

Abstracts / Resúmenes
Environmental Health / Salud Ambiental

Resumen # 114

Autores: Maria Sierra, Jenny PE Quintana, Teresas Doddbutera, Maura P. García, Martha Ramírez Zetina, Ana C. Batista

Organización: San Diego State University

Título de Presentación: Factores Ambientales y Polimorfismos de la Glutacion-S-Transferasa en un Estudio de Casos y Controles de Anencefalia en Tijuana, Baja California, México

Contenido del Resumen:

- 1 Graduate School of Public Health, San Diego State University, San Diego, CA,
- 2 Universidad Autónoma de Baja California, Tijuana, BC, México,
- 3 Centro de Estudios Universitarios Xochicalco, Tijuana, BC, México,
- 4 Instituto Mexicano de Seguro Social, Tijuana, BC, México.

Los defectos del tubo neural (DTN) son malformaciones en el desarrollo del cerebro y médula espinal. La anencefalia, un tipo de DTN, ocurre durante el proceso de neuralización (entre los días 17 y 30 posteriores a la concepción) como resultado de una falla en la fusión de los pliegues neurales de la porción craneal de la placa neural que forman el prosencéfalo o cerebro anterior. La vida extrauterina no es sostenible con ésta condición. Los DTN fueron identificados como indicadores de salud ambiental a lo largo de la frontera México-Estadounidense por la Agencia de Protección del Medio Ambiente de los Estados Unidos (US EPA) siendo uno de los llamados "Indicadores Ambientales de la Frontera XXI". Ésta investigación, examina el rol de las enzimas Glutación-S-transferasas (GSTs) y los factores ambientales con un estudio piloto de casos y controles de anencefalia en la frontera México-Estadounidense. Las GSTs catalizan la reacción de detoxificación entre el glutatión y sustancias químicas tóxicas tales como los intermediarios de hidrocarburos poliaromáticos (HPAs), y podrían por lo tanto, afectar la introducción de contaminantes al feto. La anencefalia se ha asociado a un pobre estado nutricional, particularmente a niveles bajos de folatos en sangre, a factores genéticos y a ciertas exposiciones ambientales. Bajo consentimiento, se reclutaron pacientes obstétricas de un hospital en Tijuana, Baja California, México (n = 22 casos y 44 controles). Las placentas fueron genotipificadas para GSTM1 (mu) y T1 (theta) mediante PCR. En esta muestra, las madres del 57% de los casos y 49% de los controles trabajaban en maquiladora (diferencia estadísticamente no significativa), y 32% de las madres de los casos y 33% de las madres de los controles reportaron residir en una zona industrial de Tijuana. Los casos tenían, en promedio, niveles de folato sérico 26% menores que los controles (marginamente significativo con p= 0.068). Los casos y controles no fueron distintos en la frecuencia de deleciones en GSTmu y theta. (23.5% Vs 24.4%, GSTmu, y 34.3% Vs 36.6%, GST theta), y el genotipo GST pi ile/ile se encontró.

Resumen # 115

Autores: Luís Mar Serrano, Gloria Leticia Doria

Organización: Secretaria de Salud

Título de Presentación: Estudio de brote de dengue en la Col. Granjas de Reynosa, Tamaulipas en 2005

Contenido del Resumen:

Es un trabajo de tipo transversal, Se realizo a través de una encuesta un estudio de brote de la colonia mencionada, con el objeto de conocer el impacto del dengue, en dicha población, se aplico en un universo especifico tomando en cuenta desde agosto a diciembre del 2005 , mes en que se llevo a cabo dicho trabajo, se tiene conocimiento de que porcentaje de enfermos demandando atención medica y además se realizo un estudio de casos y controles para conocer que factores contribuyeron a la presentación de la enfermedad, se tiene conocimiento de 33 casos en la secretaria de salud de los cuales se tiene el resultado de laboratorio, con un buen porcentaje de positividad mientras que en el trabajo se detectaron 65 casos nuevos, es un trabajo nuevo en Reynosa realizado por maestros en salud publica.

Resumen # 122

Autores: Maria Elena Torres Olave, Luz Helena Sanin

Organización: Centro de Investigación en Materiales Avanzados

Título de Presentación: Modificaciones de la Citología vaginal exfoliativa en ratas expuestas a Paratión Metílico: un aporte a la evaluación de riesgo

Contenido del Resumen:

Introducción. Con el fin de contribuir a dilucidar la controversia existente con relación a la asociación entre efectos reproductivos adversos y exposición a plaguicidas órganos fosforados (OF), se realizó el presente estudio. Métodos. Mediante un diseño experimental se trataron 160 ratas hembras durante 90 días, con Paratión Metílico® (PM) vía oral, con diferentes dosis (0.0, 1.0, 1.5 y 2.0 mg/kg/día). Se dividió el grupo por mitades en cuanto a dieta: ad libitum y restringida al 75%. La ciclicidad ovárica (dicotómica) se analizó por regresión logística estimando el riesgo por Razón de Momios ajustada, los pesos de útero, ovarios y trompas, visceral y peso final (continuas) se analizaron mediante regresión lineal múltiple, ajustando por edad y peso inicial. Se estimaron las dosis de referencia (DRf), con la metodología de Evaluación de Riesgo de la Agencia de Protección del Medio Ambiente de Estados Unidos (EPA). Resultados: La ciclicidad ovárica se mantuvo en niveles mayores al testigo (85%) en el grupo de dieta libre ($p < 0.01$) y el grupo con dieta restringida presentó una tendencia ascendente conforme aumentó la dosis de PM ($p > 0.01$). El peso de los riñones e hígado arrojó diferencias significativas ($p < 0.01$) con efecto dosis-respuesta para PM. Se consideran valores críticos y se recomiendan DRf para exposición humana, para peso del riñón $DRf = 3 \times 10^{-4}$ mg/Kg, peso del hígado $DRf = 1 \times 10^{-2}$ mg/Kg. Conclusiones: La asociación observada en este trabajo apoya la hipótesis de que la función reproductiva puede verse afectada por la exposición a P M. Palabras Clave: Organofosforados, citología vaginal, intoxicación subcrónica, ciclo estrual, dosis de referencia.

Resumen # 134

Autores: Maria Alarcón Herrera, Luz Helena Sanin, Margarita Ornelas, Fernando Díaz-Barriga, Sandra A. Reza, Isabelle Romieu

Organización: Centro de Investigación en Materiales Avanzados

Título de Presentación: Riesgo Residual y Alternativas de Restauración en el Caso de una Fundidora de Plomo

Contenido del Resumen:

OBJETIVO: Presentar la evaluación del riesgo residual de intoxicación por plomo en la zona habitacional de un sitio contaminado por una fundidora, y las alternativas de solución más viables propuestas para la recuperación del sitio. **MATERIAL Y METODOS:** Siete años atrás se hizo una Evaluación de riesgo en el área, de acuerdo a la metodología de la EPA (Agencia de Evaluación Ambiental de los Estados Unidos) con estratificación de la zona de acuerdo a la distancia a la fundidora. En cada uno de los tres estratos definidos, se seleccionó una muestra aleatoria de madres en edad reproductiva y sus hijos de 1 a 5 años de edad; se tomaron muestras de sangre capilar de los binomios madre e hijo, analizando mediante voltametría, (lead care). En cada una de las viviendas muestreadas se tomaron muestras de suelo, pintura, polvo y agua para su análisis posterior por voltametría anódica. A su vez se seleccionaron escuelas pre-escolares de cada estrato, donde se tomaron muestras de sangre capilar a niños menores de 6 años, y muestras ambientales correspondientes a cada escuela. Recientemente se hizo una evaluación del estrato cero (área límite de las instalaciones) y de puntos estratégicos de los otros estratos. Se cotejaron los datos recientes y anteriores y se evaluaron posibles soluciones de restauración del sitio para presentar una propuesta de restauración. **RESULTADOS:** En la evaluación inicial se examinaron un total de 661 niños cuyos valores de plomo en sangre oscilaron entre 3.0 - 59.0 $\mu\text{g/dL}$ con una media geométrica de 11.45 $\mu\text{g/dL}$ (± 8.72), y un porcentaje de 40% mayor o igual a 10 $\mu\text{g/dL}$ y 20% $>20\mu\text{g/dL}$. Las concentraciones de plomo mostraron relación inversa con la distancia a la fundidora. La media global de plomo materno fue de 5.22 $\mu\text{g/dL}$ (± 3.36). Las muestras de tierra superficial analizadas muestran un rango de 100-9000 mg/Kg. Los predictores de plomo en niños, mediante Regresión Lineal Múltiple se relacionan con la exposición a suelo. La evaluación reciente muestra concentraciones que van desde 509 mg/Kg en los estratos I y II y hasta más de 15000 mg/Kg en el estrato cero. Se propone la Fitoremediación para la recuperación del suelo de parques y jardines en la zona habitada y con ello la minimización del riesgo. **CONCLUSIONES:** Se estima que el suelo está aportando más del 90% como fuente de exposición al plomo, especialmente en niños menores, con valores por arriba de lo estipulado por la EPA para tomar medidas de remediación. Es claro que existe una contaminación residual en la zona aledaña a la fundidora a la cual debe remediarse antes de seguir destinando la zona a actividades recreativas y culturales. Se propone la fitorestauración de la zona habitada, además de las actividades educativas y de vigilancia epidemiológica.

