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President's Message

Melissa Oden, DHEd, LMSW-IPR, MPH, CHES

Welcome to a new year in the Texas Public Health Association! I am excited about the upcoming year, serving as your new TPHA president and the activities ahead that we will be involved in as an association. Before I move forward with my comments, I want to offer my heartfelt thanks to our Immediate Past President, Cindy Kilborn, for her service to TPHA in her role as President over the last year. We as TPHA members appreciate your contribution to our association and to public health, Cindy, not only this last year, but through the years that you have been involved with TPHA. Your contributions have not gone unnoticed, and we all look forward to continuing to working with you as we move forward to promote our vision of a safe and healthy Texas.

I have a few "thanks you's" that I would like to mention at this time. First, I would like to thank the UNT Health Science Center School of Public Health for not only providing me with a fantastic education in public health, but for being such a great friend of TPHA. I would also like to thank Dr. Dennis Thombs, our interim Dean, for being here to support me, as well as all of my colleagues from the School of Public Health who came to the conference this week. I absolutely love my job and the people I work with, and I appreciate your words of support over the last year as I have prepared to assume this leadership position. I would not be standing here today if it were not for Dr. Bob Galvan and Dr. Bobby Jones, who encouraged us as brand new students in the MPH program and the UNT Health Science Center in the spring of 2003 to join TPHA. They said that if we wanted to be successful in our careers that we should not hesitate to join TPHA. Being the rule-follower that I am, I did what they said because I wanted to be successful. I cannot thank them enough for that sage advice. The growth I have experienced, both professionally and personally, over the last twelve years has been amazing and would never have happened if their words,"TPHA membership is not optional if you want to be successful in a career in public health in Texas", had not been shared.

I would be entirely remiss if I did not thank my TPHA colleagues for your love, support, and friendship over the last twelve years. To Dr. Catherine Cooksley, Dr. Bob Galvan, Dr. Bobby Jones, Dr. Hardy Loe, Bob Drummond, Charla Edwards, Bobby Schmidt, Tom Hatfield, and of course, Terri Pali... I don't know why in the world you took me under your wing the way you did when I joined as a brand new MPH student, but words cannot express my gratitude for your doing so. Your guidance and support have been priceless. We've had some insanely good times together (most of which are eternally documented by my camera), times that I cherish in my heart as some of the best times of my life, and will do so forever. All of you make me a better person just by being around you and learning from you, and I hope that I do the same for you. I also want to say a special word to Dr. Sandra Strickland. I cannot for the life of me remember the Annual Education Conference year, but it was the year that Sandra was President that I really caught the vision for leadership in the organization. I have never told her this, but I listened to her at the conference and I saw a woman of professionalism, grace, and strength and she made me feel like I could do this, too. So, thank you, Sandra, for being such a positive influence in my life.

To my students: You are the best. It is absolutely my pleasure to be able to spend time with you in the classroom every week. Thank you for the support that you have shown me over the last few weeks in particular as you have showered me with congratulations and best wishes.

Well, here we are, once again, at the end of another fabulous Annual Education Conference. We have been inspired and challenged to further the causes that we hold near and dear in our part of the public health world, and now we are ready to say good-bye and head back to what we do best: Practice public health. But before we do, I would like to impart a few last words as we begin a new year in the Texas Public Health Association.

Everywhere we look around us, it seems as though the entire world is crumbling before our very eyes. Wars, terrorism, poverty, unemployment, natural disasters, gun violence, Zika, Ebola, Flu.....I could go on and on. As depressing as all of those things innately tend to be, I have reason for great hope. For one thing, as I look around this room, I see folks who have committed their lives and careers to working in the field of public health. I personally work with many, many folks who are 100% committed to working in public health and to solving some of the challenges that I just mentioned.

I am even more hopeful for another important reason. I would like to remind you of what

Cindy Kilborn stated in her President's Message last year:

> "What is evolving in the world of public health today is the increasing awareness of the complexities of assuring the public's health and the multifaceted approaches that will be required to accomplish these goals. These networks and collaborations are not just with public health's traditional partners; these new collaborative networks will include non-traditional partners such as community planners, policy makers, transportation entities, agricultural producers/distributors and social marketing groups."

Cindy and I had multiple conversations about the fact that we both feel that building public health infrastructure is going to be crucial to meeting public health goals in the state of Texas, and that these new networks and collaborations are an integral part of addressing that infrastructure. When we had those discussions, I was not really sure how we were going to make that happen. Strengthening public health infrastructure seems to be a relatively lofty goal. How in the world are we going to facilitate that kind of change? The prospect just seemed daunting and overwhelming.

I am happy to report that we have, indeed, made some inroads into addressing this issue. I have spent the last 18 months building a new partnership with the American Planning Association to address some of the very issues that Cindy and I talked about two years ago when we were beginning this leadership journey together. The partnership began in the fall of 2014 in collaboration with the CDC and APHA. Monies were made available to fund innovative, collaborative public health projects across the nation. I was asked by then-President Jim Swan to be the liaison between TPHA, and the Texas chapter of the American Planning Association (APA). We were tasked with coordinating proposals to send to APA National for possible funding of some very innovative projects here in Texas. In 2015, an award was made to a team of dedicated public health practitioners in Austin who are just now completing their incredibly successful project for the APA. And I am thrilled to announce that one of the 2016 cohort grants has gone to an agency in my very own county, the Healthy Tarrant County Collaboration, who won the inaugural Dr. Ron J. Anderson Thinking Progressively for Health Award this year at the Presidents Awards ceremony. I could not be more pleased and proud to represent TPHA on a national level. In fact, I recently returned from speaking on a panel in Phoenix, Arizona and the APA National Conference. What a thrill it was to represent YOU to folks all across the country who want to know what we are doing, how we are doing it, and how they can replicate our successes. I will have the honor of representing you again in November in San Antonio as I have been invited back to the APA Texas Chapter's annual state conference to speak about our new cohort project. Not only do we have a new platform to share our public health message to a new audience, we have new friends and partners from the APA Texas Chapter who are committed to working with us on a long-term basis, even after the funding runs out for this grant in 2017. What an amazing, new, exciting opportunity we now have to move this public health infrastructure-building initiative forward on a scale that Cindy and I couldn't have possibly imagined when we had that conversation two years ago.

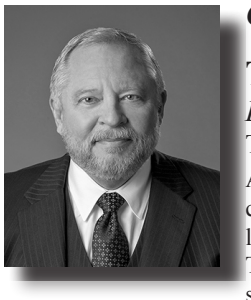
There are three things I want to leave you with as you go about your life and your practice of public health. First, please know and have every confidence that you are not doing this work by yourself. I know that sometimes I feel that way, and I am probably not the only one. But then I get connected to what is going on around me and I realize that there are folks out there who care about this work as much as I do, and when we collaborate and work together, great things happen.

You are also not alone because you have the support of TPHA. As your President, I am here to serve YOU. To do that, I need to know what you need and want out of this organization. Over the next few weeks, I am going to be asking for your input, and I would love it if you would take just a few minutes and tell me what you need and want out of this organization so that we can build something that meets your needs and desires.

Secondly, I want to encourage you to dream big. What do you want to see happen in your work in this very exciting field of public health over the next twelve months? What things will you put into motion in your agency that will begin to turn the wheels of progress and innovation? How many people in your community do you want to impact in a positive way? How will you lead your staff to new levels of achievement and excellence? Will we be honoring YOUR work with the Dr. Ron J. Anderson Thinking Progressively for Health Award next year? THINK BIG. Nothing great was ever achieved without someone having an idea and then having the courage to move on it. Be that person this year.

Finally, I want to encourage you to commit to get wholeheartedly involved in TPHA this year. There is so much work to do, and we really need people who are willing to get their hands dirty, collaborate, and think creatively about the issues and challenges we are faced with as an organization. There is room at the table for everyone to contribute to this work that TPHA does in and for the great state of Texas. As we focus on collaboration with other associations, let's not forget to collaborate in our own organization so that it can be everything it was intended to be for our members.

I am so honored and humbled to serve as your President this year. If you have questions, ideas, thoughts...anything....please do not hesitate to contact me at 817.334.0734 or email me at drmissy2011@gmail.com. I am here for you and to support you in your public health career journey. Thank you so much for coming to the conference and I hope to see all of you in Fort Worth for our 93rd Annual Education Conference!



Commissioner's Comments

Texas Tackles Zika With Local Partners

Dr. John Hellerstedt
Texas Department of State Health Services

A few months ago, the Zika virus quietly crept into view with a handful of travel-related cases in the continental United States. That quiet entry prompted a resounding response, grabbing the attention of the public health community and spurring a hefty reaction to a virus that had yet to be locally transmitted here. What is Zika? How worried should we be? I had been at the helm of the state's public health agency only briefly when it became clear that Texas public health needed to take steps to prepare for this emerging threat – one that we knew little about but that had the potential to impact Texans, particularly pregnant women.

Texas went into high gear, convening surveillance, planning and communications experts from DSHS to embark on what I refer to as Zika University, a fast and furious study of Zika and how to protect

people from it. We also convened leadership from local health departments across the state for discussions about what was known and what we needed. As a home rule state and with vector control largely a local effort, it is important to share information across jurisdictions and be mindful of existing efforts tailored to individual communities as part of the overall planning process. This information ramp-up also included numerous discussions with the Centers for Disease Control and Prevention about the disease and the availability of information and resources to prevent or delay it from impacting Texas.

A few key themes emerged: What should everyone do now? Eliminate mosquito breeding sites. What's the best way to protect yourself? Avoid mosquito bites. As simple as these measures are, they can be quite effective. Success will require all of us working together to make sure the messages resonate and action is taken. People need to be aware of the actions being taken in their local communities and do what they can to help. Like many health departments, we implemented Zika virus prevention plans in anticipation of possible local mosquito transmission and have a core group of people working on Zika prevention every day with our partners. Texas offered specific guidance to local communities outlining steps to prevent or delay Zika virus transmission by local mosquitoes. We're in this together, and local communities are on the frontlines.

DSHS has a robust surveillance system in place and began providing daily counts of confirmed Zika cases at the beginning of February. As I write this, we have identified more than two dozen cases, all associated with travel to areas of the world where spread of the virus is active and ongoing. Those cases include one that was the result of sexual contact with a traveler and another involving a pregnant woman.

While the disease itself is mild, there is a heightened concern about cases involving pregnant women. Zika has been linked to the birth defect microcephaly and other poor birth outcomes in some women infected during their pregnancy. Pregnant women with recent travel to areas of active Zika transmission may understandably be concerned and seek testing, and we urge them to talk to their doctor about overall risk and whether testing should be considered. We're keeping close tabs on testing availability and resources, and we have ramped up testing for Zika virus at our public health lab in Austin. Capacity across the state is increasing as more local labs add testing capability in anticipation of a possible surge in demand.

With mosquito season approaching and case counts increasing, it is likely Texas will have local transmission of Zika virus by mosquitoes at some point soon. A key element of Zika response involves educating the general public about Zika. We launched information in English and Spanish through a new website www.TexasZika.org to give people a place for Texas-specific information and are urging people to strictly follow steps to prevent the disease.

We need everyone on board to reduce to impact of Zika in Texas. While my time at DSHS has been relatively short, it didn't take long for me to understand the importance of having a strong partnership with local public health. I deeply appreciate the collaborative spirit Texas public health has in place and look forward to working with you.

Poison Control News

Scorpion Stings in the Workplace

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Scorpions are arachnids of the order Scorpionida. They have eight legs, a pair of grasping appendages called pedipalps, and a segmented tail with a venomous stinger. About 90 scorpion species occur in the United States.[1] Only one of these scorpion species, the Arizona bark scorpion (*Centruroides sculpturatus*), is considered to be of medical importance to humans.[2-4] Eighteen of the 90 scorpion species identified in the United States occur in Texas, although *Centruroides sculpturatus* is not commonly reported to be one of them. Scorpions can be found throughout the state; however, different regions of the state have different species of scorpions.[1] In Texas, scorpion stings are seasonal, most often reported in May and June.[5]

Scorpion envenomations are fairly common with over 16,400 reported to poison centers in the United States in 2014.[6] The most frequent symptoms of envenomation by scorpions in the United States include localized, immediate pain, tissue inflammation, and paresthesias. These symptoms may resolve within several hours. More serious scorpion stings may result in such symptoms as weakness, agitation, diaphoresis, peripheral motor neuron and cranial nerve effects, tachycardia, salivation, slurred speech, priapism, and respiratory distress. Most scorpion stings in the United States can be successfully managed by symptomatic care such as administration of analgesics and cool compresses or ice packs.[2,3]

Scorpion envenomations can occur in a variety of locations, including the workplace.[5] A previous study that compared venomous snake bites in Texas that occurred at work and all other locations found a number of differences between the two groups.[7] Thus, differences between scorpion stings in Texas that occurred at work and all other locations also might be expected.

