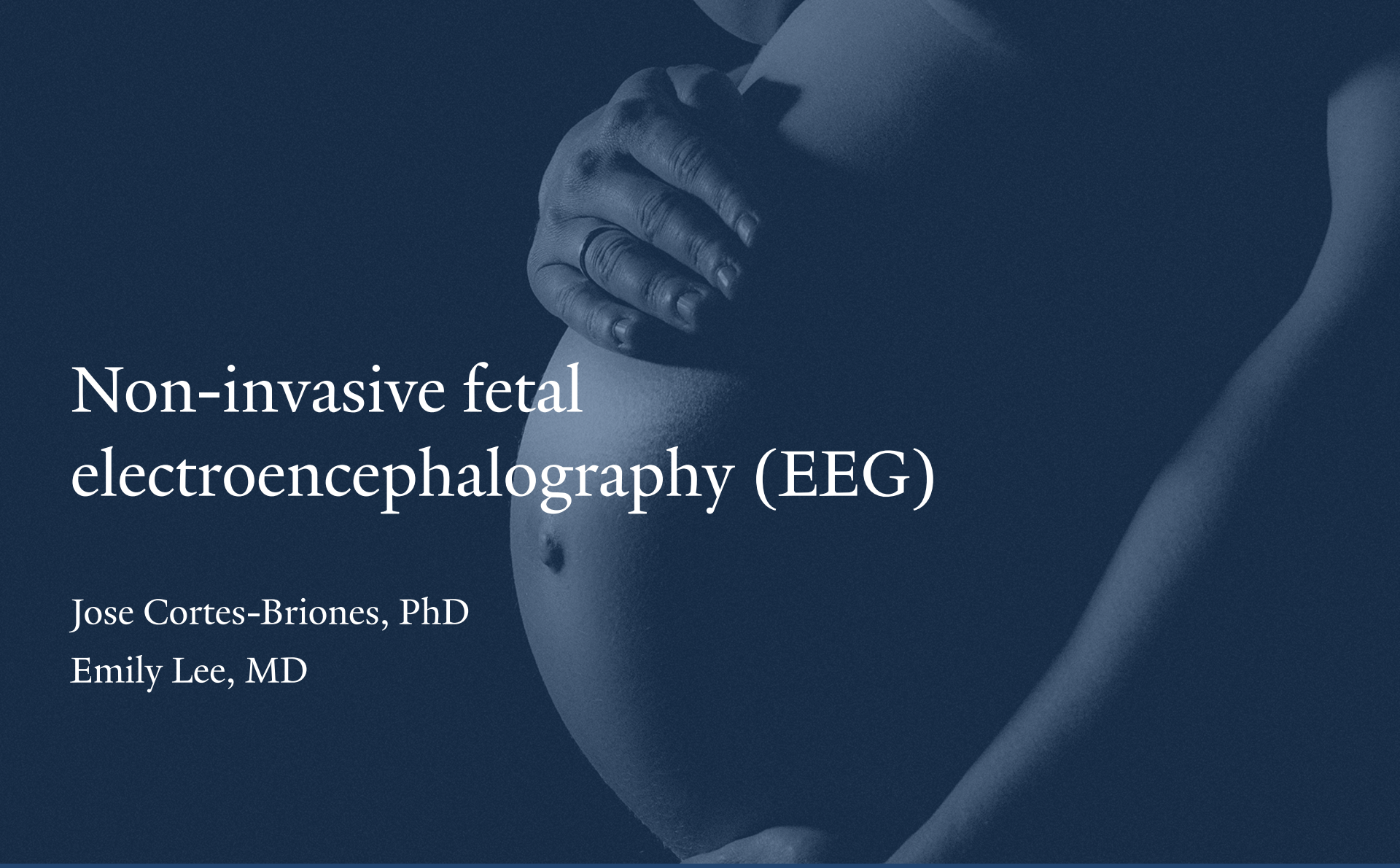


Non-invasive fetal electroencephalography (EEG)

Jose Cortes-Briones, PhD

Emily Lee, MD

Yale SCHOOL OF MEDICINE

Every year, over 35,000 babies suffer from brain injury at birth in the U.S. alone

