning

DISEASE INVESTIGATORS

- ◉ Read laboratory reports sent in for positive cases
- ◉ Make action plans
- ◉ Contact attending physicians/nurses for more information
- ◉ Close cases by submitting in EpiTrax

DISEASE REPORTING

◉ Reportable Diseases in Kansas - 80+

- Campylobacteriosis, Rickettsiosis, Lyme's disease, Tuberculosis
- Influenza is not reportable, but hospitals and clinics report anyway
 - JCDHE releases a weekly influenza report during the "season"

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 isolate 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

Cytospora 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 ☎

Meningococcal ① ☎

Mumps ☎

Pertussis (whooping cough) ☎

Plague (*Yersinia pestis*) ☎

Polymyositis ☎

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

Tularemia

Varicella (chickenpox)

Viral hemorrhagic fever ☎

Yellow fever

In addition, laboratories must report:

- Viral load results of reportable diseases
- ALL blood lead levels, as of 12/30/02 (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)

DISEASE REPORTING PROJECT

- ◉ JCDHE created the Disease Reporting Quality Improvement Project
- ◉ Currently working with IT to develop a webpage for reporting diseases
- ◉ More efficient, less time-consuming means of data collection

MY EXPERIENCE WITH DISEASE REPORTING

- Developed my own questionnaires for different reportable diseases
 - Campylobacteriosis
 - Hepatitis B
 - Hepatitis C
 - Measles
 - Mumps
 - Pertussis

CASE REPORT EXAMPLE

Hepatitis C Case Report

General:

Last Name

First Name

Age

Telephone

Address

Demographics:

Gender: M F

Ethnicity: Hispanic Non-Hispanic

Race: Caucasian African American/Black
 Other

Hispanic/Latino Asian

Other:

Died: Yes No

Pregnant: Yes No

IMPORTANCE OF DRQIP

- Not all health care providers are aware of reportable diseases
- Inform laboratories and health care providers about new system
- User-friendly

JCDHE ALL DISEASES REPORTED LIST

- ◉ Created a revised list of reported diseases in Johnson County
- ◉ Shows average of months from 2010 to 2012 as compared to monthly reports in 2013
- ◉ Easy to read and compare

ALL DISEASES REPORTED EXAMPLE

JCDHE All Diseases Reported

	February 2010-2012 Average	February 2013
Disease		
Amebiasis (<i>Entamoeba histolytica</i>)	1	
Anaplasmosis (<i>Anaplasma phagocytophilum</i>)	0.33	
Animal Bite, potential rabies exposure	---	
Anthrax (<i>Bacillus anthracis</i>)	---	
Babesiosis (<i>Babesia microti</i>)	---	
Blood Lead Poisoning	2.67	
Botulism, wound (<i>Clostridium botulinum</i>)	---	
Brucellosis (<i>Brucella</i> spp.)	0.33	
Calicivirus/Norwalk-like virus (Norovirus)	1.33	
Campylobacteriosis (<i>Campylobacter</i> spp.)	16.33	
Coccidioidomycosis (<i>Coccidioides</i> , spp.)	---	
Cryptosporidiosis (<i>Cryptosporidium parvum</i>)	5.33	
Dengue	---	
Dengue Hemorrhagic Fever	---	
Diphtheria (<i>Corynebacterium diphtheriae</i>)	---	
Ehrlichiosis/Anaplasmosis Undetermined	0.33	
Ehrlichiosis (<i>Ehrlichia chaffeensis</i>)	0.33	
Ehrlichiosis (<i>Ehrlichia ewingii</i>)	---	
Enterohemorrhagic <i>Escherichia coli</i> O157 (EHEC)	---	
Foodborne Illness	---	
Giardiasis (<i>Giardia lamblia</i>)	5.33	
<i>Haemophilus influenza</i> (invasive)	0.33	

PERFORMANCE MONITORING PROJECT

- ◉ State of Kansas requires children entering school to be immunized for the following diseases:
 - Diphtheria, tetanus, and pertussis (DTap5)
 - Polio (Polio4)
 - Measles, mumps, and rubella (MMR2)
 - Varicella (Var2)
 - Hepatitis B (HepB3)
- ◉ Other vaccines recommended:
 - *Haemophilus influenzae* (Hib3)
 - Hepatitis A (HepA2)
 - Pneumococcal conjugate vaccine (PCV3)

HEALTHY PEOPLE 2020

- ◉ Government program sets science based goals for healthier Americans
- ◉ 10 year timeframe
- ◉ Collaboration among communities
- ◉ Empower individuals towards health conscious decisions



