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Adult Vaccination Rates in the Mentally Ill Population:

An Outpatient Improvement Project

Background

About 50,000 adults die every year from vaccine preventable diseases (Centers for Medicare and Medicaid Services [CMS], 2014; Walter et al., 2016). In fact, influenza and pneumonia are the fifth leading cause of death in adults over the age of 65. In addition, other vaccine-preventable infections such as annual influenza, hepatitis A, hepatitis B, and human papillomavirus (HPV) can also cause a significant number of chronic morbidities, disabilities, and financial burdens (CMS, 2014; Ngamruengphong et al. 2015; Seminog & Goldacre, 2013; Walter et al., 2016). While national efforts to increase rates for routine childhood vaccinations have been successful in preventing many communicable and infectious diseases (Johnson, Nichol, & Lipczynski, 2008; National Foundation for Infectious Disease [NFID], 2008), adults of all ages are failing to meet national goals regarding their immunizations (Walter et al., 2016).

The Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices [ACIP] (2012) recommends over a dozen vaccines for adults including: annual influenza; pneumococcal (PPV); tetanus, diphtheria, and pertussis (Tdap); zoster (shingles); hepatitis A; hepatitis B; measles, mumps, and rubella (MMR); and HPV. Unlike childhood immunization schedule, the schedule for adults varies depending on age, prior vaccination status, health condition, lifestyle, occupation, and travel history. These variations of the adult immunization schedule pose a barrier to increasing adult immunizations (Alpert, 2015; Breivik, 2015; Bridges & Coyne-Beasley, 2014; Savoy, 2016). Nonetheless, the use of immunization information systems, educational programs, and pharmacies promoting the administration of adult immunizations, have only modestly increased the rate of adult immunizations (Alpert, 2015; Goad, Taitel, Fensterheim, & Cannon, 2013; Rittle, Lang, & Wenskovitch, 2014; Rockwell, 2015). As difficult as it is for the general adult population to get

vaccinated, it is even more challenging for certain vulnerable populations, such as individuals with severe persistent mental illness (SPMI) to be fully vaccinated.

About 4.2% of the U.S. population struggles with SPMI, which includes several mental illnesses: schizophrenia, bipolar disorder, recurrent depression, and other psychoses (National Institute of Mental Health, 2014). While this vulnerable population has a higher incidence of chronic physical comorbidities and mortality, they have significantly decreased access to non-psychiatric healthcare services (Kaufman, McDonell, Chistofalo, & Ries, 2012; Lorenz, Norris, Norton, & Westrick, 2013; Tosh, Clifton, & Bachner, 2014; Wright-Berryman & Hea-Won, 2016). Correspondingly, the life expectancy of patients with SPMI is, on average, 25 years shorter than the general population (Carra et al., 2014; Kaufman et al., 2012; Tosh et al., 2014; Van Hasselt, Oud, & Loonen, 2013; Seminog & Goldacre, 2013).

The discrepancy in the physical health of the general population and the SPMI population is complex and multifactorial. Unhealthy lifestyle choices, addiction, poverty, homelessness, and side effects from psychotropic medications are thought to contribute to higher incidence of metabolic syndrome, diabetes, and infectious diseases in the SPMI population. (Kaufman et al., 2012, Van Hasselt, Oud, et al., 2013; Van Hasselt, Schorr, et al., 2013; Tosh et al., 2014). As a result, physical illnesses prevalent among this vulnerable SPMI population are often unrecognized, untreated, or poorly treated (Carney, Jones, & Woolson, 2006; Castillo, Rosati, Williams, Pessin, & Lindy, 2015).

In addition to the difficulty of the schedule of adult immunizations, SPMI patients experience further barriers that prevent them from accessing all areas of non-psychiatric health care, including poverty and lack of providers who are comfortable caring for this population with complex needs (Mangurian et al., 2013; Sowers, Arbuckle, & Shoyinka, 2016). This

fragmentation of health services results in a lack of attention to preventive services, possibly causing the SPMI population to access medical services only in times of crisis (Decoux, 2005; Lin, Burgess, & Carey, 2012).