Of 18,913 scorpion stings involving patients 18 years or older reported to Texas poison centers during 2000-2015, only 222 (1.2%) were reported to occur at the workplace. Table 1 compares these 222 workplace envenomations to the 18,691 envenomations that occurred at other locations. The patients that received scorpion stings at the workplace were significantly more likely to be 18-35 years. While the majority of workplace envenomation patients were male, most of the other patients were female. Although only a small proportion of both types of scorpion sting involved management at a healthcare facility, the proportion was 64% higher for workplace stings (although this difference was of borderline statistical significance). Similarly, only a fraction of the scorpion envenomations were considered to be serious with the percentage being higher, if not substantially so, for workplace envenomations. Four of the five most common clinical effects were more frequently reported among scorpion stings that occurred at the workplace, albeit the difference was statistically significant for puncture, wound, or sting and numbness. Three of the four most common treatments also were more often reported among workplace scorpion stings; however, only the differences in rates for antibiotics and steroids were statistically significant.

That people who reported scorpion stings at work were more likely to be younger and male is probably due to the types of people who

Table 1. Comparison of scorpion envenomations occurring at the workplace and all other locations reported to the Texas Poison Center Network during 2000-2015

Variable	Workplace		All other		RR[1]	95% CI[2]
	No.	%	No.	%		
Patient age[3]: 18-35 years	107	60.8	7,193	47.4	1.28	1.14-1.45
Patient gender: Male	164	73.9	7,236	38.7	1.91	1.76-2.07
Caller site:						
Own residence	67	30.2	16,428	87.9	0.34	0.28-0.42
Workplace	119	53.6	148	0.8	67.70	55.32-82.83
Management site: At, en route to, referred to healthcare facility	15	6.8	772	4.1	1.64	1.00-2.68
Medical outcome: serious	12	5.4	772	4.1	1.31	0.75-2.28
Clinical effects:						
Dermal irritation or pain	173	77.9	14,558	77.9	1.00	0.93-1.07
Puncture, wound, sting	169	76.1	12,604	67.4	1.13	1.05-1.22
Erythema or flushed	31	14.0	2,377	12.7	1.10	0.79-1.53
Edema	27	12.2	2,257	12.1	1.01	0.71-1.44
Numbness	27	12.2	1,204	6.4	1.89	1.32-2.70
Treatment:						
Dilution, irrigation, wash	180	81.1	15524	83.1	0.98	0.92-1.04
Antihistamines	88	39.6	6,367	34.1	1.16	0.99-1.37
Antibiotics	41	18.5	2,484	13.3	1.39	1.05-1.83
Steroids	25	11.3	1,380	7.4	1.53	1.05-2.21
Total	222		18,691			

Patients age 18 years or older.
[1]RR = Rate ratio (ratio of workplace percent to all other percent)
[2]CI = confidence interval. Interval not including 1.00 is considered to be statistically significant
[3]Patient age analysis restricted to those cases where the exact patient age in years was known (176 of workplace, 15,174 of all other)

perform jobs that may result in scorpion stings. The observed differences in management site, medical outcome, clinical effects, and treatments may be, at least in part, related. The higher rates of four of the five most common clinical effects among workplace stings would be expected to result in higher rates of treatments intended to manage these clinical effects. And at least some of these treatments would require management at a healthcare facility. In addition, since the medical outcome is primarily based on the observed clinical effects, higher rates of specific clinical effects might translate into higher rates of serious medical outcomes among workplace scorpion envenomations.

It is unclear why scorpion stings that occurred at the workplace might be slightly more likely to lead to higher rates of the more common clinical effects and serious outcomes. It may be partly due to reporting bias - that poison centers are somewhat less likely to be contacted about workplace scorpion stings if the sting does not appear to be serious. This possibility may be supported by the observation that only slightly more than half of the workplace envenomations were reported from the workplace; 30% of the workplace envenomations were reported from home.

A limitation of the Texas poison center data is that the exact circumstances leading to the scorpion sting are not frequently or consistently collected. Thus, details as to whether the sting occurred indoors or outdoors and the patient's job and exactly what they were doing at the time of the sting are not generally available.

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Wisteria Is Not Just a Lane Desperate Housewives Live On

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Wisteria (also spelled wistaria or wysteria and known as the kidney bean tree) is a genus of deciduous, climbing woody vines or shrubs in the family Fabaceae. They produce large, pea-like flowers of purple, pink, or white in elongated, pendulous clusters that bloom in the early spring. The fruit of wisteria is a hairy, flattened pod with a few seeds that ripens the late summer or early autumn. Wisteria is native to eastern North America and China, Korea, and Japan. Several species brought to United States as ornamental plants have subsequently escaped and are considered invasive species. The more common species are Chinese wisteria (Wisteria sinensis), Japanese wisteria (Wisteria floribunda), and American wisteria (Wisteria frutescens).[1-3]

Wisteria contains glycosides, including wistarina of wistarine, a double-chain lectin, which binds to galactose-containing structures in the gastrointestinal system, inhibiting protein synthesis.[4,5] All parts of the plant are toxic; as little as two seeds or pods can cause adverse effects.[5] Wisteria toxins primarily affect the gastrointestinal system, causing symptoms such as vomiting, diarrhea, oral burning, nausea, abdominal pain, fever, and weakness.[3,5,6] Neurological effects (e.g., dizziness, confusion, syncope) may be reported.[3]

Recommended treatment of wisteria ingestion consists of decontamination and supportive care. Patients typically recover in one-two days.[5,6]

Much of the recent literature on human exposures to wisteria consists of case reports or small number of cases.[3] A recent study by a poison center in Italy examined 51 cases,[6] and another using UK poison center data included 61 patients plus four groups.[7]

During 2000-2015, 142 wisteria ingestions were reported to Texas poison centers. Almost half (46.5%) of the exposures were reported during March-May and another 10.6% in October. The patients were 52.1% male, 47.2% female, and 0.7% unknown gender. The age distribution was 74.6% five years or less, 12.7% 6-12 years, 4.9% 13-19 years, 7.0% 20 years or more, and 0.7% unknown gender. In both of the previous poison center studies, the majority of patients were children.[6,7]

Ninety-three percent of the exposures were unintentional, 5.6% intentional, 0.7% contamination or tampering, and 0.7% unknown reason. In the Italian and UK poison center investigations, the prepon-

derance of the exposures were accidental.[6,7] The majority (86.6%) of the exposures occurred at the patient's own residence, 7.0% at another residence, 2.8% in a public area, 2.1% in school, and 1.4% at an unknown location.

Eighty-eight percent of the patients were managed on site (i.e., outside of a healthcare facility), 8.5% were already at or en route to a healthcare facility when the poison center was contacted, 2.1% were referred to a healthcare facility by the poison centers, and 1.4% were managed at an unspecified location. The medical outcome was 31.0% no effect, 10.6% minor effect, 1.4% moderate effect, 6.3% not followed but judged nontoxic, 48.6% not followed with minimal effects expected, 1.4% unable to follow but potentially toxic, and 0.7% unrelated effect. No deaths were reported.

The reported clinical effects were vomiting (14.8%), nausea (4.9%), abdominal pain (4.2%), oral irritation (2.8%), diarrhea (2.1%), hematemesis (1.4%), dermal irritation or pain (0.7%), blood in rectum (0.7%), and dizziness or vertigo (0.7%). All of these clinical effects were consistent with the literature.[3,5,6] The reported treatments were dilution (74.6%), food or snack (13.4%), IV fluids (3.5%), antiemetics (2.8%), antihistamines (0.7%), other emetic (0.7%), and activated charcoal (0.7%) - decontamination or supportive care like recommended in the literature.[5,6]

In summary, almost half of wiseria ingestions were reported in the Spring, when the plant often blooms. The ingestions tended to involve young children, were most often accidental, and occurred at home. The majority of patients were managed outside of a healthcare facility and did not have serious outcomes. The reported clinical effects mostly affected the gastrointestinal system.

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Zika Virus: Interview with an Expert

Kara Elam, MS

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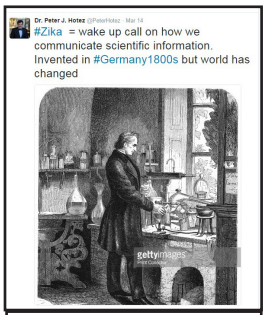
On Feb. 1, the World Health Organization (WHO) convened the first meeting of the International Health Regulations Emergency Committee on Zika virus, in which they assessed the severity of the global health risks that are associated with the "explosive spread" of the Zika virus throughout Latin America and the Caribbean.

Dr. Hotez is the founding Dean of the National School of Tropical Medicine.

To help understand what this means and the implications it may have for us here in Texas, Dr. Peter Hotez, M.D., Ph.D., Dean of the National School of Tropical Medicine at Baylor College of Medicine, sat down for an interview with Kara Elam, a student from The University of Texas School of Public Health, on April 1, 2016, to answer questions concerning our current understanding of the virus, its relationship to reproductive health, and those in Texas who are most at risk for infection during the upcoming 2016 mosquito season.

The Texas Public Health Journal is publishing the transcript of this interview as it was submitted, in the spirit of providing information to our readers, and neither agrees nor disagrees with the content. Please direct comments and questions to the author.



Dr. Hotez tweet describing changes.

Kara Elam: You have previously stated that Zika is the "Virus from Hell", Can you please explain why?

Dr. Peter Hotez: The reason I called it the "virus from Hell" is because it is just so diabolical and evil in terms of what it does to the brains of the developing fetus. We now know from studies coming out of John's Hopkins and Florida State University that the virus has the ability to infect neuro progenitor cells. When this happens it actually stops fetal brain development-- so everyone talks about small head and microcephaly, but that is the least of it. When you actually do a cranial ultrasound of these babies there's no brain there. This is a bit of an exaggeration, but when you see a big hole in a dilated ventricle where the brain should be, that to me is the epitome of evil in terms of what a virus can do. So it is not only causing a small head but profoundly abnormal brain development and really in a sense, absent brain development. So these babies when they are born, if they survive, they are going to be neuro-devastated—they probably won't be able to walk. To me it is every parent's greatest nightmare. So it is almost like a baby with anencephaly, which is totally absent brain, and it is happening through the activity of a virus, so that is why I am calling it the "virus from Hell". Just today the WHO announced that the links between the Zika virus and microcephaly are confirmed, but for me, we have known this for months now, so the announcement is a bit late.

KE: How worried are you about the risk of a large outbreak leading to birth defects, blindness, and developmental delays here in Texas?

PH: The virus has expanded from Brazil to Colombia, now it is moving into Haiti where it is going to, because of its links with poverty, cause a huge outbreak there. I'm worried about hundreds and thousands of babies that could be born with microcephaly in Haiti, a country with no healthcare infrastructure. There are a lot of reasons that I believe that the Gulf Coast is uniquely vulnerable- and I say that because we have the Aedes aegypti mosquito on the Gulf Coast. It is one of the few places in the US where we do have the Aedes aegypti mosquitoes and we know that as the virus is spread throughout Latin America and the Caribbean that the Aedes aegypti

has been a clearly defining factor of where the virus spreads. But the other piece is poverty-- and not many people appreciate that. So there is a reason why that out of all the places in Brazil, where Aedes aegypti mosquitoes are, these are some of the poorest states in Brazil, so people living in closer urban overcrowded impoverished conditions that don't have access to window screens, garbage outside the home where there is discarded plastic containers and tires that fill up with water allowing for the Aedes aegypti mosquitoes to breed-- all of these factors combine to promote this epidemic in Northeastern Brazil. That is why Haiti is going to get devastated: those same combined factors of poverty and the Aedes aegypti mosquito are what we have here in the poor neighborhoods of the Gulf Coast. So I think the greatest risk in the US, if Zika is to come to the US, in terms of transmission will be in Gulf areas, number 1 where we have the Aedes aegypti mosquito and in urban areas, and number 2, where there is extreme poverty. So in Houston it is places like Sunnyside, Acres Home, and the Fifth and Third Wards of Houston-- these are areas that I am really worried about Zika getting a foothold in the continental United States-- and it will happen somewhere around May or June as the Aedes aegypti mosquito starts coming out. And that's why I worry.

Dr. Hotez tweet describing effects of Zika virus on an infant

KE: Which will be more of an obstacle in controlling or containing the Zika Virus, here in Texas, the politics or the science?

