South Texas Oral Health Network (STOHN) & the Tooth Fairy Project

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Background

The STOHN is a Community Translation Science Award (CTSA) supported organization of dental practitioners who work together with researchers to answer meaningful questions that will improve clinical decision-making and patient outcomes.

STOHN is continually thriving towards practitioner engagement and retention by encouraging involvement in network studies.

Dr. Palmer and STOHN are collaborating to implement the Tooth Fairy study in the network by collecting deciduous teeth and educating dental practitioners and their patients about exposure to chemical toxins and etiologies of neurodevelopmental disorders.

Neurodevelopmental disorders, such as autism spectrum disorder (ASD), affect 1 in 68 births, thus increasing numbers of ASD patients who may present in our offices.

People are unknowingly exposed to thousands of untested toxic chemicals daily. Records of these exposures have been sought using blood, urine, and hair samples. However, these do not provide data about pre-natal exposures; remnants of which may be incorporated into developing deciduous teeth.

These teeth can then be analyzed for correlations between exposure and neurodevelopmental disorders.

Purpose

•The purpose of this study is to investigate potential biomarkers of exposure in deciduous teeth and their impact on neurological development.

•Collect and develop a deciduous teeth repository

•Collect medical history data of mother and child

•Evaluate the dental practitioner's knowledge and awareness of possible etiologies of ASD

•Evaluate attitudes about discussing environmental exposures with patients and their community.

Little Teeth. Big Impact.

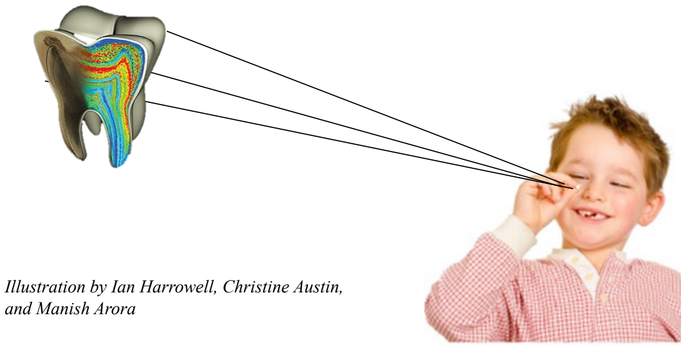

Illustration by Ian Harrowell, Christine Austin, and Manish Arora

Materials and Methods

- STOHN will enroll 10 dental offices, which will enroll 20 parents of healthy children with no diagnosed disorders.
- STOHN Research Coordinator will train practitioners on study procedures and Lynne Heilbrun would provide education awareness of exposures that can result in Toxicant-induced Loss of Tolerance (TILT) and identify resources to reduce exposure.
- The study will consist of two parts, a survey (online or in paper) and the donation of deciduous teeth.
- The survey will assess basic demographics, the mother's pregnancy and medical history, and questions about the children's diagnoses/communication skills.

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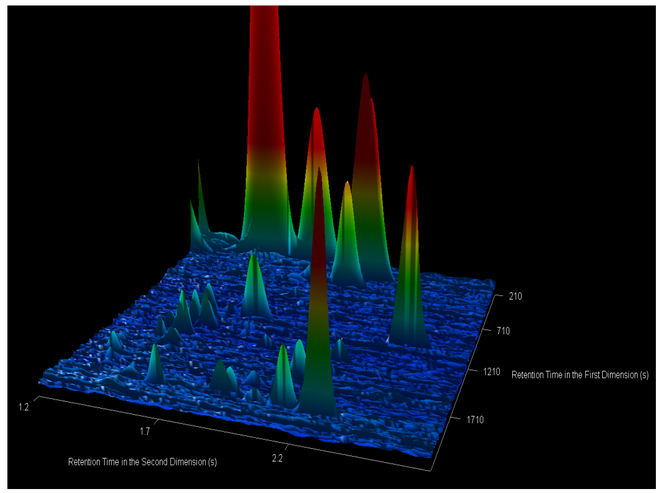
Results

- This ongoing cross-sectional prospective cohort pilot study was initiated in early March 2017.
- To date six offices have been enrolled, five trained and thirteen parents have completed surveys and are sending in teeth.
- Initial feedback from participating practices is positive about the education on environmental exposure.



Above is a spectrograph of chemicals detected in a tooth of a 6 year old boy w/ ADHD, dyslexia, and auditory processing disorder.

Conclusion

- This study provides an opportunity for dental practitioners to gain knowledge and awareness about research that impacts their patients
- Cutting edge research about the health risks of exposure to toxic substances
- Insight into possible correlations between exposure and neurodevelopmental disturbances
- Opportunity for practitioners and parents to contribute to a national ongoing study