It is well established that vaccinations are a cost-effective way to prevent communicable diseases in the general population; however, very limited research has been done on the rates, barriers, and perceptions of receiving vaccinations in the SPMI population (Shefer et al., 1999; U.S. Department of Health and Human Services [USDHHS], 2017; Walter et al., 2016). With these concerns in mind, researchers developed a replicable, patient-centered, cost-efficient improvement project by implementing a vaccination program at a nontraditional site to increase vaccination rates in the SPMI population.

Aims

The aims of this project included: 1) survey the local SPMI population to obtain immunization rates, identify barriers to receiving and perceptions about vaccinations; 2) address barriers to vaccinations in adults with SPMI by creating a partnership between CMHC and HD to provide annual vaccination clinics at CMHC sites; and 3) Obtain service satisfaction scores for the immunization clinics at a minimum of 80%; and 4) increase self-reported intention to receive CDC recommended vaccines to 85%.

Methods

The project was set in a western state in a county with a population over 500,000. It involved a collaboration between the community health department (CHD), who is responsible for all of the county residents' public health needs, and a CMHC, who provides quality mental health services to over 4,200 individuals with severe persistent mental illness (SPMI) covered with Medicare and Medicaid. Demographics of the target populations was compiled by self-

report using the survey tool.

Data about the target population's immunizations was obtained by self-report. Institutional Review Board (IRB) approval was obtained with the decisional capacity of SPMI participants taken into consideration. People with schizophrenia have adequate decision-making capacity compared to non-psychiatric comparison subjects (Jeste, Depp, & Palmer, 2006). The principal investigator was available to research staff to identify, communicate and manage risks effectively (Iltis, et al., 2013).

Participants were encouraged to bring any personal immunization records and research assistants were available to answer any questions about vaccinations. Two survey items asked respondents if someone helped them complete the survey. Twenty percent of respondents indicated that someone helped them complete the survey "read the question to me and wrote down the answers I said" (54%) and "helped me in some other way" (28%) by clarifying questions and explaining the survey. If a participant was psychotic or unable to answer questions, they were allowed to complete a survey, but their survey was discarded.

The project was divided into three phases:

1. Gathering data on the rates, barriers, and perceptions for vaccinations in the local SPMI population.
2. Addressing barriers to vaccinations in adults with SPMI by creating a partnership between CMHC and CHD to provide annual vaccination clinics at CMHC sites.
3. Obtaining a service satisfaction score for the project at a minimum of 80%. Increasing self-reported intention to receive CDC recommended vaccines to 85%.

Phase I: Initial Survey

A 28-item mixed-method survey was conducted at outpatient clinics over several days. The survey included questions on the patients' current vaccination status, demographics, interest in receiving vaccines, and short write in answers about perceived barriers to vaccinations. Subjects received one dollar for participating.

Analysis of Initial Survey. The survey was reviewed by experts in public health, research, and stakeholders to obtain consensus and ensure content validity. The questionnaire was pre-tested with a small group of 10 SPMI clients. Reliability of the survey was addressed by trained clinic assistants to ensure anonymity and consistency in survey administration. Participant responses were entered into the Statistical Package for Social Sciences (SPSS, Inc., Chicago, IL, 2016). Frequencies, measures of central tendency and dispersion, and reliability statistics were calculated for each quantitative item. Many immunization rates were below comparative CDC (2008) and USHDHHS (2010) target rates. See Appendix A for comparative immunization rates.

Qualitative data analysis of two short answers items examined themes to identify barriers to immunizations. Two researchers independently reviewed participant responses entered in SPSS and categorized answers by themes, compared and came to consensus.

Phase II: Project Implementation

The initial survey found that the main barriers to vaccines for the SPMI population include: lack of awareness and knowledge (42%), accessibility (16%), personal cost (13%), fears about immunizations (10%), and not recommended by doctor (1.5%). Interestingly, 84% of respondents believed that immunizations are safe, prevent disease and that it is important to receive immunizations. Strategies were developed and implemented during Phase II of the project to address barriers. The lack of accessibility and cost was addressed by the initiation of a

collaborative relationship between CMHC and CHD to create mobile vaccination clinics offering adult vaccinations, namely, the annual influenza, pneumococcal, Tdap, MMR booster, herpes zoster, hepatitis A, and hepatitis B for those who qualified depending on age, previous vaccination status, and other comorbidities.