PH: I think we know the science, we don't know everything, and there are still elements of sexual transmission that we don't know about, but I still think that is a rare mode of transmission. The problem will be the political will of doing Aedes aegypti control, because we know a lot about how to control culex mosquitoes. We do it through fogging and mosquito spraying that Harris County and other counties do in Texas, but we have never really embarked on an aggressive Aedes aegypti control program here in the US, at least not for many decades. It (this type of mosquito control) is more labor intensive; it involves source reduction, removing standing bodies of water; or the tires that are all over poor neighborhoods in Houston, and there needs to be indoor spraying, and that and figuring out how we are going to do that is going to be very important. So, not everyone agrees with me, but I think spraying does have a role. It is a more labor intensive approach of going house-to-house in a state that doesn't really like people coming into your house and going house-to-house, as we pride our individualism here in Texas, our personal space, and privacy. It may require a change in how we do business.

KE: You once stated that in 1947 and 1962 we did eradicate the Aedes aegypti mosquito in 18 Latin American countries, was this due to spraying?

PH: It was eradicated in 18 Latin American countries by just what I said: source reduction, getting rid of the standing water, the discarded tires, and the plastic containers on the side of the road, and going house-to-house and doing the indoor spraying. This is a mosquito that likes to be indoors-- and this worked-- we eradicated Aedes aegypti in 18 Latin American countries. I am still learning more about the history, but when you look at the 60s and 70s, with mosquito control programs, the US opted out. So this is why we have had Aedes aegypti here in the Gulf Coast for decades.

KE: Why did we opt-out?

PH: I'm still trying to figure that out and find all the sources, but as I learn more I will let you know.

KE: In your opinion, is the State of Texas taking the necessary steps to prevent Zika?

PH: The CDC has assembled all the Health Directors from the around the country to Atlanta today. Governor Abbot has assembled a task force to deal with this and I will be a member of that task force. So there are some measures, but as I said before this is something new for everybody-- having to do Aedes aegypti mosquito control, and we will have to really take a long hard look at what is feasible and practical. The challenge is that we don't have a lot of time because right now the numbers of Aedes aegypti are low, but as we move into the spring and summer months those numbers are going to climb. We are already in the spring, and moving into the warmer months in May. We have about a month before we really have to be concerned, maybe 6 weeks; it is not a long time.

KE: Have we started doing Public Service Announcements in the Gulf Coast region?

PH: We are just getting geared up now. Remember this is such a fast moving virus-- Zika is such a fast moving train and everyone is playing catch-up.

KE: A recent report showed that the virus can linger in a pregnant woman's blood for longer than the normal 1 week clearance rate. Can you explain why that is important both for women trying to get pregnant here in Texas and the health-care providers who specialize in obstetrics?

PH: Well it was one case-report, and the way it was done was through RT-PCR (reverse transcriptase- polymerase chain reaction) looking for viral genome. I think that I actually said this in USA Today, that we don't really know if it is actual virus or whether it is just genome-- virus genome that is just hanging on after the virus has disappeared. So I don't think we can generalize from that case-report. I think the jury is still out on how long the virus can linger. It may be true, but if we look at how other arboviruses operate, the mosquito infects the individual, the virus then goes through an incubation period of 3-7 days, and then it is in the bloodstream for a week while we mount an antibody response and it clears the virus. So most people think that is probably how Zika behaves. But of course Zika has shown us that it does things that no other arbovirus does, no other arbovirus causes Guillain-Barré syndrome like Zika does. No other arbovirus causes horrific congenital birth defects like Zika does-- so maybe the virus is doing something very different.

KE: So if we did have confirmatory studies showing that the virus is staying in the bloodstream longer in pregnant women, what would that mean in terms of prevention and control? What would that mean for women trying to get pregnant here in Texas?

PH: It could have important implications for women's reproductive health on the Gulf.

KE: Related to that, Texas is one of the many southern states that decided not to expand MEDICAID leaving close to a million people without access to affordable healthcare, and Texas recently passed legislation that if allowed to pass after the Supreme Court decision, will leave the state with only 10 clinics that will provide abortion services, severely impacting access in the poorest regions of the State-- is the Infectious Disease Preparedness Task Force that Governor Abbott assembled, of which you are a member, trying to help policymakers in our state understand the public health consequences of decisions based on ideologies and partisanship that leave Texans susceptible to potential health threats such as Zika?

PH: Well at least you weren't asking a loaded question. (laughter) Let me answer this in a couple of ways. I think part of the problem is we don't know enough of the science, and unique Texas politics aside, we are still in the dark in terms of the science. So let's take a couple of issues: if you rely on a diagnosis of microcephaly in utero, you can't diagnose microcephaly until 24 weeks to 28 weeks gestation, very late in a pregnancy-- so that is probably a non-starter anyway. Then you have the problem of what do you do if you have an amniocentesis and you detect Zika virus in the amniotic fluid-- what is the risk of a mother who has Zika virus in her amniotic fluid of giving birth to a baby with terrible birth defects,? Is it 50%, is it 10%, is it 1%, is it 0.1%? If you look at studies coming out of French Polynesia they are showing about 1 in 100, and some people think that is a low ball estimate from what we are seeing now. Some Brazilian studies suggest it is 1 in 3-- so what is it: 1 in 100 or 1 in 3? If you are trying to make informed decisions about reproductive health and pregnancy outcomes, you would sure like to know if finding Zika in the amniotic fluid translates to 1 in 100 vs 1 in 3. If we start seeing Zika transmission on the Gulf Coast this is going to cause a lot of hand-wringing and it is going to be very problematic in terms of setting policy.

KE: It has been said that our climate here in Texas is friendly to mosquitoes and will get even friendlier with climate change, can you please explain why that is a pressing public health concern?

PH: There are a lot of things that are happening. I wrote an article for VICE magazine that reported on something that is very interesting, which is that Zika is not the only arbovirus that created a pandemic recently. We have seen this with dengue, we have seen it with chikungunya in the Western Hemisphere, and in Southern Europe you have the reemergence of malaria, after a disappearance in Greece for 70 years. Then you have West Nile virus in Southern Europe again in Italy, Spain, Portugal-- we have schistosomiasis now suddenly appearing on the island of Corsica, a very classic neglected tropical disease-- so what is going on? Climate change is certainly a factor, if you talk to the climate change people they will tell you that next to the Arctic, southern Europe is one of the next big shoes that is going to drop in terms of elevated temperatures and rainfall patterns and in the western hemisphere. This is an El Niño year, which could be influencing the 2015-16 climate, but it is not the only thing that is going on. We always talk about poverty, well look at the economic downturn in southern Europe that has been happening or human migrations. We have had this mass migration coming across the Mediterranean from North Africa and the Middle East. Could that be a factor? Conflict is a huge contributor-- we have seen the reemergence of a number of catastrophic vector-borne diseases in the Middle East. Or is it a perfect storm of all these things? Is it climate change together with human migrations, or is it poverty? So I think one of the big challenges that we are going to face is trying to sort out what is what. If you look at a complex situation like what is going on in Latin America or Southern Europe, where you have all of those forces, what is the dominant one, or is there a dominant one-- and how are we going to sort those out? I think that is going to be one of our big challenges, not just understanding the environmental causes, but also the social determinants that we are seeing.

KE: I follow you on Twitter, and I learn a lot from your tweets, so thanks for that! Although there were two recent tweets that I was hoping you could expound upon: the first is "Zika is a wake-up call on how we communicate scientific information"

PH: Thanks for that question. The problem is that there has been so little published in the scientific literature about this current outbreak in Latin America, and we are only now getting papers filtering in about what happened two years ago in French Polynesia. I think it is a wake-up call for science in the sense that scientific publication is too slow. The way we publish scientific papers where a scientist submits findings to a journal, it goes out for peer-review, they spend a lot of time looking for reviewers, they finally get the reviewers, it gets reviewed, goes back to the scientist, who then has to revise the paper, goes through another round of peer review -- that's at least 6 months and sometimes a year before a paper is published. This is a model that was largely refined in 19th century Germany, at the pinnacle of German science, and it worked for 1850, but it doesn't necessarily work for 2016. The world has changed since the 1850s, and we have now got to recognize that maybe we need a new paradigm for how we publish papers.

Something that has happened that is very interesting is a fairly new (few years old) website called bioRxiv (pronounced "bio-archive") that allows a scientist to put up papers on the web as soon as they are written and not wait for peer review. So it is a way to get the information out there fast, and thus we have learned a few things about Zika and an important mutation in the NS1 gene.-- what we have had is an informal agreement among journal editors, for instance I am the journal editor of PLOS Neglected Tropical Diseases, that we will not penalize authors who write Zika papers and put them on bioRxiv.We won't prevent them from then submitting it to a more conventional biomedical journal that does the peer review. Whereas, in the past some journals have blocked it stating "hey if you sent it to bioRxiv then you can't try to publish it." It is an archaic model and we need to fix that.

These large catastrophic epidemics like Ebola, like Zika, are indeed a wake-up call that we have to change the way we quickly disseminate scientific information.

KE: How hard do you think it will be to change the culture of peer-review being the only right way?

PH: I don't think there is anything wrong with peer-review, but it is the timing of how we do it and I think that the idea of putting the paper up to get the information out there while we are waiting for the peer review is not a bad way to go.

KE: The second tweet I was hoping you could explain stated "Our news obsession with Donald Trump equals the reason we are not focusing on the human tragedy of Zika in the Americas".

PH: To me this is a catastrophe of far greater magnitude than Ebola ever was. Ebola, as terrible as it was, in reality it was a small epidemic except in those 3 countries-- so it was a catastrophe for West Africa but it was never going to be a pandemic, in my opinion. This (Zika) is a true pandemic, of much greater magnitude. Ebola was out front and center everyday on the major cable and news networks, and Zika is barely mentioned now-- this is an election year, and it is sucking all the oxygen out of the air, but Donald Trump especially, and it is not anything against Donald Trump, he is not the problem. The problem is that the media needs to better balance catastrophic issues that are happening in the world with a very shrill debate going on between presidential candidates.

KE: Will a vaccine be ready this year for the eventual arrival of Zika in Texas?

PH: The technical feat of making a Zika vaccine will not be difficult-- it is easier than for a dengue vaccine where you have to worry about 4 serotypes. I think the problem we are going to have with the Zika vaccine is that our target population is women of childbearing age who are pregnant or thinking of becoming pregnant, and that is about the highest bar there is from a regulatory perspective. That is going to slow us down and we are going to have to be very innova-

tive with clinical trials. I don't think we are going to have a vaccine in time for this epidemic.

KE: You stated before that the FDA probably won't expedite any vaccine because of the target population.

PH: They might move some things along and I think we will be able to get to Phase I trials pretty quickly, but doing that in normal adult volunteers to the pregnant populations is going to be real challenging. And I don't see a way of how you can really get around it.

KE: Do you think the recent collaboration with UTMB and the Brazilian government will possibly help speed things up?

PH: It is going to help. I think we can move along. There are a lot of different technologies out there, a lot of companies are looking at it-- they include killed virus vaccines, they include recombinant protein vaccines, VLPs, DNA vaccines-- it is all good, but at the end of the day all roads point to pregnant women-- so that will be the bottle-neck.

KE: The readers of the Texas Public Health Journal are mostly public health professionals working in Texas, could you provide suggestions on what they should be doing to prepare for Zika's eventual arrival.

PH: I think the big problem we are going to face is the response to Zika is going to be multi-sectoral and it is not going to be just the departments of health, state, county, and local -- it is going to be environmental control, solid waste management, because we have to clean up the garbage, maybe housing and urban development-- that is problem number. Problem number 2 is that this is going to have to be worked at the federal, state, county, and city level. Otherwise we are going to have to have a lot of finger-pointing, for the feds are going to say this is what the states should do and the states are going to say this is what the feds should do or the county should do-- and that is why we have Flint, right? Because there was a lot of finger-pointing going on like this and nobody took ownership-- so I am really worried that that could happen here with Zika as well.

KE: Do you worry more from a top-down or bottom-up perspective?

PH: I think we are seeing issues at both.

About Dr. Peter Jay Hotez, M.D., Ph.D.
Peter J. Hotez, M.D., Ph.D. is Dean of the National School of Tropical Medicine and Professor of Pediatrics and Molecular Virology & Microbiology at Baylor College of Medicine where he is also chief of a new Section of Pediatric Tropical Medicine and the Texas Children's Hospital Endowed Chair of Tropical Pediatrics. He is the President of the Sabin Vaccine Institute.

Dr. Hotez is an internationally-recognized physician-scientist in neglected tropical diseases and vaccine development. He leads the only product development partnership for developing new vaccines for hookworm infection, schistosomiasis, and Chagas disease, diseases affecting hundreds of millions of children and adults worldwide. In 2006 at the Clinton Global Initiative he co-founded the Global Network for Neglected Tropical Diseases to provide access to essential medicines for hundreds of millions of people

He obtained his undergraduate degree in molecular biophysics from Yale University in 1980 (phi beta kappa), followed by a Ph.D. degree in biochemical parasitology from Rockefeller University in 1986 and an M.D. from Weil Cornell Medical College in 1987.

Dr. Hotez has authored more than 400 original papers and is the author of the acclaimed Forgotten People, Forgotten Diseases (ASM Press).