Abstract # 138

Authors: Dora Elia Cortés Hernández, Kirby C. Donnelly, Hermelinda Tamez, Leslie Cizmas, Juan Ramírez

Organization: Brigadas Internacionales Universitarias de Promoción de la Salud, Universidad Autónoma de Nuevo León

Presentation Title: Assessment of Childhood Exposure and Susceptibility to Pesticides in the Texas-Mexico Border Region

Abstract Content:

Exposure studies conducted in the Rio Grande Valley of Texas recently observed organophosphate pesticide (OP) metabolites in the urine of young children at concentrations that were approximately 3.5 – 13 times the levels seen in the general US population. This exposure did not appear to be associated with farm worker activities, nor was there a clear correlation between pesticide levels in the children's urine and distance from the home to nearby agricultural fields. Household pesticide use in the colonias may be one of many factors that contribute to childhood exposure to OPs. These investigations have recently been expanded to include activities to improve family knowledge regarding sources of pesticide exposure in colonias near the Texas-Mexico border, and to reduce these exposures. An educational module about pesticide use in the home has been developed. Experienced promotoras who have worked in these colonias will present this module to colonia residents in their homes, and will discuss with the mothers methods they can use to reduce the family's exposure to pesticides. Both before and after the household training, urine samples will be collected from young children in these families for analysis of OP metabolite levels. The impact of the health education module on pesticide metabolite levels in the children will be evaluated. Among children who are exposed to OPs, individuals with a slow-metabolizing form of the paraoxonase-1 (PON-1) gene would be expected to retain OPs longer in the body and thus may be more sensitive to these compounds. A pilot study was conducted to investigate the impact of genotype on pesticide elimination. Urine samples and hand rinse samples were collected from 26 children in two communities. For children with the slow form of PON-1, hand rinse to urine ratios ranged from 17 to 697, while children with the rapid form of PON-1 had ratios ranging from 0.76 to 47. Although these data were obtained on a relatively limited population, they suggest that individuals with the slow form of PON-1 are likely to retain pesticides longer than those with the rapid form of PON-1. The US Environmental Protection Agency and Centers for Disease Control have funded a collaborative study being conducted by Texas A&M University in Texas and Brigadas Internacionales Universitarias at the Universidad Autónoma de Nuevo Leon in Monterrey, Nuevo Leon. The goal of this study is to collect additional samples to compare exposure and retention of OPs in children with the slow and fast forms of PON-1.

Abstract # 140

Authors: Vanessa E. Galaviz, Josefina Blanco Ramirez, Kathryn C. Dowling

Organization: San Diego State University

Presentation Title: Importance of Cultural Exposures to Lead among Latino Children in San Diego

Abstract Content:

Lead exposure continues to threaten children's health. In addition to the familiar environmental sources, certain cultural practices contribute to lead exposure. However, the importance of cultural exposures to lead is not well understood. Still, it is apparent that the Latino community engages in a number of traditional practices that may increase lead exposure. Various sources such as Mexican candy, lead-glazed potter for food preparation and storage, and lead-containing home remedies have been implicated for lead contamination. The quantitative amount that each source contributes to exposure on a population level remains unclear. In October 2005, we conducted a focus group study to probe into mothers' perceptions of these products, with the goal of generating more effective and culturally-appropriate ways of surveying their use. A total of 12 Latina mothers from the urban area of San Diego participated in two discussions. It is clear that Mexican products are culturally significant and the mothers continue to use them, although lower access may somewhat restrict products used in California, in comparison with Mexico. Sources and suppliers of these products in San Diego will be discussed, including underground suppliers.

To estimate the importance of multiple exposures among Hispanic children, an exposure/source assessment study is taking place in San Diego. Lower socio-economic status (SES) populations tend to live in older housing in the city and in close proximity to the many freeways that crisscross the urban area. They consequently suffer higher exposure to lead-based paint and soil contaminated by the historic use of leaded gasoline, respectively. The goal of this investigation, planned for a total of 150 households, is to examine both environmental and cultural contributions to children's blood lead burden. Quantitative analysis of lead concentrations in paint, soil, dust, and water, is underway in and around randomly-selected homes. We are seeking samples of lead-based home remedies for analysis. The study relies on questionnaires to access doses of candies, pottery, and home remedies. Questionnaires also are used to evaluate the level of acculturation and socio-economic status (including access to medical care). Ultimately, we hope to test the hypothesis that both socioeconomic status and level of acculturation are significant contributors to, and inversely correlated with blood lead levels. We will present preliminary data on the study and its progress.

Resumen # 159

Autores: Luz Helena Sanin

Organización: Universidad Autónoma de Chihuahua

Título de Presentación: Tiempo para quedar en embarazo (TPE). Su uso en Epidemiología a través de algunos ejemplos. Consideraciones generales y metodológicas.

Contenido del Resumen:

Universidad Autónoma de Chihuahua. Instituto nacional de Salud Pública de México

Introducción: Para la realización de estudios poblacionales que tengan por objetivo explorar los efectos reproductivos de agentes ambientales se requieren métodos económicos con alta sensibilidad. Un método con estas características es el del tiempo para quedar en embarazo (TPE) el cual mide el tiempo que tarda una pareja en concebir y con el que se puede estudiar la subfecundidad. Es un método barato, de fácil aplicación, bien aceptado por la población, el cual permite analizar variaciones en tiempo y espacio y explorar factores de riesgo. Un incremento en el TPE puede indicar pérdidas reproductivas en diferentes estadios: Gametogénesis (en la pareja), transporte de gametos, fertilización, migración del cigote al útero e implantación. El TPE nos habla de procesos que pueden ocurrir antes de la sexta semana de gestación (o antes de la primera consulta prenatal), los cuales son muy difíciles de captar con otro indicador. Se presentan los resultados de tres estudios internacionales con el fin de sustentar la propuesta de uso de este indicador.