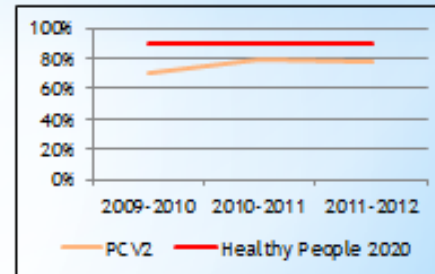
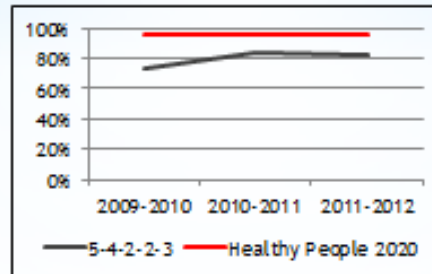
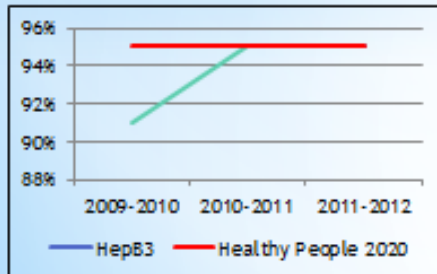
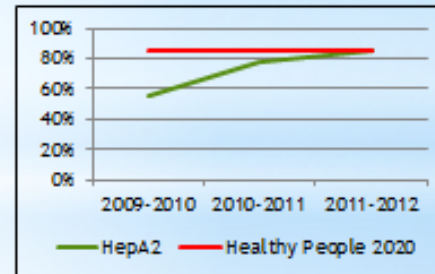
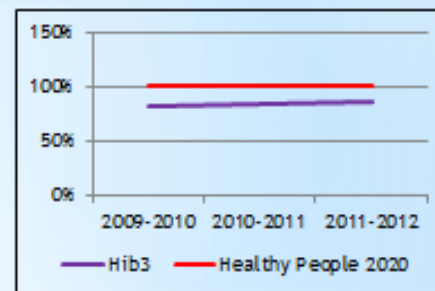
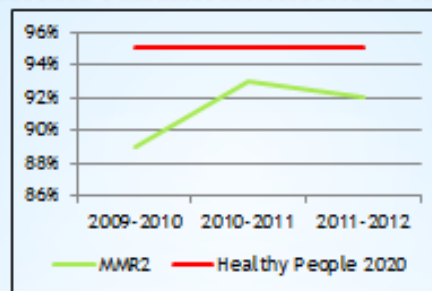
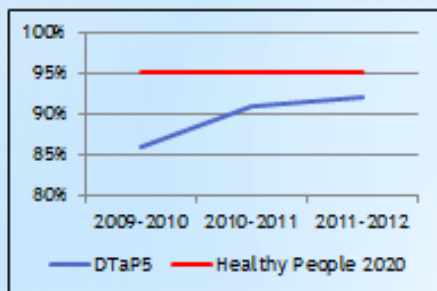
www.healthypeople.gov

KINDERGARTEN IMMUNIZATION COVERAGE SURVEY 2009-2012

- ◉ Johnson County was part of this statewide survey that was performed by the KDHE
- ◉ Estimates immunization coverage rates of children at school entry
- ◉ By comparing the immunization rates for these years with Healthy People 2020 goals, the JCDHE can see where it needs improvement

IMMUNIZATION COMPARISON

Johnson County Department of Health and Environment 2009-2012 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.

IMMUNIZATION COMPARISON RESULTS

○ Goals to be met/maintained in Healthy People 2020

- DTap5 - 95% coverage
- MMR2 - 95% coverage
- Hib3 - 100% coverage
- Polio4 - 95% coverage
- Var2 - 95% coverage
- HepA - 85% coverage
- HepB - 95% coverage
- PCV2 - 90% coverage

CONCLUSION: IMMUNIZATION

- These results conclude that 4 out of the 8 required and/or recommended vaccinations will not achieve the Healthy People 2020 goals at this rate
- Further work is needed to increase coverage

FINAL PROJECT - HEPATITIS B BIRTH DOSE QUALITY IMPROVEMENT PROJECT

BACKGROUND

○ Hepatitis B

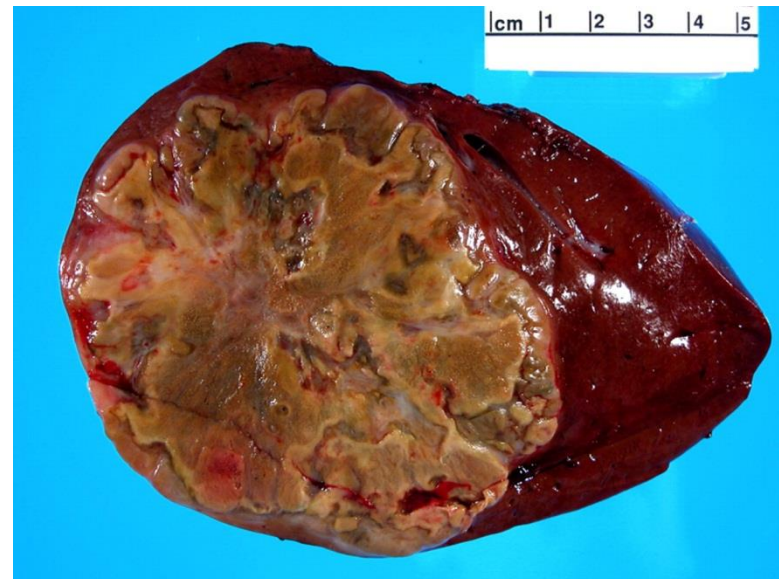
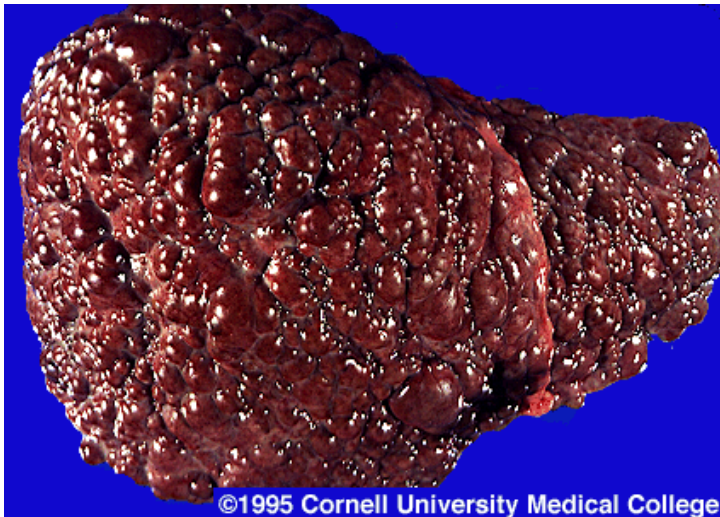
- Double-stranded DNA virus