Dr. Hotez served previously as President of the American Society of Tropical Medicine and Hygiene and founding Editor-in-Chief of PLoS Neglected Tropical Diseases. He is an elected member of the National Academy of Medicine and in 2011 he was awarded the Abraham Horwitz Award for Excellence in Leadership in Inter-American Health by the Pan American Health Organization of the WHO.

In 2015 the White House and U.S. State Department selected Dr. Hotez as a United States Science Envoy.

About Baylor's National School of Tropical Medicine
NSTM applies strong traditions in basic, translational and applied biotechnology research brought by the Baylor College of Medicine faculty and staff with the newly affiliated Sabin Vaccine Institute Product Development Partnership (Sabin-PDP). The NSTM works in partnership with Texas Children's Hospital, home of the Sabin Vaccine Institute & Texas Children's Hospital Center for Vaccine Development.

NSTM is addressing neglected infections of poverty in the United States through establishing a unique tropical disease clinic in collaboration with the Harris Health System and preventing these infections as they emerge along the Gulf Coast and South Texas. Among the school's recent discoveries is the finding of dengue fever transmission in Houston, Chagas disease transmission in East and South Texas, and a new clinical syndrome caused by West Nile virus (WNV) infection.

About Kara Elam
Kara Elam is currently a doctoral student in Health Policy at The University of Texas School of Public Health at the Texas Medical Center in Houston. She holds Master Degrees in both epidemiology and microbiology. Her research interests include emerging viral diseases, the intersection of human rights and intellectual property rights, and ending violence against women. Follow her @KaraMcElam

Disparities Associated with Sexual Assaults and Abuses Identified by hospitals in North Texas Region and Dallas County during 2010-2012

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List of abbreviations: REMPI: regional enterprise master patient index, GIS: geographic information system, DFWHCF: Dallas-Fort Worth Hospital Council Foundation, SA: Sexual Assault, CSA: Child Sexual Assault, ASA: Adult Sexual Abuse, RAINN: Rape Abuse and Incest National Network, CPT: Current Procedural Terminology, SES: Socioeconomic Status; NTHIQC: North Texas Health Information and Quality Collaborative; SANE: Sexual Assault Nurse Examiner.

None of the authors report any conflicts of interest.

ABSTRACT

Objective: This study aimed to investigate the trend of hospital reported sexual assault and abuse instances in the North Texas region and counties. Study also aimed to geographically locate the counties and zip codes with high incidences of sexual assault and abuse to identify the disparities associated with higher incidences.

Methods: For this study, researchers collected the hospital reported cases for sexual assault and abuse from DFWHC Foundation's regional database for 2010-2012. Sexual assault and abuse Data with ICD-9 diagnostic codes namely 995.53, 995.83, V71.5, and E960.1 were included in this study. Arc GIS was used to map the sexual assault and abuse data from region to county and zip code level.

Results: Total 2,720 cases were reported to hospitals in North Texas during 2012. Dallas County had highest number of hospital reported cases (1,378) in North Texas region. In Dallas County, greater proportion of the victims was uninsured (2011 and 2012 data), non-Hispanic/Latino, White females' aged 10-29 years. GIS mapping indicated that zip codes 75243, 75217, 75216 had highest number of incidences in Dallas County. Results identified age, gender, socioeconomic (based on payer group), race and ethnicity related characteristics associated with sexual assault and abuse in selected areas.

Conclusion: This study has major significance in the realm of social and public health. With the identification of the contributing disparities, prevention, advocacy and educational efforts can be more efficiently targeted at zip code level. This study indicates the need of data sharing between different stakeholders to facilitate coordinated efforts for prevention, treatment and advocacy.

INTRODUCTION

Sexual Assault and Abuse is a global concern of every society and country. Sexual violence is a serious public health and human rights problem with both short- and long-term consequences on victim's physical, mental, and sexual and reproductive health. It has profound negative effects on victims, families and societies at large. According to the U.S. Department of Justice's National Crime Victimization Survey (NCVS), every 107 seconds someone somewhere is sexually assaulted, contributing to an average 293,066 instances (victims age 12 or older) per year.[1] Survey also suggests that approximately 92% of rape or sexual assault victims were female with 44% under age18 years and 80% under age 30 years.[1]

In the State of Texas, the total number of sexual assault and abuse incidents reported to the police department in 2013 was 18,612, including 12.7% male and 87.3% females.[2] These numbers are far too conservative, as evidence suggests that sexual assault and abuse is one of the most under reported crimes in the United States; estimated 68% are left unreported.[3]

Hospitals in North Texas region are offering Sexual Assault Nurse Examiner (SANE) services which are specifically dedicated to providing compassionate and comprehensive care for sexual assault and abuse victims.[4] These services include 180 hours rigorous clinical and classroom training for nurses. A U.S. Department of Justice report showed a 95% increase in successful prosecution of cases where evidence was collected by a SANE-certified nurse.[1] Hospitals and advocacy agencies in this region are making diligent efforts to coordinate services for victims and their families. The lack of available data and an integrated database has been recognized as a major barrier to understanding the psychological and psychosocial needs of the sexual assault and abuse victims. It is important to implement effective approaches to address victims in varying cultural contexts. In addition, there are several regulatory restrictions in data sharing and information exchanges between various stakeholders.[5] These restrictions serve as another barrier for hospitals for future workforce planning and standardization of SANE training. It also restricts other community organizations from implementing more focused and targeted public health efforts to address disparities in this area.

The DFWHC Foundation has a comprehensive data registry for the North Texas region, which includes information of about 10 million patients with more than 40 million hospital visits in the past 15 years. This secure database includes information regarding hospital reported sexual assault and abuse cases and demographic characteristics of the victims based on the diagnosis codes. Aside from the state crime department's report which has time-lag of about 2 years and represents cases which were reported to law enforcement agencies only, no attempts have been made to investigate the statistics and information of sexual abuse and assault in the State of Texas.

This study is the first attempt to investigate the hospital identified sexual assault and abuse cases and demographic characteristics of the victims in North Texas region.

Geographic Information System (GIS) mapping and spatial analysis have been very effective tools in health care and public health research for identifying disparities and critically examining the issues, strengths, and challenges inherent in the current community and/or hospital-based healthcare.[6] Recognizing the need to investigate the areas with the most reported sexual assault and abuse cases in the North Texas and counties with higher incidences, DFWHCF explored the use of GIS methodology to analyze this data from the regional, county and zip code level.

The objectives of this study were:

1. To investigate the trend of sexual assault and abuse instances during 2010 to 2012 in the North Texas region.
2. To identify the statistical and demographic characteristics of the victims from the North Texas region and different counties.

3. To geographically locate the counties and zip codes with instances of sexual assault and abuse using Arc GIS mapping system.
4. To geographically locate the county with high incidences of sexual assault and abuse, and identify the disparities associated in selected zip codes of that county.

METHODS

The Dallas-Fort Worth Hospital Council Foundation (DFWHCF) securely houses the combined data warehouse created in 1999 by North Texas hospital systems which contains information for over 10 million regional patients and their more than 40 million hospital encounters. This warehouse collects claims data from 95% of the hospitals in North Texas. This geography represents the area DFWHCF receives patients' data from. DFWHCF receives claims data from 82 Facilities including 67 Acute, 7 Psych/Rehab and 8 Ambulatory Surgical facilities across 17 counties in North Texas. DFWHCF receives inpatient data from Collin, Dallas, Denton, Fannin, Grayson, Hunt, Johnson, Kaufman, Lamar, Rockwall, Tarrant and Wise counties and less for other counties as some rural hospital do not participate in this collaborative data initiative.

The claims records reveal the patient's demographic data, payer type, up to 25 diagnosis and surgical/testing procedure codes, charges, CPT (Current Procedural Terminology) codes, severity of disease and other information. In the regional enterprise master patient index (REMPI), the Foundation assigns a unique ID to each patient, allowing the foundation researchers to track a patient over time by hospital and by payer. Information from this database inform hospitals about their patient flow between multiple hospitals and helps them tracking performance improvement outcomes over time.

For this study, researchers collected the hospital identified cases for sexual assault and abuse from our database for 2010-2012. Data with ICD-9 diagnostic codes 995.53 (Child Sexual Abuse), 995.83 (Adult Sexual Abuse), V71.5 (Alleged Rape-Observation), and E960.[1] (Rape-physical evidence) were included in the study. This research study was approved by the North Texas Health Information and Quality Collaborative (NTHIQC) who approves the research methodology and the patient/hospital confidentiality protection for all research projects conducted by the DFWHC Foundation. In this study, the Arc GIS mapping system (ArcInfo version 10.0, ESRI, Redlands, CA) was used to combine hospital identified sexual assault and abuse cases with their corresponding counties and zip codes. Zip code information from ZipAtlas[7] was used for the analysis. Data were analyzed using software SAS 9.3 version. The general descriptive table was created using a chi square test of equal proportions to analyze the trends and socio-demographic disparities among those who were sexually assaulted. $P < 0.05$ was considered statistically significant. The analysis was further narrowed down to the county with the highest instances of sexual assault and abuse cases in 2012. From the highest instances county data for 2012, two new subsets of data were created based on their age category namely Child Sexual Abuse (CSA) and Adult Sexual Abuse (ASA). All victims up to the age 17 years and younger were categorized as CSA and all victims 18 years and older were categorized as ASA. A separate demographic analysis was performed for both CSA and ASA.

This baseline study is part of a longitudinal study which will include selection of a cohort of individuals from this study (2010-2012 data) and further tracking their clinical, mental and behavioral health outcomes during 2013-2015. The main objective of the longitudinal study will be to investigate psychological and psychosocial support system, available resources and care coordination for sexual assault and abuse victims and their families.

RESULTS

The three-year trend (2010-2012) of sexual assault and abuse incidences in the North Texas region suggested a 10.8% increase during 2010-2011followed by 3.8% decrease during 2011-2012. Results showed that in 2010 and 2011, 90% victims and in 2012 88% of the victims of sexual assault and abuse were females. More than half (59.8%) of the victims were Caucasians (90.5% females), 29% victims were African Americans with (89% females) and three out of every four victims were of non-Hispanic/Latino origin (90.2% females). An increase in number of instances for others and Hispanic or Latino was also observed during 2010-2012. Results also suggested that more instances of sexual assault and abuse happened in the second and third quarter of the year. Results also indicated that the total hospital charges for sexual assault and abuse in 2012 were $6,052,274 and about 38% victims were from the uninsured payer group (Table 1).

Table 2 suggests that the 61%-63% of victims of sexual assault were between the ages of 10 years to 29 years.

In the North Texas region, our study demonstrated that the counties with the most frequent occurrence of sexual assaults and abuses were Dallas, Tarrant, Collin and Denton Counties. County wise distribution in Table 3 indicated that in 2012, 87.46% cases were from four counties which include 50.6% cases from Dallas County.

Map 1 shows the counties with higher instances of child (Map1-a) and adult (Map1-b) sexual assaults and abuse instances in the North Texas region.

Since Dallas County had the highest number of instances based on hospital visits, further investigation and zip code analysis was used to identify those areas. Table 4 indicates that in Dallas County, 87.61% (CSA) and 86.46% (ASA) were females. In CSA cases, 39% victims were African American and 38.5% were Caucasian, whereas in ASA cases, 50% were Caucasian and 35% were African American. In both racial groups (ASA and CSA), approximately 59% of victims were from non-Hispanic/Latino ethnicity. In ASA cases, more cases were reported to the hospitals in the second and third quarters of the year. In Dallas County, 60% of the ASA victims were from the uninsured payer group. The total charges filed by hospitals in 2012 were $953,112 for CSA cases, and $2,229,656.28 for ASA cases.

Map 2 shows the zip codes with instances in Dallas County. Zip codes 75217, 75243 and 75216 were the areas with the higher number of incidences. Appendix 1 and 2 demonstrate zip code level distribution of Sexual assault and Abuse cases in Tarrant and Collin counties in 2012.

DISCUSSION

This is the first study examining sexual assault and abuse cases identified by hospitals, total charges filed and demographic characteristics of the victims in the North Texas region. The components of this study which distinguish it from other studies are the hospital identified data and the use of spatial technology like GIS to visually represent the areas with high instances of sexual abuse and assault cases on the map.