Material y Métodos: Se exploró este método en una población de mujeres floricultoras en Colombia encontrando asociación con la antigüedad. Se utilizó además en un estudio ecológico para explorar la asociación con la aplicación del herbicida Glifosato para la erradicación de cultivos ilícitos y en una población canadiense con exposición ambiental a algunos contaminantes. Se hizo además una revisión sistemática del uso de este indicador en la exposición a plaguicidas.

Resultados: En los tres estudios el indicador fue útil y permitió puntualizar puntos a profundizar. Se presentan los resultados de estas experiencias.

Conclusiones: Se hacen algunas consideraciones metodológicas y se pone a discusión el uso de este indicador como evento centinela en salud Reproductiva para el área fronteriza.

Abstract # 161

Authors: Albert T. Sanchez, Joaquin Rueda, Patricia Frank

Organization: New Mexico Dept. Of Health/Office of Health Emergency Management

Presentation Title: "The Powdering Of Santa Teresa, New Mexico": An EWIDS Functional Full Scale Exercise

Abstract Content:

The New Mexico Department Of Health, Office Of Health Emergency Management provided Early Warning Infectious Disease Surveillance (EWIDS) funding to the New Mexico Office Of Border Health, the City Of Sunland Park New Mexico, and to Public Health Region 5 to conduct a Full Scale Exercise in which the set-up and operation of a Public Health Service Site (PHSS) was tested. The exercise took place at the Santa Teresa High School located along the New Mexico-Chihuahua Border in Santa Teresa, New Mexico.

The scenario for the exercise was a crop-dusting plane was hijacked carrying weaponized Tularemia across the U.S.-Mexico Border, disperses the biologic agent and crashes in Santa Teresa, New Mexico.

This presentation will discuss in detail the planning, implementation, and after action report of the exercise, including Epi-Info and NM-EDSS. This presentation will be of interest to binational public health officials, law enforcement officials, community health care partners, and others who would be involved in mass dispensing sites along the U.S.-Mexico Border. This presentation will raise many issues in regards to public health practice to include the importance of pre-planning, exercising the plan, and plan revision based on lessons learned.

Abstract # 173

Authors: Albino A. Barraza-Villareal, Consuelo Escamilla, David Díaz Sánchez, Hortensia Moreno, Matiana Ramírez, Blanca del Río, Juan José Sienra, Isabelle Romieu

Organization: Instituto Nacional de Salud Pública

Presentation Title: Traffic exposure, respiratory symptoms, pulmonary functions and inflammatory response in asthmatic children residing in Mexico City.

Abstract Content:

Air pollution has been related to respiratory health in asthmatic children; some data suggest that traffic sources, could have a major deleterious impact on children respiratory health. To test this hypothesis, we conducted a panel study of asthmatic children residing in the Southwestern part of Mexico City affected by heavy traffic. Methods: 107 asthmatic aged 6-13 years were followed for 14 weeks, daily symptoms were recorded by parents and children performed Spirometry and Exhaled NO measurements every 15 days during the follow-up period. Data were analyzed using GEE linear models controlling for important variables. Results: After adjusting for potential confounders, an increase of 10 ug/m³ in 24-h average PM_{2.5} levels was related to an increase of 6% (95% CI 2%- 10%) in cough and 10% (95% CI 4% a 17%) in wheezing. For an increase of 10 ppb in NO₂, cough increased by 8% (95% CI 3.4% to 13%) and wheezing by 7.4% (95% CI 0% to 15%). Exhaled NO and IL8 in nasal lavage were positively related to NO₂ levels (p<0.00 and p=0.001) and PM_{2.5} inversely related to FEF₂₅₋₇₅ (p=0.06). Conclusion: Our data support the impact of traffic on the respiratory health of asthmatic children.