Since Medicaid does not allow for billing of mental health and primary care services on the same day and from the same facility (Druss et al., 2008), CHD had to be accountable for the financial costs and reimbursements of providing vaccinations. CMHC was placed in a supportive role of supplying billing information and on-site space for the vaccination clinics. This new partnership resulted in nine vaccination clinics scheduled on high patient flow days at outpatient clinics. CHD provided two nurses per clinic to complete the vaccination needs assessment and then administer any needed vaccines. Data were entered into a Statewide Immunization Information System (SIIS) by non-nursing CHD personnel to minimize clinic costs. All Medicaid and Medicare billing and reimbursement was completed through CHD. In addition, CMCH provided a computer linked to their billing system so that vital patient insurance information could be easily obtained for CHD billing. There was no cost to the 272 participants who received immunizations.

Besides CMHC and CHD staff, a few research assistants from a local university were utilized in all vaccination clinics to maintain continuity. In addition, two-to-three nursing student volunteers were recruited. For the clinics, the research assistants and volunteers helped with the intake paperwork, initial answering of immunization questions, collection of information for SIIS entry, and facilitated optimum flow of patients as they progressed through the clinic. The combination of CHD staff, research assistants, and nursing student volunteers worked well for the actual running of the clinics during the implementation phase.

To address the patients' lack of knowledge of vaccines needed, simple, low-cost marketing strategies were employed. Education on the importance of immunization was provided in five educational groups geared to teaching the benefits of immunizations during routine group activities at the CMHC. Ongoing education continued during the vaccination clinics. Free adult immunization educational materials to promote adult vaccinations were readily available through several resources and included flyers and Vaccine Information Sheets (VIS) (Centers for Disease Control and Prevention (CDC), 2010; 2011a; 2011b; 2011c). These resources were utilized for educational groups and vaccine promotion. To capitalize on local media promotion for vaccination for influenza, clinics started at the beginning of flu season in October.

Challenges to Implementation Adjustments had to be made during the implementation phase. The goal of no-cost services had to be altered because Medicaid would not pay for herpes zoster or HPV. Some limited free vaccines for herpes zoster and HPV were available and used in the project. Furthermore, providers accepting SPMI patients on Medicaid would not be reimbursed if they provided psychiatric and medical health services (such as vaccines) on the same day.

While the initial strategies were very successful for those clients in day treatment programs at CMHC, meeting the needs of SPMI clients who do not require weekly services proved to be a challenge as transportation to the clinics was a barrier. A new strategy of providing an immunization voucher to clients that could be utilized at any CHD sponsored immunization clinic was instituted. Initially the new vouchers were distributed by CMHC case managers and nurses. While both groups verbalized their support, the actual distribution of vouchers by case managers and nurses was extremely low. After a one-month trial, the feedback from staff was that they did not have the time to promote immunizations and provide the

vouchers given their current job responsibilities. The situation was analyzed, and the distribution of vouchers was discontinued.

Phase III: Post-Survey Assessment

A 17-item mixed-method survey was developed to measure changes in attitudes and behaviors as well as patient satisfaction with immunization services. Participants in the immunization clinics were offered the opportunity to participate in the survey when they had completed their immunizations. Participants received one dollar as compensation for their time completing the survey.

Analysis of Post Survey Assessment. Participant responses (n=85) were entered into SPSS (SPSS, Inc., Chicago, IL, 2016). Frequencies, measures of central tendency and dispersion, and reliability statistics were analyzed for each item. Satisfaction with services and intention to receive future vaccinations data were gathered and then analyzed utilizing descriptive statistics. Kappa measure of agreement compared pre and post survey Likert responses on beliefs that immunizations are safe and prevent disease and importance for adults to receive immunizations.

Results

Results of Phase I: Initial Survey

According to the initial survey (n=392) the average age was 40, with an uneven distribution of more females (55.8%) compared to males (44.2%). Sixty nine percent of respondents indicated that they were being treated for more than one psychiatric disorder: anxiety 55.2%; bipolar 36.1%; depression 58.5%; schizophrenia 16.3%; schizoaffective 14.8%; substance Abuse 8.9%; developmental disorder 3.8%; ADD/ADHD 3.6%; borderline personality disorder 2.8%; and post-traumatic stress Disorder 4.6%. Table 1 summarizes the distribution of self-reported mental health disorders of participants.