Modes of Transmission

- Vertical
- Horizontal
- Sexual contact
- Intravenous drug use

HBV INFECTION

- ◉ Liver infection
- ◉ Cirrhosis
- ◉ Hepatic decompensation
- ◉ Hepatocellular carcinoma (HCC)



HBV INFECTION RATES

- ◉ 350 million HBV chronically infected people - global
- ◉ 1.25 million HBV chronically infected people - United States
- ◉ 1/3 of the chronically infected people in the United States acquired HBV infection through perinatal/early childhood exposures

CDC, ACIP, AND THE WHO

- ◉ Early 1980s, United States released the first Hepatitis B vaccine
- ◉ 1991, Universal Vaccination Policy put in place to eliminate Hepatitis B virus
- ◉ Advisory Committee on Immunization Practices (ACIP) recommends that all infants before discharged from hospital receive the first Hepatitis B vaccine
- ◉ World Health Organization (WHO) adopted the 1991 policy on a global scale

ANTENATAL SCREENING

- ◉ Hospitals and healthcare providers are recommended to screen pregnant women for HBV
- ◉ If a mother is positive, the infant has >90% chance of developing chronic Hepatitis B infection
- ◉ Screening allows for proper PEP for infants born to HBV positive mothers

RECOMMENDED HOSPITAL PROTOCOL

- CDC has recommended protocol for birthing units to follow:

Guidance for Developing Admission Orders in Labor & Delivery and Newborn Units to Prevent Hepatitis B Virus Transmission

The guidelines in this document were developed to help hospitals establish policies and standing orders in their labor and delivery (L&D) and newborn units.

*During 2005, the Centers for Disease Control and Prevention (CDC) published updated recommendations of the Advisory Committee on Immunization Practices (ACIP) for prevention of hepatitis B virus (HBV) infections in children which includes the recommendation to administer hepatitis B vaccine to **all newborns before hospital discharge**. The American Academy of Pediatrics, American Academy of Family Physicians, and American College of Obstetricians and Gynecologists have all endorsed the birth dose recommendation. To obtain a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5416.pdf.*

To protect infants from HBV infection, CDC recommends that all delivery hospitals institute standing orders or admission orders, and protocols to ensure healthcare professionals do the following:

- 1. Administer hepatitis B vaccine to **all newborns** before they are discharged from the hospital.*
- 2. Identify all infants born to mothers who are hepatitis B surface*

of an original HBsAg laboratory report from the current pregnancy included in their prenatal record.

- 2. Instruct the lab to call L&D and the nursery units with the newly obtained HBsAg test result ASAP.*

Admission orders and procedures for newborns

Hospital procedures to follow for ALL newborns

1. Review a copy of the mother's *original* HBsAg¹ lab report to ensure that the correct serologic test was ordered and that it was ordered during this pregnancy.
2. Determine if the newborn needs immediate postexposure prophylaxis within 12 hours of birth. To do this you must know the mother's HBsAg status and the newborn's birth weight. If the newborn weighs less than 2 kg (4.4 lb), see the descriptions below and footnotes 2, 5, 6.

ACIP RECOMMENDED VACCINATION SCHEDULE FOR PERSONS AGED 0 THROUGH 18 YEARS

Vaccines	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19-23 mos	2-3 yrs	4-6 yrs	7-10 yrs	11-12 yrs	13-15 yrs	16-18 yrs
Hepatitis B ¹ (HepB)	1 st dose	2 nd dose							3 rd dose							
Rotavirus ² (RV) RV-1 (2-dose series); RV-5 (3-dose series)			1 st dose	2 nd dose	See footnote 2											
Diphtheria, tetanus, & acellular pertussis ³ (DTaP: <7 yrs)			1 st dose	2 nd dose	3 rd dose			4 th dose				5 th dose				
Tetanus, diphtheria, & acellular pertussis ⁴ (Tdap: ≥7 yrs)														(Tdap)		
<i>Haemophilus influenzae</i> type b ⁵ (Hib)			1 st dose	2 nd dose	See footnote 5			3 rd or 4 th dose see footnote 5								
Pneumococcal conjugate ^{6a,c} (PCV13)			1 st dose	2 nd dose	3 rd dose			4 th dose								
Pneumococcal polysaccharide ^{6b,c} (PPSV23)																
Inactivated poliovirus ⁷ (IPV) (<18 years)			1 st dose	2 nd dose								4 th dose				
Influenza ⁸ (IV; LAIV) 2 doses for some: see footnote 8																
Measles, mumps, rubella ⁹ (MMR)								1 st dose				2 nd dose				
Varicella ¹⁰ (VAR)								1 st dose				2 nd dose				
Hepatitis A ¹¹ (HepA)																
Human papillomavirus ¹² (HPV2: females only; HPV4: males and females)															(3 dose series)	
Meningococcal ¹³ (Hib-MenCY ≥ 6 wks; MCV4-D ≥ 9 mos; MCV4-CRM ≥ 2 yrs.)															1 st dose	