Abstract # 174

Authors: Albino A. Barraza-Villareal, Consuelo Escamilla, David Díaz Sánchez, Hortensia Moreno, Matiana Ramírez, Blanca del Río, Juan José Sienra, Isabelle Romieu, Ann-Charlotte Isacsson, Anna-Carin Olin, Leticia Hernández Cadena

Organization: Instituto Nacional de Salud Pública

Presentation Title: Oxidative Stress and Traffic Exposure in Children Residing in Mexico City

Abstract Content:

Air pollution has been related to an increase in inflammatory response in the airways; some data suggest that traffic sources, particularly truck traffic, could have a major deleterious impact. To test this hypothesis, we conducted a panel study of asthmatic children residing in the Southwestern part of Mexico City affected by heavy traffic. Methods: 67 asthmatic and 23 healthy children aged 6-13 years were followed for 14 weeks and provided exhaled breath samples (3 per child). Exposure was defined as air pollutant levels from the nearest monitoring station and distance to major traffic road. Data were analyzed using GEE linear models controlling for important variables. Results: Malonaldehyde (MDA) levels in exhaled breath ranged from 0.003 to 0.08 μmol , mean 0.012 (SD 0.011). PM_{2.5} ranged from 13.9 to 77.5 $\mu\text{g}/\text{m}^3$, mean 28.8 (SD= 13.9). LnMDA levels were significantly related to PM_{2.5} levels (beta = 0.0078 $p= 0.05$) and marginally with distance to major traffic road ($p = 0.07$) among asthmatic children. No association was observed among healthy children. Conclusion: Our data support the presence of an oxidative stress response to traffic air pollution in asthmatic children.

Abstract # 183

Authors: Raquel Sabogal, Richard J. Gelting, Jane B. Horton, Lana F. Corrales, Carolyn P. Monteih

Organization: Centers for Disease Control and Prevention

Presentation Title: Post-Hurricane Mitch Community Reconstruction Program Sustainability Evaluation, Central America - Honduras, Nicaragua, El Salvador, and Guatemala

Abstract Content:

The American Red Cross (ARC) was active in coordinating and supplying relief and reconstruction in Central America following Hurricane Mitch in late-1998. As part of reconstruction efforts, ARC conducted a needs assessment in four countries in January and February 1999. These assessments showed that the availability of water and sanitation varied greatly from country to country depending on the severity of the impact of the hurricane and on the pre-existing infrastructure. ARC worked to provide water and sanitation to the affected communities by creating individualized interventions based on the communities' existing resources and needs. The Centers for Disease Control and Prevention (CDC) partnered with the ARC to evaluate the effectiveness of the ARC's interventions by conducting an evaluation of the water, sanitation and health education interventions over a 3-year period, from 2000-2002, in eight study areas, two per country. The evaluation provided baseline, mid-term and final results.

To determine program sustainability, the water, sanitation and health education interventions will be assessed four years after the last evaluation. The interventions included providing household- or community-level running water, latrines, and public health education programs on hygiene, such as hand washing and water treatment. In each study area, the evaluation will consist of: 1) a cross-sectional household questionnaire including visual inspection to evaluate availability of water and sanitation services and related hygiene behaviors, 2) microbial analysis of household and community water sources, and 3) a community survey with the community leader(s) and water board/committee. Six of the original eight study areas where the previous evaluations were conducted will be a part of this program sustainability survey.

The program sustainability evaluation will be completed in February 2006. The target sample size for the entire region is 84 households (14 households per 6 communities). This will allow statistical analysis of the hand washing behaviors and other indicators on a regional basis. Water samples will be collected from homes (84) and from the water source(s) and community water tanks for each study area (6), yielding 90 water samples for this evaluation.

The baseline survey in February 2000 showed that none of the communities met the USAID recommendations for water consumption, hygienic sanitation, or adequate hand washing knowledge and practice post-Hurricane Mitch. The final survey completed in February 2002 showed that water, sanitation, and hygiene education programs that ARC implemented were effective in reducing the spread of fecal contamination in these communities and met the goal over the entire region. The infrastructure and community surveys revealed that communities where ARC partnered with the country Red Cross societies, the interventions were most effective. In communities where the ARC worked in conjunction with other partners, project components and interventions were generally not as effective.

Abstract # 184

Authors: Raquel Sabogal, Rebecca H McElroy, Gary Robertson, Dana B. Barr, David Camann, Carol Rubin, Stephanie Kieszak, Stephen Hern

Organization: Centers for Disease Control and Prevention

Presentation Title: Pesticide Exposure among Children Living in Agricultural Areas along the United States-Mexico Border: A cross-sectional study

Abstract Content:

Families of agricultural workers face an increased risk of pesticide exposure because they live in close proximity to treated fields or because pesticides are carried into the home by the worker. There is particular concern that the health of children, who may be more susceptible to the effects of pesticides, may be jeopardized by such exposures. This study was to assess pesticide exposure among children living near the U.S.-Mexico border.

We evaluated pesticide exposure among 152 children aged 4-9 years who lived in Yuma County, Arizona from October 1999 through February 2000. We completed a questionnaire with the study participant's parent or guardian and collected one urine sample from each child. Urine samples were analyzed for six dialkyl phosphate metabolites associated with organophosphate pesticides. We also collected dust samples from each participating home and from 25 classrooms in six schools and measured selected organophosphate, carbamate, organochlorine, pyrethroid pesticides and one disinfectant. Recruitment and data collection was performed by promotores (lay community health workers) when peak quantities of organophosphate pesticides were expected to be applied to crops.

