



OVER 10 YEARS OF RESEARCH

700,000

Sleep studies to date

>20

Peer reviewed articles

13,000

Studies annually

6

Recent poster presentations

- Study outcomes from signal processed, scored, and interpreted report (sleep onset, AHI, PLMI, etc.)
- Demographics and anthropometrics (race, age, sex, BMI, etc.)

- Daytime sequelae (sleepiness, fatigue, car accidents, etc.)
- Medical history data (lung disease, diabetes, hypertension, etc.)

OUR EXPERTISE



**Prospective Clinical Trials
Pharma & Devices**



**Retrospective
Data Analytics**



**Research Scoring
& Interpretation**



**Collaborative
Projects**

OUR SERVICES

| | CLINICAL RESEARCH | DATA MANAGEMENT | DEVICE VALIDATION CLEARANCE /APPROVAL | DISEASE MANAGEMENT CLINICAL INNOVATION |
|------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PHARMA INDUSTRY | <ul style="list-style-type: none"> • Drug Development • Safety Monitoring • Real World Evidence | <ul style="list-style-type: none"> • Data Collection • Data Scoring • Data Storing and Mining | <ul style="list-style-type: none"> • Internal Clinical Validation • Regulatory Pathways | <ul style="list-style-type: none"> • Digital Biomarkers • Remote Technology Applications (Virtual Clinics) • Benefit/Risk Assessments • Modeling and Simulation of Disease and treatment response |
| DEVICE COMPANIES | <ul style="list-style-type: none"> • Clinical Validation • Algorithm development | <ul style="list-style-type: none"> • Algorithm and Machine Learning • Predictive Analytics • Real World Evidence | <ul style="list-style-type: none"> • New Clinical Innovations • Patient Stratification | <ul style="list-style-type: none"> • Academic Research • Gov't and NGO Grants • Independent Initiated Studies |

OUR TEAM

Bruce Lavin, MD, MPH
Chief Medical Officer

Alyssa Cairns, PhD
Head of Sleep Research

Nisar Ashraf BSRC, CRT-SDS
Head of Business Devl. & Operations

Udoka Obiechefu, MPH
Director of Research Partnerships

Alisha Henderson, MS, MED
Senior Research & Regulatory Coordinator

Gina Kyzer
Research Recruitment Coordinator

Stephanie Loprete
Research and Medical Overview



13 PEER REVIEWED ARTICLES

**Sleep Medicine
Neurobiology of
Sleep**

**Sleep
and Breathing**

**Medical Devices:
Evidence and
Research**

**Annals of
Noninvasive
Electrocardiography**

EMBC

2020

Vespignani H, Colas D, Lavin BS, Soufflet C, Maillard L, Pourcher V, Paccoud O, Medjebar S, Frouin PY.
Report of EEG Finding on Critically Ill Patients with COVID—19.
Annals of Neurology. 2020 Jun 13.

Lavin B, Dormond C, Scantlebury MH, Frouin PY, Brodie MJ.
Bridging the healthcare gap: Building the case for epilepsy virtual clinics in the current healthcare environment.
Epilepsy & Behavior. 2020 Oct 1;111:107262.

2019

Cairns A, LeBourgeois M., Crosby B., Obiechefu, U., Henderson A., and Harsh, J
A Question is Worth a Thousand Words: Attempting to Quantify the Prevalence of Excessive Sleepiness in Children.
World Sleep 2019 Congress on Sleep Medicine, Vancouver, Canada 9/24/2019

Fouassier, David & Roy, Xavier & Blanchard, Anne & Hulot, Jean-Sebastien. (2019).
Assessment of signal quality measured with a smart 12-lead ECG acquisition T-shirt. Annals of Noninvasive Electrocardiology. 10.1111/anec.12682.

Cairns, Alyssa & Bogan, Richard. (2019).
The SinuSonic: reducing nasal congestion with acoustic vibration and oscillating expiratory pressure.
Medical Devices: Evidence and Research. Volume 12. 305-310. 10.2147/MDER.S212207.

Cairns, Alyssa & Trotti, Lynn & Bogan, Richard. (2018).
Demographic and Nap-Related Variance of the MSLT: Results from 2,498 Suspected Hypersomnia Patients.
Sleep Medicine. 55. 10.1016/j.sleep.2018.12.013.