Range of recommended ages for all children

Range of recommended ages for catch-up immunization

Range of recommended ages for certain high-risk groups

Range of recommended ages during which catch-up is encouraged and for certain high-risk groups

Not routinely recommended

MISINFORMATION

- Parents aren't receiving the information they need
 - Some barriers to not vaccinating for Hepatitis B include:
 - Lack of vaccine education - negative beliefs
 - Lack of reimbursement from insurance companies
 - Unwillingness to vaccinate at early age
 - Low socio-economic status
 - Low parental education
 - Young maternal age
 - Large family size
 - Fearful of vaccine side effects

GETTING INFORMATION TO THE PEOPLE

- ◉ Health care facilities
- ◉ Schools
- ◉ Churches
- ◉ Immunization cards
- ◉ Fellow community members

OTHER INFORMATION METHODS

- ◉ Focus groups
- ◉ Semi-structured interviews
- ◉ Surveys
- ◉ Educational programs
- ◉ School-based immunization programs

HEALTHY PEOPLE 2020 AND HEPATITIS B BIRTH DOSE IN JOHNSON COUNTY

- Hepatitis B birth dose rates in Johnson County, KS have declined
 - 92.2% coverage in 2005
 - 69.9% coverage in 2010
- Healthy People 2020 goal for newborns receiving Hepatitis B birth dose is 85%
 - Johnson County is nearly 15 percentage points below this goal

QUESTIONS FOR JCDHE TO ANSWER

- ◉ Why has the Hepatitis B birth dose immunization coverage rate declined so dramatically over this time period?
- ◉ What can the JCDHE do to improve these rates?
- ◉ Quality Improvement tools, surveys, and interviews will help in answering these questions

QUALITY IMPROVEMENT

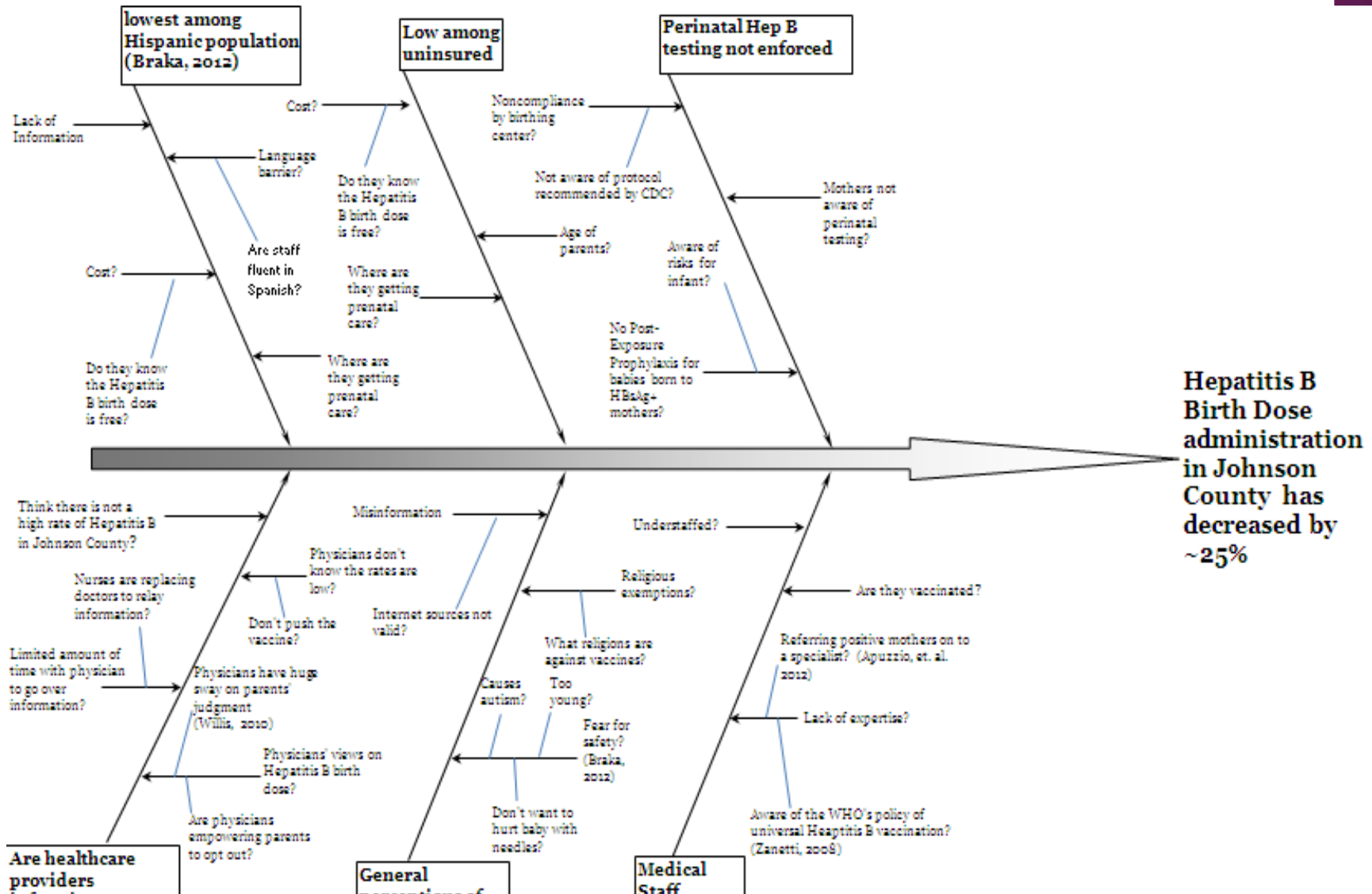
- ◉ CDC definition:

- “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.”

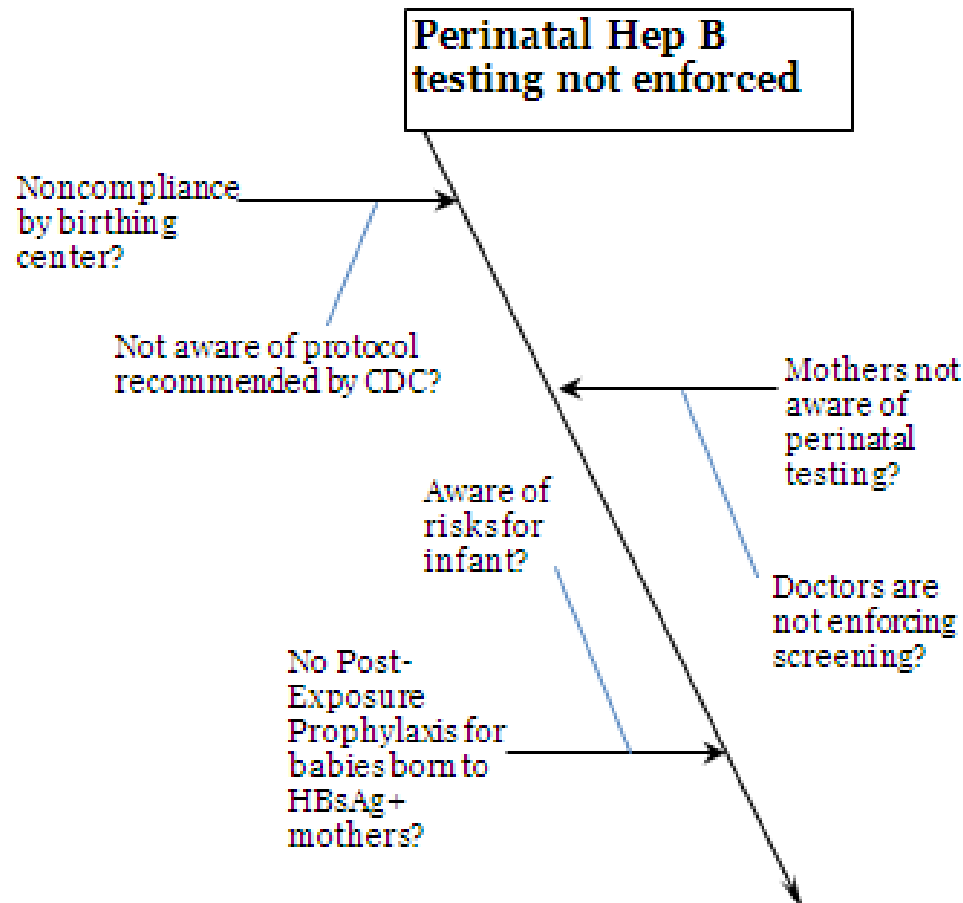
- ◉ It is widely used in accreditation for Health Departments to maximize potential and minimize wasted time and work effort