Organophosphate pesticide metabolites were detected in all the urine samples. Pesticides also were detected at low levels in the dust samples in homes and schools. We found no difference in urinary pesticide metabolite levels in children living close to or further from an agricultural field (greater than or less than 250 feet). Household use of pesticides and take-home pesticide exposure were more closely related to levels of pesticide metabolites measured in the urine than the distance the child lived from an agricultural field.

This study shows that children had detectable levels of dialkyl phosphate metabolites in their urine samples. These results suggest that living with a parent or other adult may contribute to exposures in the home.

Abstract # 190

Authors: Melissa A. Davis, Brian Smith, Romero Gonzalez, Jorge Elizondo, Ashley Dodds, Armando Cortinas, Albert Garcia, Allison Abell, Marta Fournier, Marthalicia Leal

Organization: Texas Department of State Health Services, Region 11

Presentation Title: Hurricane Rita Public Health Response

Abstract Content:**Background**

Hurricane Rita made landfall on Saturday, September 24, 2005 near Sabine Pass in Texas as a Category 3 storm. Seventeen Texas counties were declared disaster areas.

The Texas Department of State Health Services (DSHS), Region 11, which includes the border counties of Cameron, Hidalgo, Starr, Willacy, Webb and Zapata, mobilized staff to assist with rapid public health assessment and response in severely affected counties..

Purpose of Services

DSHS Region 11 rapidly mobilized a public health team to assist with Post-Hurricane Rita public health assessment. The public health team consisted of the following members: Regional Medical Director, 3 public health nurses, 2 office of border health sanitarians, and 2 general sanitarians. The team members combined had experience in post-hurricane assessment, National Incident Management System (NIMS) and incident command system (ICS), community assessment, food supply safety, environmental assessment, immunizations, nursing, medicine and integrated pest management.

The team, along with the Centers for Disease Control and Prevention (CDC), was mobilized to assist DSHS Houston office with Post-Hurricane Rita public Health Assessment.

Objectives

DSHS Region 11 Post-Hurricane Rita public Health assessment team had the following objectives:

1. Provide leadership and coordination. The Region 11 Medical Director was the incident commander and utilized NIMS to ensure that team members from different organizations and entities worked together most effectively (i.e., CDC, different state health department regions and disciplines).
2. Conduct rapid community health assessments of 5 counties that were declared disaster areas using a standardized tool.
3. Conduct shelter assessments using a standardized tool
4. Conduct retail food and environmental inspections as facilities start to reopen
5. Assess injury rate and rate of communicable diseases post-hurricane

6. Provide just-in-time public health safety information regarding carbon monoxide poisoning, chain saw injuries, etc.

Evaluations and Lessons Learned

The post-hurricane assessment team conducted rapid community assessments of Chambers, Liberty, Jefferson, Hardin and Orange County, as well as shelter assessments. Many of the Counties' assessed were without power, water, sewer, fuel, hospitals, medical care or pharmaceuticals.

The sanitarians inspected establishments as they resumed operations. Shelters, hospitals and ambulances were monitored for their rates of communicable diseases and injuries.

There were increases in chain saw, heat stroke, and carbon monoxide injuries. Without electricity, we publicized safety messages by billboard and posters.

Conclusions and Policy recommendations

NIMS/ICS ensured that the public health response was cohesive and coordinated..

Local health departments and county governments may be reluctant to ask for public health assistance, so it is important for public health to be pro-active in offering assistance.

It is important for public health to continually develop good working relationships with their local health departments, local governments and emergency managers. Disaster planning needs to be ongoing.

Resumen # 196

Autores: Luz Patricia Álvarez Larios, Jesus Armando Jiménez Gutiérrez, José Víctor Calderón Salinas, Narciso Alberto Chavelas Servin, Juan Pablo Martínez

Organización: Servicios Médicos Municipales

Título de Presentación: Evaluación de la exposición a plomo en dos zonas de Ciudad Juárez Chihuahua

Contenido del Resumen:

a) Título de la presentación. Evaluación de la exposición a plomo en dos zonas de Ciudad Juárez Chihuahua

b) Propósito del estudio. Evaluar si existe intoxicación crónica por plomo en habitantes de una zona de Ciudad Juárez Chihuahua cercana a una planta metalúrgica., Generar un marco de referencia de certeza científica para evaluar, apoyar y generar bases sólidas para la toma de decisiones gubernamentales, de salud y sociales en un posible problema de salud pública municipal

c) Métodos utilizados. Selección con validez estadística de una muestra representativa de dos zonas de Ciudad Juárez Chihuahua, una de ellas cercana a la metalúrgica, información a la población y aceptación del estudio, evaluación clínica y análisis de laboratorio., encuestas epidemiológicas dirigidas, determinación de plomo en sangre por voltametría, determinación de parámetros de intoxicación con plomo y daño específico, análisis estadístico de la información, difusión de la información por los canales adecuados. Se realizó un estudio epidemiológico transversal, comparativo de base poblacional.