Cairns, Alyssa & Bogan, Richard. (2019).
Comparison of the Macro and Microstructure of Sleep in a Sample of Sleep Clinic Hypersomnia Cases.
Neurobiology of Sleep and Circadian Rhythms. 6. 10.1016/j.nbscr.2019.02.001.

2018

J-B Schiratti, JE Le Douget, M Le Van Quyen, S Essid, A Gramfort (2018).
An ensemble learning approach to detect epileptic seizures from long intracranial EEG recordings.
10.1109/ICASSP.2018.8461489.

2017

Cairns, Alyssa & Bogan, Richard. (2017).
Underutilization of the MSLT in sleepy patients with a short onset REM period (SOREMP) in the sleep clinic.
Sleep Medicine. 32. 10.1016/j.sleep.2016.11.023.

Cairns, Alyssa & Sarmiento, Kathleen & Bogan, Richard. (2017).
Utility of home sleep apnea testing in high-risk veterans.
Sleep and Breathing. 21. 10.1007/s11325-017-1467-8.

Le Douget JE, Fouad A, Maskani Filali M, Pyrzowski J, Le Van Quyen M. (2017).
Surface and intracranial EEG spike detection based on discrete wavelet decomposition and random forest classification. 10.1109/EMBC.2017.8036865

2016

Cairns, Alyssa & Poulos, Greg & Bogan, Richard. (2016).
Sex differences in sleep apnea predictors and outcomes from home sleep apnea testing.
Nature and Science of Sleep. Volume 8. 197-205. 10.2147/NSS.S101186.

2015

Cairns, Alyssa & Bogan, Richard. (2015).
Prevalence and clinical correlates of a short onset REM period (SOREMP) during routine PSG.
Sleep. 38. 10.5665/sleep.5050.

2014

Cairns, Alyssa & Poulos, Greg & Bogan, Richard. (2014)
Who Is Getting Tested for Obstructive Sleep Apnea Using a Portable Recording System?
Test Results from 193,221 Patients. Journal of clinical sleep medicine : JCSM : official publication of the American Academy of Sleep Medicine. 10. 10.5664/jcsm.4198.

Cairns, Alyssa & Wickwire, Emerson & Schaefer, Edward & Nyanjom, David. (2014).
A pilot validation study for the NOX T3(TM) portable monitor for the detection of OSA.
Sleep & breathing = Schlaf & Atmung. 18. 10.1007/s11325-

2013

Cairns, Alyssa & Harsh, John. (2013)
Changes in Sleep Duration, Timing, and Quality as Children Transition to Kindergarten. Behavioral sleep medicine. 12. 10.1080/15402002.2013.838765.



6 RECENT POSTER PRESENTATIONS



World Sleep 2019



AASM



EMBC



ECE Vienna



French Epilepsy Days

2019

Cairns A., LeBourgeois M., Crosby B., Obiechefu, U., Henderson A., and Harsh, J.
A Question is Worth a Thousand Words: Attempting to Quantify the Prevalence of Excessive Sleepiness in Children.
World Sleep 2019 Congress on Sleep Medicine, Vancouver, Canada 9/24/2019.

Alyssa Cairns, Ph,D, Richard Bogan, MD.
Short Sleep Prior to an MSLT: Implications for False Negatives and Advanced Age.
The 33rd annual meeting of the American Academy of Sleep Medicine and Sleep Research Society, San Antonio, Texas 6/8-8/12/2019.

Alyssa Cairns, Ph,D, Richard Bogan, MD.
To Withhold or Not? Use of Psychiatric Medications on MSLT Outcomes in 1033 Patients.
The 33rd annual meeting of the American Academy of Sleep Medicine and Sleep Research Society, San Antonio, Texas 6/8-8/12/2019.

2018

J Pyrzowski, JE Le Douget, A Fouad, M Heddi, M Le Van Quyen.
Zero-crossing patterns as a new scalp EEG biomarker in focal epilepsy.
ECE Vienna 2018

2017

A Fouad, JE Le Douget, J Pyrzowki, L Mayor, M Navarrete, M Valderrama, M Le Van Quyen.
Modulation of high-frequency oscillations and interictal epileptiform discharges in presurgical intracranial EEG recordings of patients with focal pharmaco-resistant epilepsy.
French Epilepsy Days – 2017

JE Le Douget, A Fouad, M Maskani Filali, J Pyrzowski, M Le Van Quyen.
Surface and intracranial EEG spike detection based on discrete wavelet decomposition and random forest classification.
EMBC – 2017