QUALITY IMPROVEMENT TOOLS

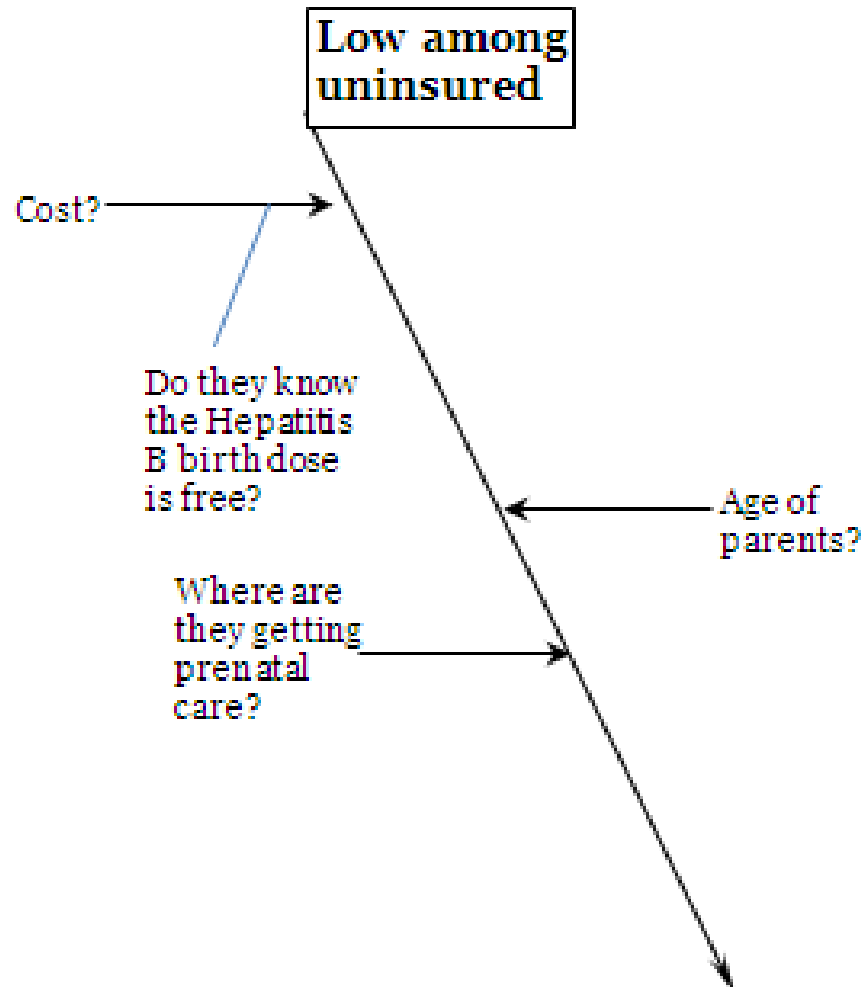
◉ Fishbone diagram



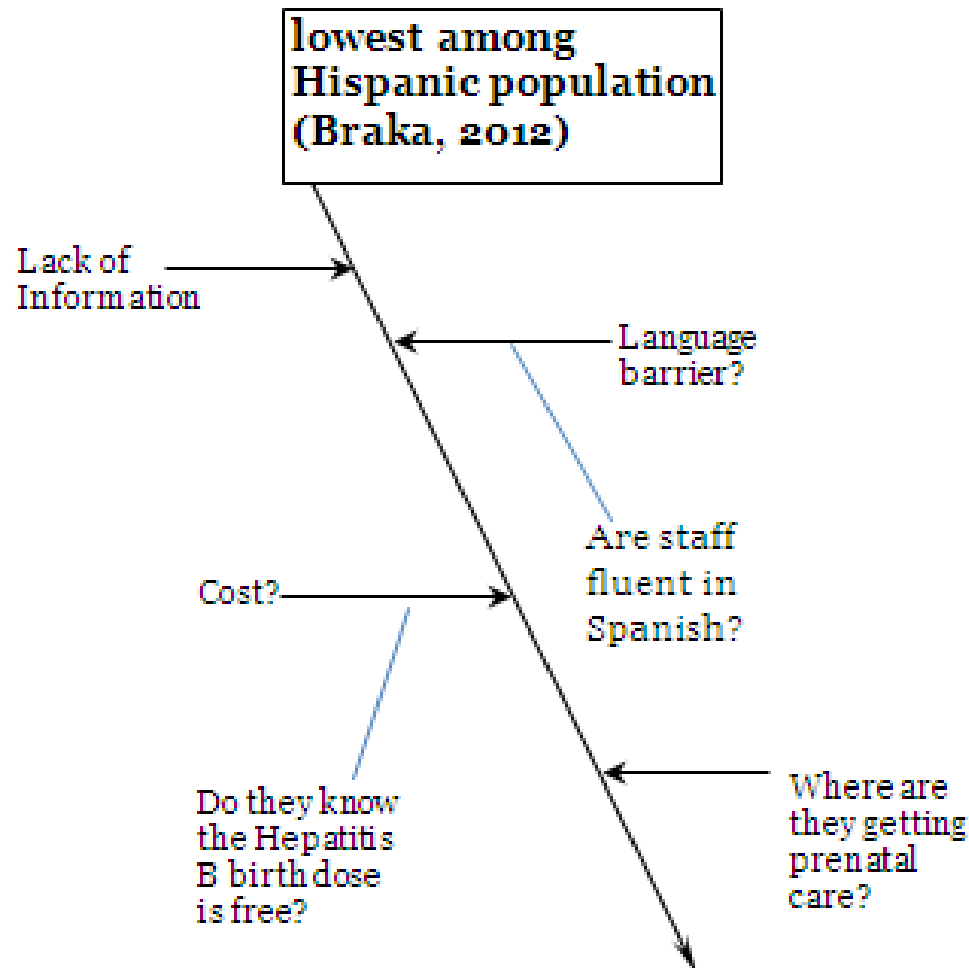
RIB 1: PERINATAL HEPATITIS B TESTING IS NOT ENFORCED



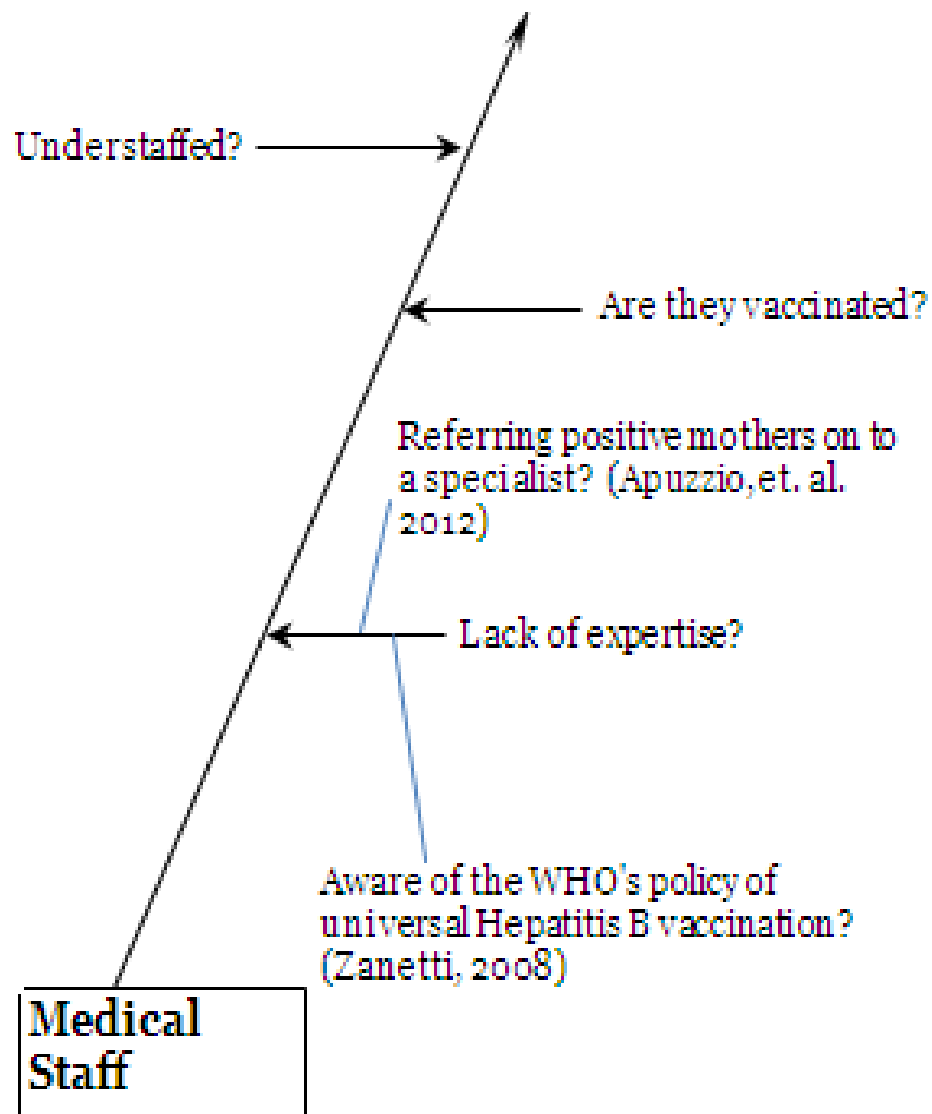
RIB 2: HEPATITIS B BIRTH DOSE RATES LOW AMONG UNINSURED



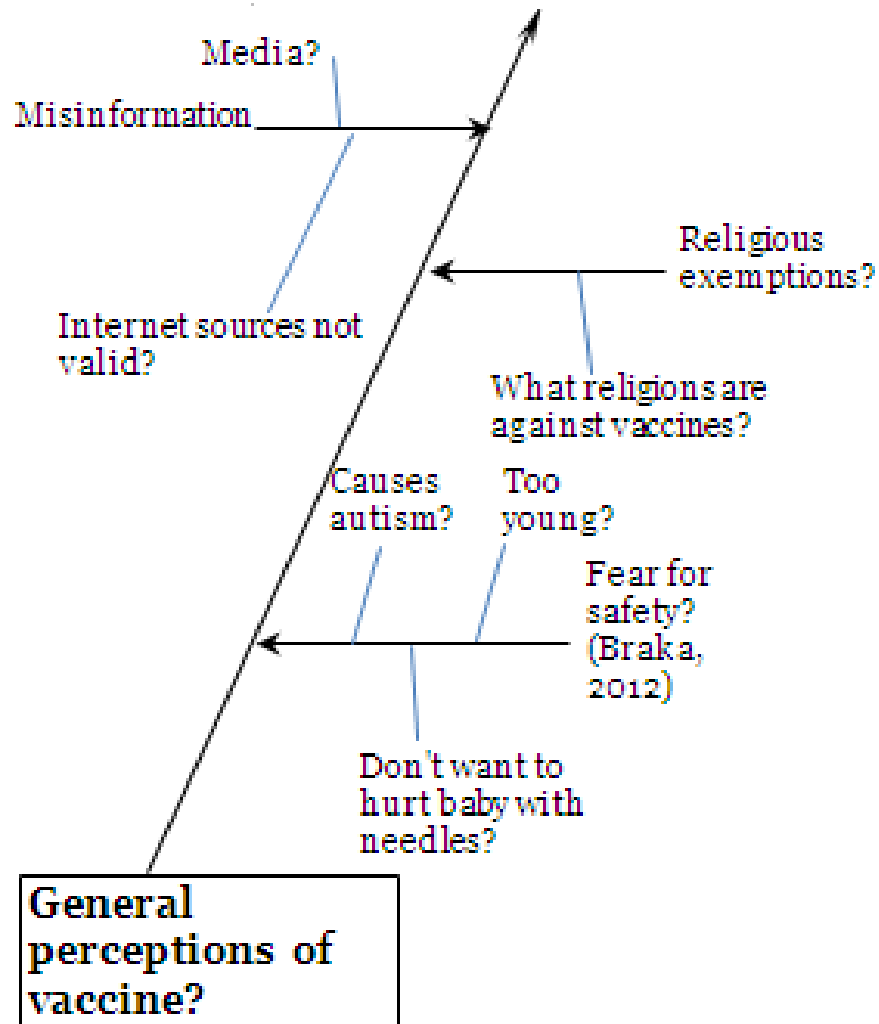
RIB 3: HEPATITIS B BIRTH DOSE RATE LOWEST AMONG HISPANIC POPULATION



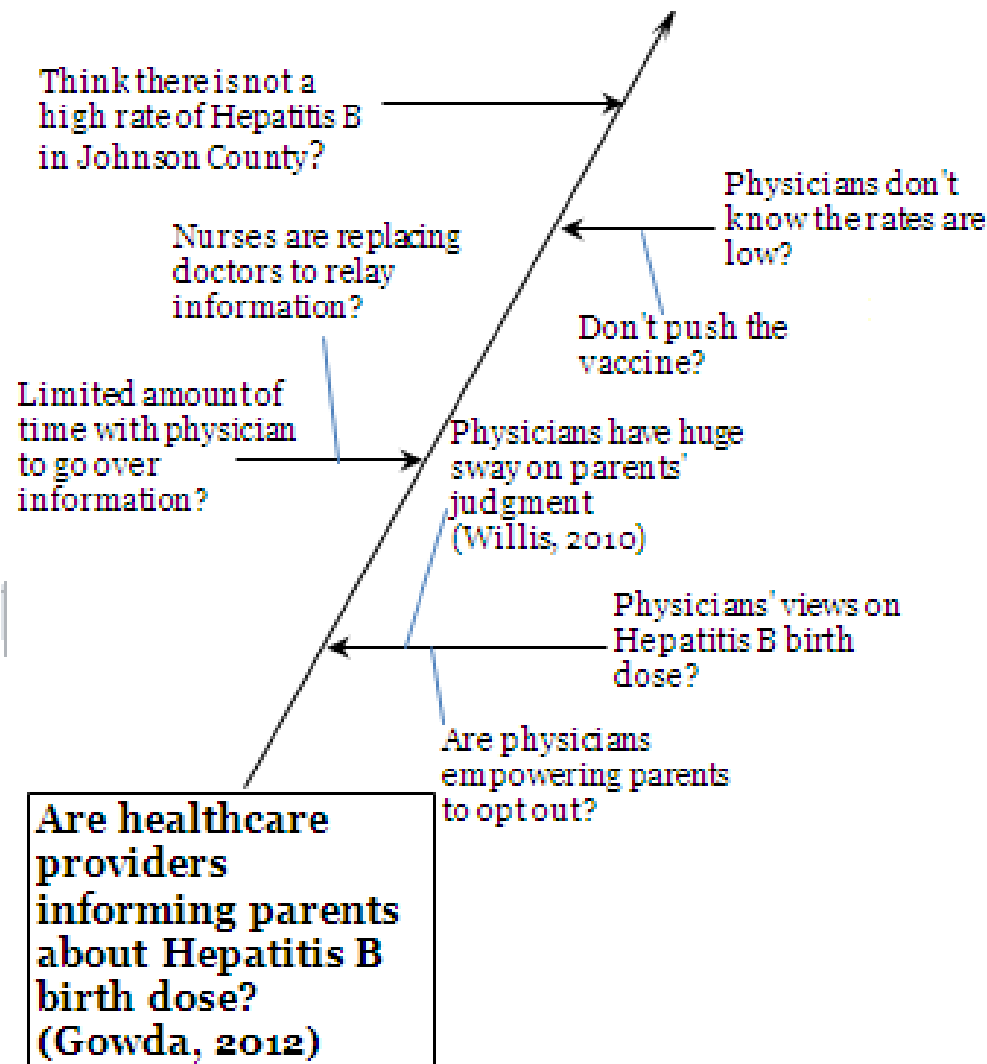
RIB 4: MEDICAL STAFF



RIB 5: WHAT ARE THE GENERAL PERCEPTIONS OF THE HEPATITIS B VACCINE?



RIB 6: ARE HEALTHCARE PROVIDERS INFORMING PARENTS ABOUT HEPATITIS B BIRTH DOSE?



QUALITY IMPROVEMENT TOOLS

- Plan-Do-Study-Act



OTHER TOOLS

- ◉ Survey internal sources
 - Sent a survey to JCDHE immunization nurses
- ◉ Plan for interview to get additional input
 - Hospital staff
 - Pregnant women

SURVEY FOR HOSPITAL STAFF

Hepatitis B Birth Dose Survey

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.

SEMI-STRUCTURED INTERVIEW

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.

PROJECT CONCLUSION

- ◉ Since my project was to utilize Quality Improvement tools to structure surveys and questionnaires, there is no conclusion
- ◉ The surveys and questionnaires other than the internal survey have not been applied
- ◉ My work will be used to answer the questions about why the Hepatitis B Birth Dose rates have decreased in Johnson County, KS

CONCLUSION

- ◉ What I did not know before...
 - Public Health includes a wide variety of branches
 - Quality Improvement plays a huge role in Public Health
 - The LARGE list of reportable diseases
 - Vaccination rates in Kansas
 - Hepatitis B and the harm it causes

THANK YOU!!!



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