Data was gathered on the medical conditions of our target population. Smoking was reported in 39% of the participants, followed by lung disease (17%), diabetes (13%), heart disease (7.6 %), liver disease (4.6%), and kidney disease at (3.3%). See Table 2.

The survey found that 84% of respondents believed vaccinations are safe, effective, and important. Nonetheless, the following barriers to immunizations were identified in the survey: lack of awareness and knowledge (42.22%), accessibility (16.29%), personal cost (13.3%), fears about immunizations (10.37%), and lack of recommendations by primary care providers (1.5%). The initial survey also gathered information on a self-reported baseline rate of adult vaccinations of participants. The data showed that 49.5% of participants had already received the Tdap/Td booster vaccine, 47.4% the influenza vaccine, 36.2% the pneumococcal vaccine (age 18-64), 7.7% the MMR vaccine, 6.1% the hepatitis A vaccine, 5.4 % the hepatitis B vaccine, and 2.8% the pneumococcal vaccine (> 65 of age). Table 3 illustrates the comparative vaccination rates between the general population (CDC, 2008) and the data found in the SPMI population in this project.

Results of Phase II: Implementation

Several benchmarks were utilized to measure the effectiveness of the program during phase II. Evaluation of increased immunization rates during the project implementation was completed by comparing pre-survey data and the SIIS data bank using descriptive statistics. Immunization rates for each vaccine were compared to baseline phase I survey data and National Survey benchmarks (CDC, 2008).

Over 1,000 vaccines were administered during the first nine immunization clinics. The approximate average of vaccines given per patient per clinic was 2.5 vaccines during the first two years of the project. The most frequent vaccinations given were the annual influenza, TDAP,

and Twinrix (Hepatitis A & B). As clients received vaccinations for TDAP and Hep A and B (which provide lifelong immunity), the number of vaccines given per clinic dropped to 1.25 immunizations after the second year of the project. The goal of increasing SPMI adult immunizations by 25% above baseline was met for the following vaccines: hepatitis A, hepatitis B, MMR, and Tdap. Influenza and pneumococcal vaccines had a significant increase but was short of goal. In addition to receiving immunizations, approximately 8.5% of the SPMI population of the county (374 participants) were enrolled in the SIIS system.

Vaccinations were provided during Phase II of the project, which was successful in increasing the overall immunization rate of SPMI clients. During the nine clinics, over 8.5% of the SPMI population in the county benefited from the program, with over 1,000 vaccines administered. Documentation was entered into the CHD and SIIS systems, which provides a venue for ongoing data collection and an accessible record for individuals. Some SPMI clients wanted to be enrolled but did not want immunizations at that time. This population can be transitory. As a result, many of the SPMI clients initially enrolled in SIIS are no longer CMHC clients. Therefore, ongoing utilization of SIIS data will not accurately reflect current SPMI clients in this one county.

The SPMI population is compliant in receiving preventive medicine services, such as vaccines, when there is an appropriate promotion combined with easy access to them (Van Hasselt, Krabbe, Postma, & Loonen, (2015). Ultimately, we would like to see a decrease in the incidence of vaccine preventable disease in the SPMI population; however, the numbers of vaccine preventable disease incidences were too small to be statistically significant during the period of the project.

Results of Phase III: Post-survey Assessment

Eighty five participants participated in the post-immunization survey with 93.6% strongly agreeing or agreeing that they were overall satisfied with the immunization services provided at CMHC. Pre-immunization survey results found 58.4% of participants responded that they would like to receive their immunizations at CMHC. Post-survey results found 93.8% of participants responded that they would like to receive future immunizations at CMHC, indicating a strong preference to return for CMHC immunization services.

Beliefs about the safety of immunizations and ability to prevent disease increased from 82% to 94% with a Kappa measure of agreement value -0.14 and significance p value 0.863, indicating findings were very strongly statistically significant. Beliefs about importance for adults to receive immunizations increased from 84% to 96 % with a Kappa measure of agreement value .001 and significance p value 0.934, demonstrating statistical significance.

Discussion

The primary goal of this three-part project was to increase the immunization rates in the SPMI population in one county. Not only was this outcome achieved, but each phase of the project yielded significant and unique information that can help practitioners and researchers understand barriers to preventive medicine faced by the SPMI population.