d) Resultados. Se seleccionaron dos zonas de Ciudad Juárez., La zona I en la colonia “Anapra” en un diámetro no mayor a 1500 metros de la planta metalúrgica “azarco”., La zona II en la colonia “Carlos Chavira” a más de 4300 metros de la planta metalúrgica. Se estudiaron: 312 pacientes en total, 223 de la zona I., 89 de la zona II., Distribución y número de individuos validado por pruebas estadísticas, El promedio de edad en los individuos de ambas zonas es similar. La distribución de la edad de los individuos en ambas zonas fue similar. La distribución por género de los individuos en ambas zonas fue similar. Los individuos de la zona I tuvieron mayores concentraciones de plomo, aun estando por debajo de los niveles aceptados como normales. Hay una diferencia de 0.6 ug/dl entre los promedios de plomo en sangre de la zona I con respecto a la zona II.

e) Conclusiones y recomendaciones.

• No hay evidencia de que en este momento exista un proceso activo de exposición a plomo en la llamada zona I, de Ciudad Juárez, cercana a la metalúrgica “azarco”

• No existe evidencia actual de la presencia de efectos crónicos de exposición y daño por plomo

• No se puede encontrar, con relación a la edad, huellas de una exposición a plomo en individuos de la zona I

• Existe una mayor concentración de plomo en sangre en individuos de la zona I con respecto a los de la zona II, lo cual puede ser consistente con un discreto incremento en las concentraciones ambientales de plomo en la zona I.

• La presencia de elevadas concentraciones de plomo en algunos individuos de la

zona I puede ser compatible con zonas discretas y limitadas de exposición o con exposiciones puntuales de los individuos.

¶ La concentración de plomo en la sangre de los individuos menores de 18 años y en los hombres es mayor en relación a los mayores de 18 años y mujeres respectivamente, con lo primero se concluye que no existe un patrón de exposición crónica y sugiere un cambio en la cinética distributiva y de excreción de plomo.

Resumen # 202

Autores: José Tirado Medina, Jesus Armando Jiménez Gutiérrez, María Guadalupe Chávez Colin, Araceli García Cervantes

Organización: Instituto Mexicano del Seguro Social

Título de Presentación: Mortalidad Laboral en Ciudad Juárez: La Invalidez en los Albores del Siglo XXI.

Contenido del Resumen:

El dictamen de invalidez se les extiende a trabajadores que su estado de salud se ha mermado presentando una pérdida de sus capacidades superiores al 75% y/o no le permiten conseguir un ingreso superior al 50% de su ingreso habitual.

PROPÓSITO:

Caracterizar a los trabajadores que se invalidan e identificar el comportamiento del proceso de invalidez en la población trabajadora, asegurada al Instituto Mexicano del Seguro Social en Ciudad Juárez

MÉTODOS UTILIZADOS:

Se trata de una investigación retrospectiva, documental. El estudio abarca el análisis de los dictámenes de Invalidez (ST4) emitidos por los Servicios de Salud en el Trabajo con sede en Ciudad Juárez durante el período comprendido entre el 1 de enero del año 2001 al mes de noviembre del 2005. En estos Servicios se atienden a trabajadores de los municipios de Villa Ahumada, Ascensión, Juárez, Guadalupe Distrito Bravo y Galeana, todos del estado de Chihuahua.

Se analizan 1899 dictámenes, la información se presenta por año de elaboración del dictámen, género, ocupación y enfermedad o causa, se codificó utilizando la Clasificación Internacional Uniforme de Ocupaciones (CIUO-88) y la X Revisión de la Clasificación internacional de Enfermedades.

RESULTADOS:

El estado de invalidez se dictaminó en 56.3 trabajadores de cada 10,000 asegurados, se encontraron tasas más altas en Trabajadores domésticos, trabajadores de protección y vigilancia, ayudantes/peones y similares seguidos de los trabajadores ambulantes con tasas de 252,140, 123 y 118 dictámenes por cada 10,000 trabajadores respectivamente.

El 38.1% de los casos fueron en mujeres, las principales enfermedades causantes de invalidez fueron las del sistema osteomuscular y tejido conjuntivo en un 21.6%, en segundo lugar lo ocuparon las enfermedades endocrinas nutricionales y metabólicas con un 14.4%, en tercer lugar fue para los tumores (neoplasias) malignos con un 14% de los casos y el cuarto lugar lo ocuparon las enfermedades del sistema circulatorio en 12.9%.

La edad media de los trabajadores invalidados fue de 46 años, este mismo indicador según ocupación se encontró que los operadores y los empleados de oficina se invalidan a los 43 años, los técnicos de nivel medio a los 44, los profesionales científicos a los 46, oficiales y artesanos y el personal directivo de 47, trabajadores no calificados a los 48, trabajadores de servicios y /o comercios a los 48, agricultores a los 50 años.