The findings from this study showed how the prevalence of such victimization varies by race, ethnicity and age (Table 1). Studies suggest that the prevalence of violent victimization decreases as women get older and girls under the age of 18 years have the highest prevalence.[8, 9] Almost two thirds of sexual assault victims in the US are girls under 16 years of age.[1] Our study also revealed that in the North Texas region 88% to 90% of the victims were females, and 61% to 63% of them were between the ages of 10 to 29 years (Table 2). This study also demonstrated the counties with the most frequent occurrence of sexual assaults and abuses were Dallas, Tarrant, Collin and Denton Counties. Data not adjusted for population indicated that

Table 1: Regional trend for Sexual Assault and Abuses in North Texas (2010-2012)

YEAR TOTAL		2010 n= 2550			2011 n=2826			2012 n= 2720		
Variable of interest		**Frequency**	**Percent**	**P-value***	**Frequency**	**Percent**	**P-value***	**Frequency**	**Percent**	**P-value***
Quarter#										
	First quarter	556	21.8	<.0001	636	22.51	<.0001	654	24.04	0.0017
	Second quarter	678	26.59		716	25.34		736	27.06	
	Third Quarter	721	28.27		815	28.84		720	26.47	
	Fourth Quarter	595	23.33		659	23.32		610	22.43	
Race										
	American Indian	1	0.04	<.0001	4	0.14	<.0001	9	0.33	<.0001
	Asian	21	0.82		15	0.53		15	0.55	
	Black	734	28.78		791	27.99		767	28.2	
	Other	269	10.55		315	11.15		509	18.71	
	White	1525	59.8		1701	60.19		1415	52.02	
Ethnicity										
	Hispanic or Latino	655	25.69	<.0001	661	23.39	<.0001	857	31.51	<.0001
	Not Hispanic or Latino	1895	74.31		2164	76.57		1858	68.31	
Gender										
	F	2300	90.2	<.0001	2557	90.48	<.0001	2400	88.24	<.0001
	M	166	6.51		197	6.97		213	7.83	
	X	83	3.25		72	2.55		107	3.93	
Payer group										
	Insured	1013	39.73	<.0001	1017	35.99	<.0001	885	32.54	<.0001
	Medicaid	542	21.25		728	25.76		738	27.13	
	Medicare	70	2.75		44	1.56		73	2.68	
	Uninsured	925	36.27		1037	36.69		1024	37.65	
Total Charges		$5,173,536			$4,976,093			$6,052,274		

* P-Value is for Chi-Square test of equal proportion; # Quarters are defined as Jan-March (Q1), April-June (Q2), July-Sept. (Q3), Oct-December (Q4).

87.46% cases were from these four counties which include 50.6% cases from Dallas County (Table 3).

Table 4 indicates that demographically, larger proportions of ASA victims from Dallas County were not-Hispanic/Latino, Caucasians, and 86.5% females whereas CSA victims were in equal proportion for Black and Caucasians, not-Hispanic/Latino and 87.6% females. These characteristics indicate the racial, ethnic, gender and age related disparities with sexual assault and abuse incidences in Dallas County.

Based on statistics from City-Data, Dallas County has a higher population density than other counties (2,747 people per square mile), and about one third of its population is non-Hispanic/Latino Caucasians.[10] According to the US census bureau, Texas has the highest number of uninsured people (24.6%) in the United States.[11] These numbers do not include the undocumented/unauthorized immigrant population in the area. The State of Texas has a higher number of un-documented/unauthorized immigrant population as compared to other states in the United States.[11] In Dallas County, 33.1% of its residents are uninsured and about 19% of the population is below poverty level. Past studies have shown that poverty increases people's vulnerability to sexual exploitation in the workplace, schools, in prostitution, sex trafficking, and the drug trade.[12] People with the lowest socioeconomic status are at greater risk for violence. Individuals who lack sufficient economic resources to meet their basic needs may have to barter sex for essential goods as a way to survive.[1] This study does not investigate the statistical association between poverty or economic status and sexual assault and abuse but based on previous studies poverty and socioeconomic disparity (SES) in Dallas County can be linked with sexual violence.[6]

DFW region has been known for its rapidly increasing population and changing demographics.

A report published by DFW International in 2010 highlighted the diversification of Dallas population in past few decades from predominantly whites to 30% Caucasian, 43% Latino, 23% African American and 2.40% Asian residents. This report also suggested that approximately 26.10% of residents in Dallas were new Americans (foreign-born population). Also, for 43.20% of the population, English was not their primary language.[13] Therefore; this study recommends the need for culturally and linguistically appropriate approaches to address psychological and psychosocial needs of the victims and their families to prevent future incidences of sexual assault and abuse. Using culturally and linguistically appropriate education and communication can be an effective and more acceptable strategy to address disparities and encourage communities to report sexual assault and abuse incidences to low enforcement agencies.[14]

Table 2: Age distribution of Sexual Assault and Abuse cases in North Texas (2010-2012)

Year Total	2010 n= 2550	2011 n=2826	2012 n= 2720
1-4Yrs	185	217	172
5-9Yrs	167	214	218
10-14Yrs	337	424	428
15-17Yrs	343	389	363
18-19Yrs	253	247	262
20-24Yrs	365	389	375
25-29Yrs	264	293	275
30-34Yrs	174	194	188
35-39yrs	149	142	145
40-44yrs	115	111	115
45-49Yrs	80	89	74
50-54Yrs	57	49	52
55-59Yrs	22	25	28
Others (<1 year or >59Years, identity blinded)	39	43	25

In Dallas County, zip codes 76217, 75243, 75216 and 75228 had higher incidences of sexual assault and abuse (Map 2). Beside Not Hispanic/Latino Caucasian populations these areas in Dallas County have high number of African American and Hispanic/Latino populations. The percentage of people living below the federal poverty level was 30.8%, 24.7% and 38.2% for zip codes 75217, 75243 and 75216 respectively, which is much higher than the county average of 19%.[10] These results indicate possible disparities associated with higher incidences of sexual assault and abuses at the zip code level in Dallas County. Appendix 1 and 2 demonstrate zip code level distribution of Sexual assault and Abuse cases in Tarrant and Collin counties in 2012.

Sexual Assault Nurse Examiner (SANE) services are of utmost importance in the state of Texas.[4] Until 2010; Dallas was the largest city in the nation without a SANE program. Currently, several hospitals are providing SANE services in North Texas region including Dallas County. In Dallas County, hospitals and Dallas Area Rape Crisis Center (DARCC) are collaboratively providing SANE services, advocacy and other support services to the victims.[15] Standardization of the SANE program and expansion of coordinated care services will support communities with higher incidences.

This study has major significance in terms of public health planning, to assist regional community and social service organizations, law enforcement and public health departments with developing effective strategies and efforts. Identifying the contributing disparities in the high frequency zip codes will enable social, public health, and healthcare efforts and resources to be more efficiently targeted and focused for prevention and management of sexual assault and abuse.

Conclusion and Future Implications

This study indicates the need for data sharing between different stakeholders, to facilitate coordinated efforts for prevention, treatment and advocacy. The findings from this study aim to support regional and local organizations including law enforcement departments to do more targeted efforts and obtain more funding for effective execution of prevention, treatment and support programs. It is recommended that support services should be expanded at the community level in cultural and linguistically appropriate manner to build the capacity and improved access to these services. Comprehensive and collaborative efforts could also help provide direction to policy makers, practitioners, and leaders about how to ensure community safety, fulfill the multifaceted needs of victims, hold offenders accountable, and ultimately lessen this crime, which is one of the widespread and serious social, public and global health problem.

Limitations

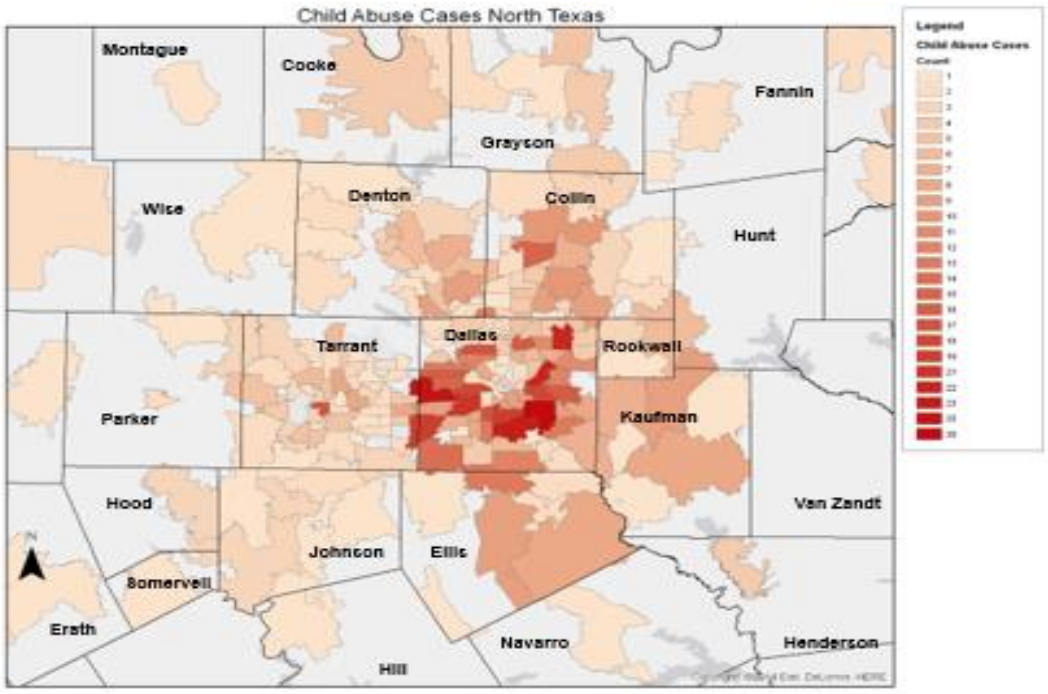
Results are based on only DFWHC Foundation's hospital data registry which covers about 95% of the hospitals (82 Hospitals) in North Texas region. Selection criteria for the data, was based on selected ICD 9 codes only. The data only represent sexual assault/abuse victims who sought medical care. Potential differences in hospital practices that influence the identification of sexual assault/abuse in patients could be also be a limitation. Lack of an integrated database in law enforcement and social agencies restricted us from matching the data with other agencies. County Police Departments have several independent jurisdictions based on city which makes the information exchange and data sharing even more difficult within their system and between various organizations who are working in prevention and management of sexual assaults and abuses.

Table 3: Sexual Assault and Abuse cases in North Texas Counties (2010-2012)

Year	2010	2011	2012
Total Cases→ Counties*↓	**2550**	**2826**	**2720**
Dallas	1121	1354	1378
Tarrant	632	580	609
Collin	182	246	234
Denton	147	175	158
Kaufman	70	58	38
Ellis	51	37	57
Johnson	40	36	41
Grayson	24	24	32
Hunt	25	43	2
Parker	24	16	20
Rockwall	12	22	14
Lamar	52	40	12
Henderson	18	18	5
Hood	11	11	5
Wake	8	15	-
All other counties	133	151	115