During the planning phase we learned that Medicare and Medicaid would not reimburse CMHC for the vaccines, if clients received medical services on the same day they received mental health services from the same provider. The initial plan of CMHC nurses providing immunization services had to be abandoned. This prompted our project manager to encourage the formation of a partnership between CDH and CMHC to ensure financial reimbursement. Given the insurance requirements, CHD would need to be responsible for the financial costs of providing vaccines. Consequently, CMHC was placed in a supportive role of supplying billing

information and on-site space for the vaccination clinics. Fragmentation of physical and mental health for those clients participating in Medicare and Medicaid services can be a significant barrier to providing preventive health services.

In the initial phase of the project, CHD staff expressed concerns about working with the SPMI population. After receiving education from the project manager and support during the immunization clinics, CHD staff reported that their stigmatized beliefs about the SPMI population were alleviated. Feedback from CHD staff was that they found working with the SPMI population personally rewarding. Stigma about mental illness still exists with medical providers and needs to be addressed as it presents a barrier to providing comprehensive care.

The survey from phase I provided baseline data on demographics, current immunization status, beliefs, and interest in receiving vaccines. The initial survey results matched with the current literature indicating that the rate of diabetes, kidney and liver disease, and percentage of smokers in the SPMI population is higher than in the general population. Surprisingly the rate of reported heart disease was lower in this study than the general population (7.6% vs 11.5%). This finding could be attributed to the young age of the population being evaluated or a misunderstanding of what the term “heart disease” entails.

Analysis from the data collected in phase I matches our hypothesis that the immunization rates in the SPMI population are generally lower in comparison to the general population. An exception was found on the rates for the influenza and the pneumococcal vaccine for those between the ages of 18 to 65. The high reported rate of influenza vaccination could have been due to a misunderstanding of the survey that was looking for rates of influenza for that specific flu season and not immunizations from previous years. The higher rate of pneumococcal

vaccines compared to the younger general population is not surprising, since those with SMPI are more likely to qualify for that vaccine before age 65 due to medical comorbidities.

The survey participants indicated barriers that differed little from the available research on the topic. Instead of not receiving immunizations due to negative attitudes and beliefs toward immunizations, the participants cited lack of awareness and knowledge, accessibility, personal cost, and lack of recommendations by primary care providers as the barriers to immunizations. From these results, we can infer that preventive medicine, including immunizations and patient education, has not been as critical for medical providers caring for patients with SPMI.

It is universally accepted that being up-to-date with adult vaccinations is a cost-effective way of preventing communicable diseases. Unfortunately, the SPMI population has not received the attention that should be warranted given the evidence in the literature. This population does not use primary and preventive care services nearly as often as the general population; even though this population is more likely to suffer from acute and chronic diseases compared to the general population, including vaccine preventable diseases (Kaufman et al., 2012; Lorenz et al., 2013; Tosh et al., 2014; Wright-Berryman & Hea-Won, 2016).

Initial survey results from Phase I were used to address barriers for immunizations to plan and implement this project. Since SMPI patients tend to seek mental health services more often than physical healthcare (Carra et al., 2014; Decoux, 2005), the premise of this project assumed that SPMI population would be more accessible to receive education about vaccines while seeking mental health services.

Ninety-three percent of the post-assessment participants reported that they strongly agreed or agreed that they were overall satisfied with the provided immunization services at CMHC. Astoundingly, the reported intention to receive CDC recommended immunizations

increased from 58.4% to 93.8%. These finding is important because it helped us evaluate not only the program's success, but SPMI patients' desire to receive preventive medical services in the future.

The success of the initial project has motivated the stakeholders to continue the immunization clinics as a yearly service. Additionally, the need for onsite medical services for all CMHC clients was highlighted to the point that the CMHC sought out an outside contractor to provide an on-site medical clinic at their main campus. A private, non-profit, federally funded clinic is now providing medical services on site.

Immunization clinics have continued to be provided for the SPMI population several times a year since launch of the initial project. The SIIS system remains as the central record system so that SPMI clients can access their statewide immunization records regardless of their geographical location within the state. CHD continues to operate the vaccination clinics at a high utilization site (Clubhouse) for SPMI clients. Clubhouse is a psychosocial rehabilitation and recovery models for SPMI clients that empowers its members towards recovery from mental illness (Clubhouse International, 2016).