CONCLUSIONES Y RECOMENDACIONES

Las diferencias de género están motivadas por el carácter temporal de la incorporación al trabajo de la mujer

Las condiciones de trabajo de los hombres, la menor utilización de los servicios de atención a la salud por este grupo puede ayudar a explicar la diferencia proporcional de dictámenes por género

La ocupación a la fecha de elaboración del dictamen solo se puede valorar analizando la carrera laboral de los inválidos

La ocupación de los trabajadores con dictamen de invalidez refleja la estructura del empleo

Abstract # 205

Authors: Erin L. Tompkins, Tom Vaughan

Organization:

Presentation Title: Fecal Coliform in the Rio Grande: A Risk to Human Health for the Texas-Mexico Border

Abstract Content:

Title of Presentation: Fecal Coliform in the Rio Grande: A Risk to Human Health for the Texas-Mexico Border

Purpose of Study: EPA and the International Boundary Water Commission have designated the section of the Rio Grande River around Laredo, Texas USA for primary contact recreation. However, monthly sampling over a ten year period along this section shows a risk to those having both primary and secondary contact with the water. This report reviews and analyzes data collected from four sites around the Laredo area to determine if this portion of the river meets the EPA standards for “fishable, swimmable waters.”

Methods: Four sites above, within and below the Laredo city limits were tested for fecal coliform density and rate of flow over a ten-year period of time. Rainfall data from the USGS for four sites was used for non-parametric comparisons. Regression analyses were also used to detect predictors of fecal coliform density in the four sites analyzed.

Results: Significant positive correlations were found between fecal coliform density at all measured sites, and rainfall in Laredo. The speed of flow of the river was also a significant predictor for coliform density at one site, and rainfall in Laredo was found to predict fecal coliform density at two of the four measured sites.

Conclusions & Policy Recommendations: The data indicate that this portion of the Rio Grande may need to be re-designated as not for primary contact by the EPA. Rainfall in Laredo indicates that a high fecal coliform density is likely to occur in portions of the river in and downstream of Laredo. It is not currently known how many people are exposed to the water of the Rio Grande in these areas. More research is needed to determine the exposed population, and the effect of high coliform densities on downstream communities.

Abstract # 216**Authors:** George Lubber, Tracy A. Villareal, Lorraine Backer**Organization:****Presentation Title:** Ciguatera Fish Poisoning in the Texas Gulf Coast**Abstract Content:**

Ciguatera fish poisoning (CFP) is caused by the consumption of a wide variety of subtropical and tropical marine finfish, such as barracuda, jacks, snapper and grouper that have accumulated naturally-occurring ciguatoxins through their diet. It is characterized by a variety of gastrointestinal, neurological and cardiovascular symptoms occurring within 2-30 hours of the meal and is considered the most common form of toxic seafood illness in the world. Victims suffer a variety of symptoms including diarrhea, vomiting, nausea, pain and numbness in the extremities, profound weakness, and temperature sensation reversals; however, deaths are rare. The complexity and potential longevity of the disease is indicated by recent suggestions that the toxins could even be responsible, in part, for chronic fatigue syndrome.

Ciguatoxin precursors are produced by *Gambierdiscus* spp. that is common to ciguatera endemic regions throughout the Caribbean and Pacific. While CFP has been identified in the NW Gulf of Mexico, the distribution of CFP in the western Gulf of Mexico is unknown. One cluster of cases was reported in 1988 from fish caught off Matagorda Bay, Texas (Bogart and Perrotta, 1988). An ongoing study of ciguatoxin occurrence in the great barracuda (*Sphyraena barracuda*) resulted in anecdotal reports of ciguatera-like symptoms by fishers in Texas waters. We have also received anecdotal reports of CFP in fishing communities in Tamaulipas, Mexico, suggesting that the prevalence of CFP in the border region might be greater than previously believed.

In response to these reports, the CDC and UTMSI have initiated active surveillance for CFP to determine the prevalence of CFP in the Texas recreational fishing community, to determine if recreational fishing on offshore oil rigs represents an emerging source of exposure to ciguatoxins, and to educate at-risk populations in preventative measures. This data is useful not only for immediate public health concerns, but also as baseline data for CFP prevalence in this area. We anticipate that the identification of the public health impact of CFP will allow public health officials on both sides of the US-Mexico border to better confront this emerging illness.

Abstract # 222

Authors: Rebecca Daniels

Organization: US Environmental Protection Agency

Presentation Title: Environmental Public Health Indicators in the US-Mexico Border: Communication and collaboration

Abstract Content:

This presentation will attempt to share, inform participants about the work of the Border 2012's Environmental Health Workgroup. For the past few years, this group has focused on the development of environmental public health indicators in the US-Mexico border, and has sponsored several projects on identification and verification of health outcomes associated with environmental improvements. Building on the theme "Promoting Health through Culture and Knowledge", participants will gain familiarity with the border-wide availability of environmental health databases, recent research on asthma as an indicator of air quality, and methods to evaluate the quality of a potential environmental public health indicator. Discussion among session participants will provide additional knowledge of ongoing work in this area.