*Counties with case >10 (2010-2012) are included above

Map 1-a Child Sexual Abuse cases in North Texas Counties 2012



Map 1-b Adult Sexual Abuse cases in North Texas Counties 2012

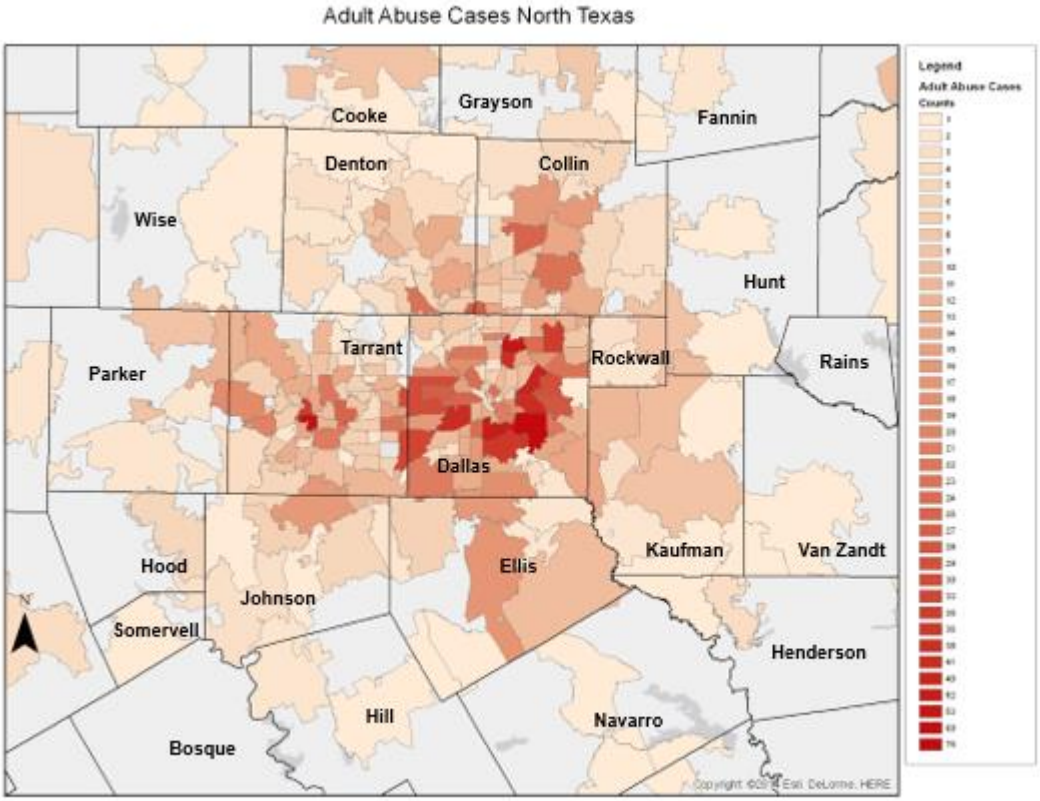
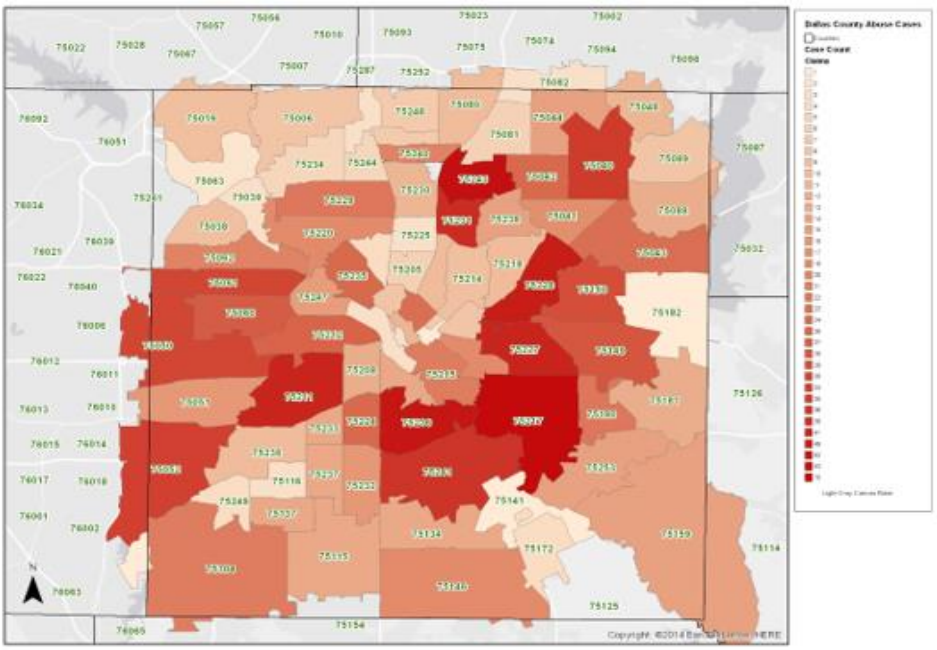


Table 4: Statistics, Demographic and Payer Information of Sexual Assaults and Abuse cases in Dallas County in 2012

YEAR TOTAL		Child Sexual Abuse n= 654			Adult Sexual Abuse n= 724			All Types of Abuse Combined n= 1378		
Variable of interest		**Frequency**	**Percent**	**P-value***	**Frequency**	**Percent**	**P-value***	**Frequency**	**Percent**	**P-value***
Quarter#										
	First quarter	199	30.43	0.0127	149	20.58	<.0001	348	25.25	0.0069
	Second quarter	159	24.31		225	31.08		384	27.87	
	Third Quarter	146	22.32		206	28.45		352	25.54	
	Fourth Quarter	150	22.94		144	19.89		294	21.34	
Race										
	Asian	2	0.31	<.0001	2	0.28	<.0001	4	0.29	<.0001
	Black	257	39.3		255	35.22		512	37.16	
	Other**	143	21.87		103	14.23		246	17.85	
	White	252	38.53		364	50.28		616	44.7	
Ethnicity										
	Hispanic or Latino	268	40.98	<.0001	292	40.33	<.0001	560	40.64	<.0001
	Not Hispanic or Latino	386	59.02		432	59.67		818	59.36	
Gender										
	F	573	87.61	<.0001	626	86.46	<.0001	1199	87.01	<.0001
	M	81	12.39		42	5.8		123	8.93	
	X	0	0		56	7.73		56	4.06	
Payer group										
	Insured	107	16.36	<.0001	115	15.88	<.0001	222	16.11	<.0001
	Medicaid	387	59.17		131	18.09		518	37.59	
	Medicare	0	0		48	6.63		48	3.48	
	Uninsured	160	24.46		430	59.39		590	42.82	
Total Charges		$953,112			$2,229,656.28			$3,182,768.28		

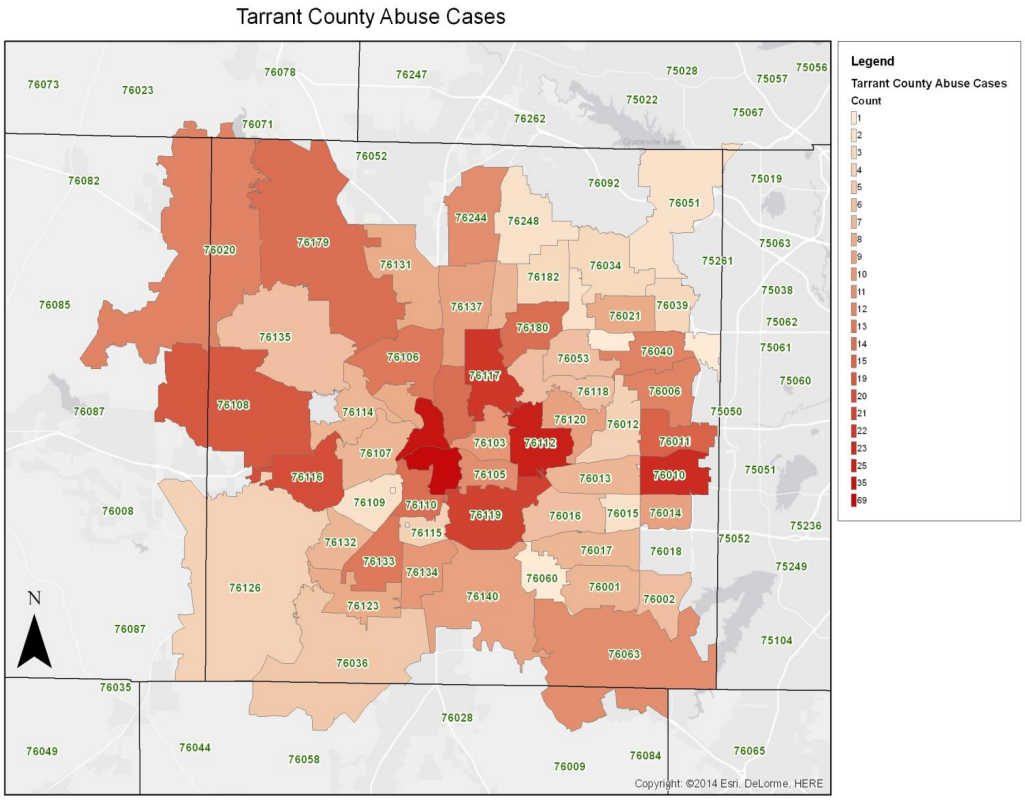
* P-Value is for Chi-Square test of equal proportion.
** 'American Indian' racial group was merged into 'Other' race category.
# Quarters are defined as Jan-March (Q1), April-June (Q2), July-Sept. (Q3), Oct-December (Q4).

Map 2: Zip code level distribution of Dallas County Sexual Assault and Abuse cases in 2012*



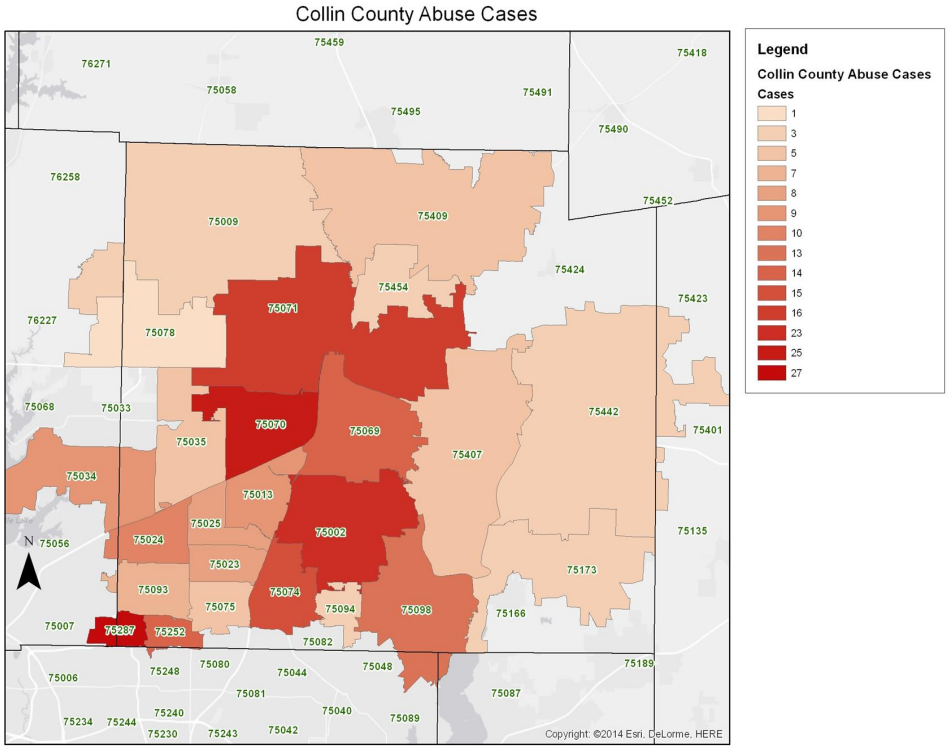
*Adult and Child combined

Appendix 1. Zip code level distribution of Tarrant County Sexual Assault and Abuse Cases in 2012*



*Adult and Child combined

Appendix 2. Zip code level distribution of Collin County Sexual Assault and Abuse cases in 2012*



*Adult and Child combined

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A Pilot Study: Supplemental Nutrition Assistance Program (SNAP) Food Choices and Pediatric Advanced Dental Care (ADC)

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ABSTRACT

The original Food Stamp Program (FSP) was implemented during the Roosevelt Era to help increase farmers' income and provide hungry Americans with surplus foods. The Food and Nutrition Act of 2008 changed the program's name to Supplemental Nutrition Assistance Program (SNAP) and defined allowable foods. SNAP food purchases include sweetened beverages and cariogenic (caries-causing) foods. Next to obesity, dental decay is the leading chronic illness in pediatric patients. Studies have established a relationship between SNAP foods and obesity in pediatric and adult patients. Frequent exposure to sugary, acidic, and/or carbohydrate drinks and snacks contribute to dental decay (caries). There is a gap in literature establishing a relationship between SNAP foods and dental caries. The purpose of this study was to examine a relationship between the pediatric patients that received advanced dental care (ADC) under general anesthesia, their food choices, and cariogenic frequency exposure. This study surveyed 60 parents of children who received ADC. The survey included demographics, the patients' nutritional patterns, and two questions related to SNAP benefits. It was conducted in a private room at two Texas pedodontic offices. Ninety-percent of patients that received ADC was insured by state public health programs, such as Medicaid. Sixty-seven percent of patients were between the ages of six months and five years, and 73% of participants received SNAP benefits.

Keywords: Supplemental Nutrition Assistance Program (SNAP); Medicaid dental expenditures; cariogenic diet; sugar-sweetened beverages; early childhood caries; pediatric advanced dental care; general sedation; children's dental health; SNAP food choices; mismanagement of public health funds.

BACKGROUND

In response to the Great Depression, President Franklin Delano Roosevelt established the Food Stamp Program (FSP) to supplement farmers' incomes and feed hungry Americans.[1] A separate, government funded program, Medicaid was signed into law in 1965 by President Lyndon Johnson.[2] Both programs have undergone legislative changes throughout the decades. The United States Department of Agriculture (USDA) changed the program's name from FSP to Supplemental Nutrition Assistance Program (SNAP). Today, these programs are an essential means of public support helping families purchase food and meet children's healthcare needs.