The project manager schedules the clinics with CHD and provides the insurance information at each clinic. CMHC clients assist each other in completing the forms. Volunteer SPMI clients help with flow of the clinics. No outside volunteers or paid staff, besides CHD nurses, are required to operate the mobile immunization clinics. Members of the Clubhouse have taken ownership of promoting immunizations to their peers as a way to improve their overall health. Anecdotally, CMHC supporting staff report a decrease in sickness related absences from Clubhouse.

Limitations

The data obtained on the initial survey were self-reported. The study results do not represent the whole SPMI population. Therefore, results cannot be generalized to other SPMI populations.

Pertussis outbreaks had been occurring nationwide, which increased awareness of the importance of adults being immunized. Whooping cough increased by fourfold in 2010, the year prior to project start (CDC, 2012). Six months later, the incidence rate in Utah had skyrocketed with an incidence rate of 40.1 cases per 100,000 (Utah Bureau of Epidemiology, 2012). This cluster of vaccine preventable diseases in the area where this project took place likely contributed to the awareness of the importance of adult vaccinations.

Future Research

Changes in restrictive insurance policies that limit a person's ability to receive preventive immunizations from a mental health provider would promote the integration of physical and mental health services, which would address the barriers to receiving preventive vaccines. It is important to keep in mind that vaccines improve the health of individuals and help to protect the entire community. More research on this type of approach to providing preventive immunizations could improve the quality of life for this vulnerable population and reduce the hidden costs brought on by inadequate preventive care.

Implications

Over the past few years, there is an increased focus on integrating physical and mental health services in providing care. It is hoped that psychiatric nurses expand their view of their role to also include promoting healthy behaviors, including promoting preventive vaccinations to reduce vaccine preventable disease in the community.

The SPMI population are receptive to receiving preventive immunizations if they have easy access to basic information and services. This immunization program targets an at-risk population. Nationwide, there are similar county health and mental health agencies that could adopt this simple service model. This collaborative prevention intervention service can serve as a model for other CHD and mental health facilities to partner together to provide immunizations for the SPMI population.

Conclusion

Clinicians need to be aware that SPMI clients have additional barriers to physical health services. The implementation of our project facilitated the integration of mental and physical health services and had a profound positive effect on this vulnerable population. The significant increase in the rates of immunized individuals has the potential to ultimately decrease the occurrence of preventable communicable diseases and reduce the burden of disease, especially if applied on a large scale.

The concept of integration of physical and mental health services could also be expanded to include other aspects of preventive care medicine, such as metabolic screening (Castillo et al., 2015). Barriers to health services for the SPMI population could have an impact in improving the overall well-being and quality of life for this population. Nurses are well positioned to be advocates and leaders in facilitating immunization services.

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Table 1. Self-Reported Mental Health Disorder in the SPMI Population of
County in 2011

n = 392

Mental Disorders	N	Percentage
Depression	228	58.5%
Anxiety	216	55.2%
Bipolar	141	36.1%
Schizophrenia	63	16.3%
Schizoaffective Disorder	58	14.7%
Substance Abuse	35	8.9%
Post-traumatic Stress Disorder	18	4.6%
Developmental Disorder	15	3.8%
Attention Deficit Disorder/ Attention Deficit Hyperactivity Disorder	14	3.6%
Borderline Personality	11	2.8%
Other Mental Disorder	0	0%

Table 2. Self-Reported Medical Conditions of SPMI Population of County
in 2011 and CDC's National Rates in 2010

n = 392

Medical Condition	SPMI Rate	CDC National Rate (2010)
Smokers	39%	19%
Lung Disease including Asthma	17%	None
Diabetes	13%	8.8%
Heart Disease	7.6%	11.5%
Liver Disease	4.6%	1%
Kidney Disease	3.3%	2%

Table 3. Vaccination Rate Comparison Chart

Vaccines	SPMI Initial Data n = 392	Post Clinic Rates n = 272	CDC 2007 Rates
Td/Tdap	49.5%	83.1%	57.3%
Influenza	47.4%	50.4%	45.5%
Pneumovax by age			
18-64	36.20%	31.14%	32.8%
60+	2.8%	N/A	1.9%
65+	N/A	N/A	65.6%
MMR	7.7%	22%	N/A
Hepatitis A	6.1%	22.05%	12.1%
Hepatitis B	5.4%	18.75%	23.4%