Other changes that affected the SNAP program included a 2004 provision which expanded the program to some non-citizens and their children, resulting in a 7% increase in participation.[1] In 2008, the program's name change was intended to "increase focus on nutrition".[3] However, the Congress-approved Food and Nutrition Act of 2008 defined SNAP eligible foods "as any food or food product for home consumption".[3] According to the USDA, in the fiscal year 2011 SNAP served approximately 45 million people with 71% of all SNAP benefits going to households with children.[3]

SNAP eligible foods have a nutritional label which also include high sugar and low nutritional value foods such as soft drinks, energy drinks, candy, cookies, snack crackers, ice cream, and bakery cakes: collectively known as energy dense, low nutrient foods. Keast, Fulgoni, Nicklas, and O'Neil (2013) found that children consumed a large proportion of total calories from energy-dense, low-nutrient food; this contributed to obesity epidemics. In addition, the trend of increased sugar sweetened beverages contributed to dental decay.[4,5]

The stated goals of Healthy People 2020 (HP2020) nutrition and weight status (NWS) objective 17 is to reduce to consumption of calories from solid fats and added sugars in the population aged two years and older, and oral health (OH) objective one is to reduce the proportion of children and adolescents who have dental caries experience in their primary or permanent teeth. However, dental decay and obesity remain the two leading chronic diseases in pediatric patients.[6,7] Sugar consumption and low socioeconomic status are common factors that both childhood diseases share, mainly due to low education levels, limited access to dental care and other preventative measures, as well as less healthful eating practices. DeBono et al. (2011) suggested that USDA's SNAP is the "largest food assistance program in the United States and has been implicated in exacerbating the health burden of obesity on its participants" (p.747). Nationwide, SNAP was estimated to pay at least $1.7 to $2.1 billion annually for sugar sweetened beverages.[8]

Poverty status, in addition to easy access to energy-dense, low-nutrient foods was a significant modifier in the relationship between healthful eating practices and primary tooth decay in young children.[9,10] For children who were at or below the 200 percent federal poverty level, factors of being Mexican-American or having no dental visit within the past 12 months were significantly related to more untreated tooth decay in the primary dentition level.[9] Mexican-American children had the highest percentage of untreated caries compared to other ethnic/racial groups.[10]

The Centers for Disease Control and Prevention (CDC) reported that "tooth decay (dental caries) affects children in the United States more than any other chronic infectious disease" (2013). Water fluoridation programs have reduced dental caries in children ages seven through eleven years.[9] However, an increase in dental caries has been noted in children younger than six years due to a shift in food choices.[11]

From 1977 to 2006, children's sugary beverage consumption increased while milk consumption decreased.[4,5] Decreased calcium intake and increased rates of childhood obesity are both consequences from the change in beverage consumption patterns. Furthermore, consumption of regular soda pop, regular powdered beverages, and 100% juices was associated with increased dental caries risk.[5,9] Conversely milk had a neutral association with caries.[5,9] When sugar intake exceeded 15 to 20 kilograms per person each year, it was directly associated with increased decay producing micro flora and caries prevalence.[9]

Several snack products, such as chips (crisps), popcorn, and shrimp crackers, were high in carbohydrates and potentially cariogenic (caries-causing). Caries were significantly more prevalent among children who ate chips daily.[9,12,13] In addition, the recent popularity of sour candy consumption caused an irreversible loss of dental

enamel due to a chemical process initiated by acidic sugars or carbohydrates.[14,15]

Caries in children under five years of age are often referred to as "early childhood caries" (ECC). ECC includes baby bottle decay, also known as baby mouth caries, which are caused by frequent sugar exposure via bottle or sippy cup habits and are seen in infant to toddler-aged children. When left untreated, ECC may lead to pain, reduced quality of life, school absences, and impaired eating affecting a child's nutritional status and development.[16] Pediatric patients with ECC have advanced dental needs and are often referred to a hospital facility for outpatient dental surgery or to a pedodontic office equipped for in-office dental surgery. Advanced dental care (ADC) involves administering general sedation, which allowed the completion of all dental treatments in one visit.[11,17] The prevalence of ECC is frequently higher in underprivileged communities.[9,10,12,17]

Medicaid insures many children with ADC, and multiple studies have concluded that most Medicaid dollars are spent on dental expenditures for ADC.[11,18,19] The cost of ADC in the hospital surgical setting (including the hospital, dental, and anesthesia) was nearly one quarter of Medicaid's $2.1 million budget for the fiscal year 1997 and treated only 232 children.[19] The growth in utilization of Medicaid between 2007 and 2010 was explained when the number of poorest children grew from 14.5 million to 17.4 million.[20] Texas ranked number two for Hispanic Medicaid enrolled children in the United States.[21]

Published research articles established a relationship between SNAP purchased foods and obesity in both pediatric and adult populations.[7,22,23] The cost of treating obesity-related chronic illness associated with increased sugar-sweetened beverage consumption fell primarily on the Medicaid and Medicare programs.[22] However, no research has established a relationship between SNAP food choices and ADC.

Are the food choices of SNAP participants contributing to advanced dental decay in pediatric patients? The purpose of this study was to examine a relationship between the pediatric patients that received ADC, their food choices, and cariogenic frequency exposure.

Population and Methods

This pilot study surveyed a convenience sample of parents with children 0-11 years in age who were diagnosed with ECC and received ADC. Participating parents were interviewed in a private office during the time of their child's dental appointment between October and December 2013. While thirteen pedodontic offices were asked to participate, only two agreed. Letters of support were obtained from both practices. The Institutional Review Board at the University of Texas Health Science Center San Antonio gave approval for this study: HSC20130432E.

Face-to-face surveys were conducted using a 20-item survey instrument (copy available upon request from the authors). Sixty surveys were conducted with parents in two Texas pedodontic (pediatric dental) practices. Data gathered included demographics, patients' oral health behaviors, number of children in each family that received ADC, access to fluoridated water, snacking patterns, and food choices using SNAP benefits. English and Spanish versions of the survey were available. Frequency data were collected and analyzed using descriptive statistics.

RESULTS

Demographics of this study showed more than half of the patients were Hispanic females and under the age of five years. Fifty-five percent of the parents reported their children had no flossing routine. However, 92% reported their children brushed at least once daily. Ninety percent of the patients receiving ADC had their services covered by Medicaid (Figure 1).

In response to being asked the number of children within the family who received ADC, 43 parents (70%) reported this was the first child that received ADC. However in response to a follow up question,[14] parents reported one other sibling and two reported two other siblings required ADC. One parent stated this was their fifth child in the family to receive ADC (Figure 2).

Access to fluoridated water appeared minimal when parents were asked, "Does your household drink fluoridated water?" The answer choices were yes or no, with 77% reporting their children did not drink tap water but instead drank purchased bottled water. Two important points appeared with this data: 1) parents were unaware that tap water was a source of fluoride and 2) bottled water was bought using SNAP benefits (Figure 1). However, the question was vague in the sense that it did not offer a follow-up question on whether or not the purchased bottled water was fluoridated.

Parents reported snacking patterns as well as food and drink choices. SNAP benefits were used by 73% of parents to purchase milk and energy-dense, low nutrient cariogenic foods and drinks (Figure 1). It was reported that 62% percent of these children consumed milk at least once daily. One hundred percent of the children that received SNAP benefits were reported to have higher frequency exposure to cariogenic foods and drinks.

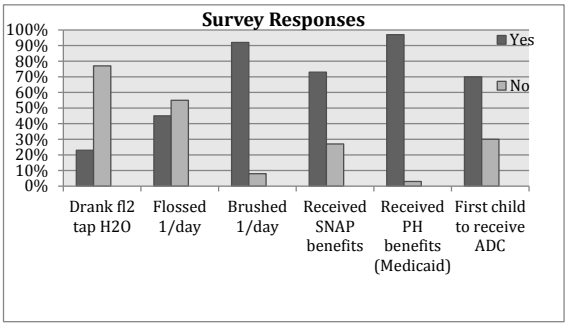
Forty-five percent of the children consumed 100% fruit juices or juice flavored sports drinks with "ade" in its name, and 23% consumed one or two sodas daily. "-Ade" drinks are sports drinks that are loaded with sugar and empty calories and contribute to both dental decay and obesity epidemics, such as Powerade, Gatorade, and/or any generic versions of these drinks. Sour candy or acidic carbohydrate snacks were consumed by 57% of the children, and 55% of the children consumed carbohydrate snacks one to two times a day.

DISCUSSION

The intent of this study was to explore food choices using SNAP benefits and frequency of exposure to cariogenic (caries causing) foods of children who received ADC. The majority of patients in this study were Medicaid insured Hispanics. Importantly, this study described an emerging trend within families where multiple children received ADC. This emerging trend is a piece of data that requires further studies with greater numbers of participants.

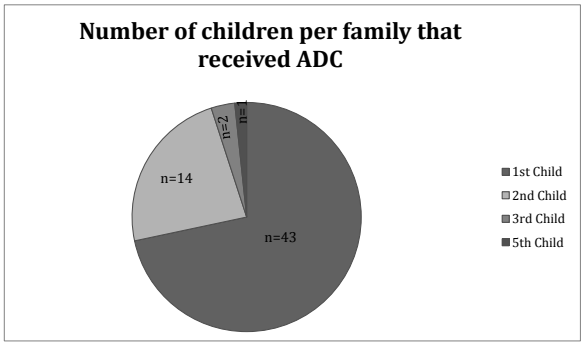
This study adds to the literature regarding the SNAP purchased food choices, the age group of children receiving ADC, and the agency funding ADC. Yen (2010) suggested that future studies investigate the effects of food assistance programs on diet quality and over-

Figure 1: Survey responses to yes/no questions



fl2 tap H20- Fluoridated tap water; SNAP- Supplemental Nutrition Assistance Program; PH- Public Health; ADC- Advanced Dental Care

Figure 2: Number of children per family that received ADC



ADC- Advanced Dental Care

weight and obesity rates.[24] This study adds support for investigation of the relationship between SNAP and dental decay. The patients who received ADC were mostly under the age of five years (primary dentition) with treatment funded by Medicaid.

Limitations to this study included a limited number of participants determined by the number of offices willing to participate. Secondly, the surveys were conducted during a timeframe when legislative changes mandated SNAP benefit reductions. Therefore, parental responses potentially were skewed due to their perceived risk of benefit losses. And lastly, the term "serving size" was not defined in the survey. Future studies should be developed to investigate the relationship between SNAP food choices and early childhood caries that build on the structure of established data between SNAP and obesity related chronic illnesses.

This study implies a relationship between SNAP food choices and early childhood caries. Children that received SNAP benefits appeared to have greater exposure to high-energy, low-nutrient cariogenic foods and less exposure to fluoridated tap water. The finding that multiple children in a SNAP household experienced EEC and required ADC is important. This implies a trend in dental decay, a chronic disease in childhood that is similar to findings about childhood obesity. This study supports the need for nutrition modification of SNAP to promote children's oral health and to reduce dental decay. Lastly, the study also supports the need to increase oral health education to aid in the prevention of early childhood caries.

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In Memory of…

Longtime TPHA member and former director of the Corpus Christi- Nueces County Health Department has passed away. Dr. Nina Sisley was a member of TPHA since 1959. She served as president of TPHA 1991-1992 and was awarded with TPHA's two highest honors, the Honorary TPHA Life Member and the prestigious Peavey awards, in 1999.

Dr. Nina Sisley served as the Corpus Christi- Nueces County Health Department director for 15 years, from 1987 to 2002. During her tenure, Sisley worked to fix many health issues in the city, from teen pregnancy, immunizations for kids and mosquito problems.

Her public health career spanned over 42 years. Prior to directing the Corpus Christi–Nueces County Health Department, Dr. Sisley served as Director of Medical Services and Acting Director of the San Antonio Health Department, Director of Community Health Services with the Corpus Christi-Nueces County Department of Public Health and Welfare, Director of Tuberculosis Control for Public Health Region 5, Chief of Chronic Illness Control for the Houston Health Department, and Regional Director Public Health Region 11.

Sisley spent much of her time volunteering. She served as the President of the Nueces County Medical Society and the local chapter of the American Red Cross. She also served on the Board of Governors for the United Way Coastal Bend, the Northwest Community Advisory Committee, the Coastal Bend Alcohol and Drug Rehabilitation Center and the North Bay Community Advisory Committee.

Dr. Sisley died on January 10, 2016. She was 91. The public health community of Texas and the Texas Public Health Association mourn her loss.

Childhood Obesity: An Examination of Rural School Stakeholders' and Parents' Beliefs

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ABSTRACT
Background: Parents and teachers are important models in children's lives, but linking nutrition and health education across home and school remains a challenge. With the high prevalence of obesity in children, school stakeholders should be engaged in the process of assessment to assist in identifying possible solutions. ***Methods:*** This study compared school stakeholders' and parents' perceptions toward childhood obesity. Thirty-nine (N=39) school stakeholders and one hundred (N=100) parents with children in the fourth grade were purposefully selected to participate in structured interviews or focus groups. Research questions were formulated to obtain information regarding awareness of childhood obesity, overall nutrition knowledge, perceptions of the contributors to the obesity problem, and perceptions of possible barriers to alleviating obesity. Responses from the interviews and focus groups were recorded, transcribed, and analyzed using Atlas Ti. ***Results:*** Both categories of participants acknowledged obesity as a major problem among young children. The consensus among the school stakeholders was that there are inconsistencies in the messages transmitted by the home and school. The findings also revealed that limited nutrition education in the home and school, coupled with lack of parental involvement, low-income status, and parental denial contributed to children being overweight or obese. ***Conclusion:*** This study reiterates the need to utilize a multidimensional approach in the fight against childhood obesity. Community health workers and school administrators need to work at achieving unanimity in the nutrition messages being communicated in the home and school.

Keywords: Rural, School stakeholders, Parents, Childhood Obesity

INTRODUCTION

The home and school environment have received national attention in the growing concern about the large number of American children who are either overweight or obese. Studies show that approximately 16.9% of children between 2 and 19 years of age are obese.[1] Research has found that family dynamics such as socioeconomic status, education, and culture are important predictors of the nutrition status of children, with the highest prevalence of obesity existing among families with socioeconomic disparities.[1-3]

Since the home is where children's early eating habits are formed,4 it must be one of the foci of attention in attempts aimed at combating obesity.[5] The school provides an excellent opportunity to teach children about healthy lifestyle choices.[6] In spite of legislation regarding meals and physical activity, some schools are still challenged in their attempts to alter children's eating practices and promote physically active lifestyles.[7] Collaboration between the home and school is important in the fight against childhood obesity.[8] This dyad allows us to examine parents' and school stakeholders' perceptions of factors that may contribute to children's unhealthy eating practices and weight gain.

METHODS

Study design

This qualitative study utilized focus groups and semi- structured interview methods. Both approaches were adopted to gain an in-depth understanding of parents' and school stakeholders' perception of childhood obesity. Purposive sampling methodology was used to select study participants. To be eligible, parents had to have a child enrolled in the fourth grade at one of seven elementary schools in the three school districts. School stakeholders had to be employed in one of these schools at the time of the study. The schools were located in a rural county where 28.2% of the population were within the normal weight range and 71.6% were either obese or overweight.

Sampling procedure

Twelve (12) focus groups, each comprised of 8-10 parents, and 39 individual semi-structured interviews of stakeholders were conducted. The focus groups, each made up of 8–10 members, explored parents' perceptions of childhood obesity. The semi-structured interviews assessed teachers', principals', and school nurses' views about barriers and solutions to childhood obesity. The discussion and interview guides were developed and piloted by the research team and were informed by prior researcher experiences and literature reviews.

Six local residents were hired and trained as focus group moderators while the research team conducted the interviews and supervised the data collection. The interview sessions were conducted at locations and times convenient to the participants. Each interview and focus group session lasted approximately one hour. Participants received a $20 honorarium upon completion of each session. Approval for the study was granted by the University's Institutional Review Board.

Analysis

The data analysis followed Strauss and Corbin (1990) constant comparative methods that compare meanings and identify relationships.[9] All sessions were digitally audio recorded and transcribed, and participants were assigned fictitious names. Two research team members read the transcripts independently and conducted sentence-by-sentence initial coding procedures by hand. The transcripts were then uploaded into Atlas Ti analysis software for validation. Axial coding and selective coding procedures were applied to the data.[10] Two or more similar responses constituted a data theme. The process continued until no new findings were identified. Trustworthiness strategies included peer debriefing, auditing, and member check.[11]

RESULTS

A total of 139 individuals participated in this study. Thirty-nine were school stakeholders and 100 were parents. One hundred and nineteen were females and 19 males. Four broad themes identified were lack of nutrition education, low income status, home-school conflict, and parental denial.

Although childhood obesity is a major problem in the county, 20% of the participants disagreed that obesity was a problem among children. Instead, they indicated obesity may become a problem in the future due to increased easy access to convenient foods. The participants who perceived obesity as a current problem believed it could become grave in the future, especially with the increased introduction of high caloric foods and limited physical activity. The following response emerged among stakeholders and parents: *"I think it is*

not a severe problem yet; but it's getting to be a severe problem." (Female Teacher)

Lack of nutrition education

Lack of nutrition education was a concern for both parents and school officials. School stakeholders believed that many parents lacked the ability to make wise decisions on the food their children eat. They mentioned students were not taught how to eat healthy and indicated the responsibility for doing so remains with parents.

The only barrier I can think of to reducing childhood obesity is probably just a lack of education, lack of knowledge on how to provide a healthy meal for your kids (Female Teacher).

Similarly, parents agreed that lack of nutrition education was a problem that prevented some of them from making healthy food choices. They also suggested traditional practices and beliefs further complicated the obesity issue. For example, excess weight gain and some eating practices may be perceived as normal or healthy among some families. One mother explained:

A young woman that I work with has a four year old son, and her mother keeps her son and she said that her son weighs 80 pounds. And her nickname for him is fat-so. She said that her mother wakes up in the morning and cooks full course meals for him, like full course breakfast, lunch, and dinner. He is eating the same amount that a grown man would eat (Mother).

Low-income status

As documented throughout the current literature, low-income status was perceived as a factor contributing to childhood obesity. In this study, school stakeholders also expressed that children from low income families often struggled with access to healthy foods, especially fruits and vegetables. The quote below represents the voice of a male teacher:

A lot of time parents have low income; they don't buy the most nutritious foods. It's expensive to buy fruits and they can only keep for so long before they go bad. It's quite expensive. (Male Teacher).

School stakeholders indicated the inability of some parents to purchase nutritious foods. Parents mentioned their financial constraints forced them to resort to food choices that were less nutritious. For single parents, prioritizing other basic needs such as rent and utility bills most times took precedence over the quality of foods.

I think it really depends on your financial situation. I know a family that had three children and both parents were in the household. After all the bills they had to pay, like the rent and the utilities and stuff like that, they only had $20 for two weeks. (Mother)

Conflict between home and school

Conflict between the home and school environments emerged as a barrier to children maintaining a healthy weight. School stakeholders perceived the information presented at school on healthy eating was completely different from eating practices at home. Also, the types of food served in the school cafeteria were different from the foods parents were accustomed to preparing and feeding their families.

In some cases, there are barriers because what the child might learn in school may be totally different from what they do at home. It could be anything from what mum is cooking at home and what the school cafeteria is feeding the children, or what the child is taught to do in physical education and what they do over the weekend (Female Teacher).

The parents did not explicitly identify a conflict but reported they cooked less and often gave in to their children's demands for less nutritious ready prepared foods. This was often easier to do and usually comprised of fast food meals.

A lot of time we get off work, it depends on the distance you have to travel, and the kids are in the back of the car saying, "Let's stop at McDonalds and buy a Happy Meal!" and you don't want to cook, you will say, "Ok, let's go to McDonalds." (Mother)

Parental denial

Parents' denial was discussed by the school stakeholders. They believed that some parents did not willing accept that their children were overweight or obese. The stakeholders made it clear that students' height and weight were taken at the start of the school year. They pointed out that the information was made accessible to the parents and it was the parents' responsibility to follow-up with their children's doctor. The stakeholders suggested some parents may not have acted on the information because they considered their children to be of normal weight when in fact they were not.

One of the problems is getting through to the parents and getting them to accept that their kids are overweight or obese. (Female Nurse)

Some parents with overweight or obese children expressed the belief that childhood obesity was a result of genes. Other parents dismissed the notion as an excuse to ignore healthy eating practices.

We also need to remember the genes too. Like on my husband's side a lot of his people were very big from east Texas, and on my side there were some of my great-grandparents who were big. Those genes harm us too (Mother).

DISCUSSION

This study assessed parents' and school stakeholders' perceptions of childhood obesity and factors contributing to children's unhealthy eating practices and weight gain. One important finding was the perceived unwillingness of parents to accept their children were overweight or obese. Studies, including this research, have linked childhood obesity to familial factors such as parents' time constraints, socio-culture disparities, low-income status, and lack of nutrition education,[12-13] but none of the studies that were reviewed identified parental denial as a contributor to the growing health crisis among children. The role of parents in promoting healthy choices by children is well documented,[14-16] and researchers have reported that resistance or acceptance of dietary changes is often moderated by social groups.[3,17] The findings in this research suggest some parents may be in denial about the weight status of their children. This has important implications for assessment, intervention, and the interpretation of other research findings. It has been reported, for example, that nutrition knowledge alone does not necessarily translate into a healthy lifestyle.[18] This may partially be explained by parents' refusal to acknowledge their children's weight gain as a problem. If parents perceive there is no problem, they will make little effort to implement change.

The perceived denial of children's weight status by parents may be responsible for school personnel's conclusion that inconsistencies exist in the nutrition messages being transmitted by the home and school. In schools, teachers and administrators are trying to implement nutrition mandates, but if parents do not see a need to modify their children's diet and daily activities, the attempts by the school will not align with the practices at home. Similarly, parents giving in to their children's demands for fast food may actually be a reflection of parents' belief that there is no need for intervention or diet restrictions, rather than a sign of little parental control.

Consistent with other research,[19-21] lack of nutrition education also emerged as a perceived barrier to children maintaining a healthy weight. Both parents and school stakeholders in the current study believed gaps in parents' understanding of what constitutes good nu-

trition limited their ability to make healthy food choices for their children. The parents' perception that education is comingled with traditional and familial practices suggests health promotions should target all the food influences or eating models in children's lives. Further investigation of the impact of grandparents on childhood obesity may provide useful insights to health promoters, especially those who work with populations with influential matriarchal figures.

CONCLUSION

This study reiterates the need to utilize a multidimensional approach in the fight against childhood obesity. Community health workers and school administrators need to implement programs that link the nutrition education children receive at school with the nutrition decisions at home. This could be achieved by providing parents with practical guidelines and tools they can use to monitor their children's food selection. Parental monitoring has been shown to be effective in improving the nutritional quality of the foods children choose.18 Health practitioners including dietitians, nutritionists, doctors, public health personnel, and extension agents can play a positive role in educating parents and family caregivers on healthy eating and maintaining a healthy weight. They are in a unique position in the community that allows them direct interaction with families. County extension agents in rural areas can also promote programs on a regular basis to reinforce intervention practices among parents and families. It is important that intervention programs shift from the transmission of nutrition knowledge to targeting the attitudinal and behavioral change of individuals and families.

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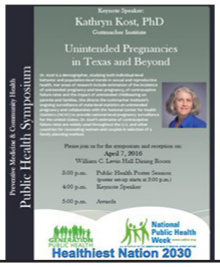
The National Public Health Week Celebration was Big in Texas…

From Austin to Wichita Falls, and into the Gulf Coast in Houston and Galveston, the public health community of Texas joined all states to celebrate NATIONAL PUBLIC HEALTH WEEK. Featured on a special page on our TPHA website, were events sponsored by those groups who submitted information on their events to us. The student organization, ***Texas Public Health***, brought the event to the University of Texas campus in **Austin**. A carnival, movies, a dodge ball tournament and more promoted health education, disease prevention, and population health within the UT community. ***The Houston Health Departmen***t held open houses at all 11 of their multi-purpose centers. The ***University of Texas Medical Branch in Galveston, Preventive Medicine and Community Health*** hosted its annual Public Health Symposium, with a keynote speaker and student poster contest. ***Wichita Falls and Wichita County Public Health Department*** kicked off a week-long celebration with their annual Public Health Fair. Each day brought in-depth information on preparedness, healthy eating, exercise, immunizations and more to promote and improve health among their residents. The ***Texas Department of Health and Human Services*** Regional offices around the state hosted events throughout the week that included NPHW Proclamations to the Governor, county and local officials. Additionally, **Health Service Region 1** hosted an Employee Appreciation Breakfast, Campus Public Health Fairs at Texas Tech University in Lubbock and West Texas A&M University in Canyon TX that included dissemination of public health information, displays and giveaways focusing on community public health initiatives for students and faculty then ended the week with "Give Everyone A Choice of Healthy Food" Presentation by the Texas Hunger Initiative & the South Plains Food Bank located in Lubbock; **Health Service Region 6/5** presented an "Overview of Special Health and Social Services"; **Health Service Region 6/5S** hosted **a** Zika Virus Presentation, HIV/STD Testing and a Neighborhood Walkability Audit and ended the week with "Globalization 2: Revisiting Neglected Tropical Diseases", presented by Catherine Kisavi-Atatah, PhD, MA, LBSW and hosted by Specialized Health Services; **Health Service Region 7** hosted an Employee Immunization Clinic; **Health Service Region 8 hosted** its "First Annual Career and Practicum Fair" at The University of Texas, School of Public Health's San Antonio Regional Campus; **Health Service Region 9/10 in El Paso** presented JEOPARDY and 'Back to the 80's'group exercise with hula hoops and all that's 80's and a *Spa Day* including a discussion about different types of mental health challenges and offered relaxation to soothing music then ended their week by encouraging everyone to bring their favorite healthy dish with the recipe to advocate for eating healthier with 'Healthy Substitutions'; **Health Service Region 11** hosted an Employee Appreciation Day in Harlingen, an Open House for Community Health Workers at their headquarters, Immunization Clinics and a Public Health Fair.



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