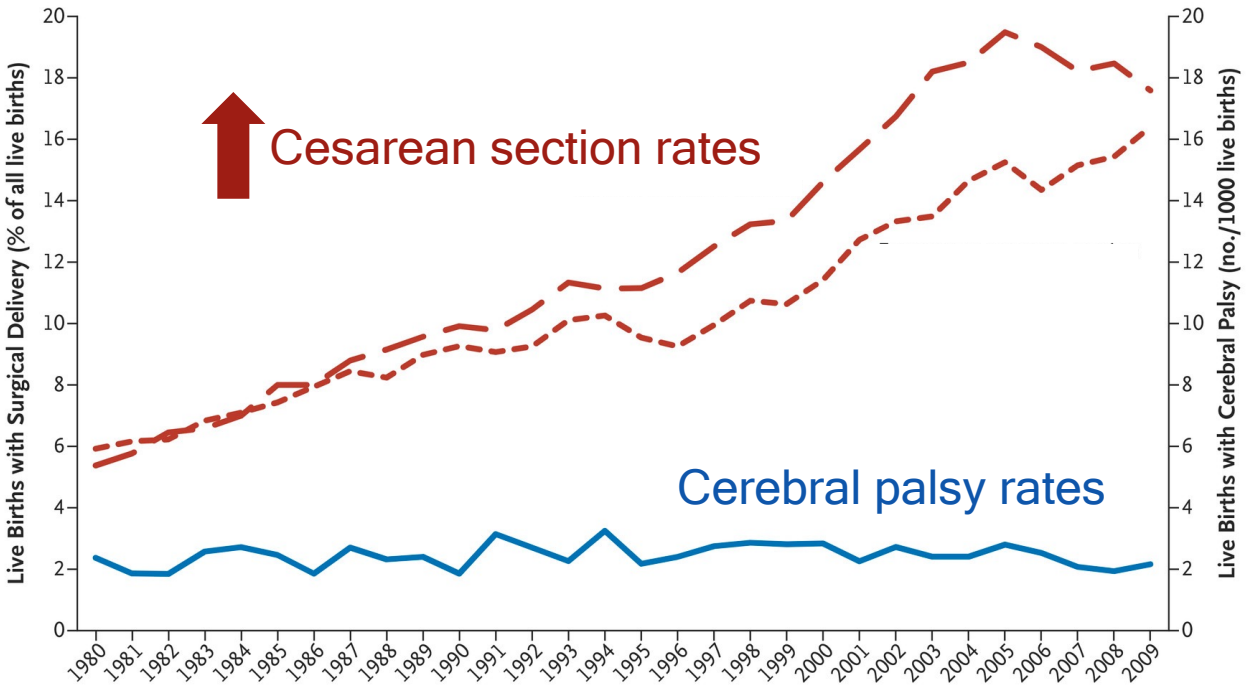
Fetal brain injury occurs during 9 of every 1,000 births & is a **leading cause of worldwide lifelong disability** due to low oxygen states at birth

Children with brain injury during birth have **26 times** the cost of lifetime medical care

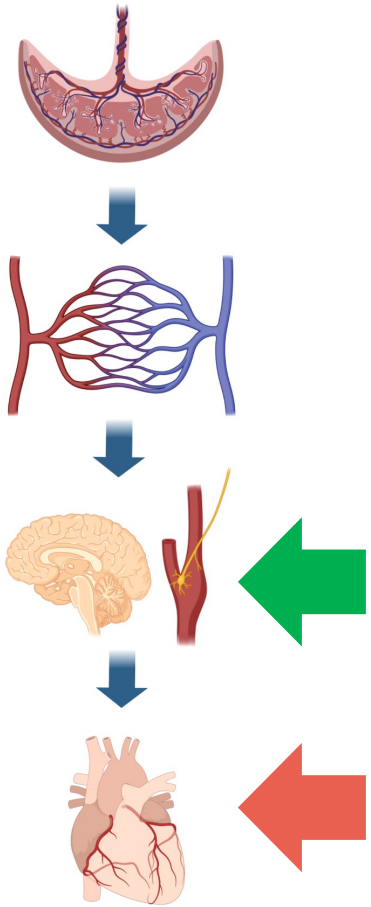
Brain injury from birth is the **leading cause of childhood death** and it caused by low oxygen (hypoxia)

How can we prevent fetal brain injury at birth?

Fetal heart rate monitoring is used in over 90% of births but has NOT decreased the rate of brain injury



Oxygenation of the fetus



Heart rate changes can be **misleading** because they reflect **downstream effects** low oxygen status which causes brain injury

But what if we could directly monitor the baby's brain?

THE SCIENCE

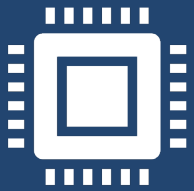
Fetal **neurologic activity** can be evaluated by **electroencephalography (EEG)**, providing information on sleep, conscious states, hypoxia & acidemia.

EEG provides an **earlier detector of fetal low oxygen states** before the heart rate changes.

THE BARRIER

However, prior fetal EEG required **invasive** monitoring, limited fetal positions & active labor.

This prior approach is **not feasible** for large-scale clinical use and as a result is **not used anywhere**.



THE INNOVATION

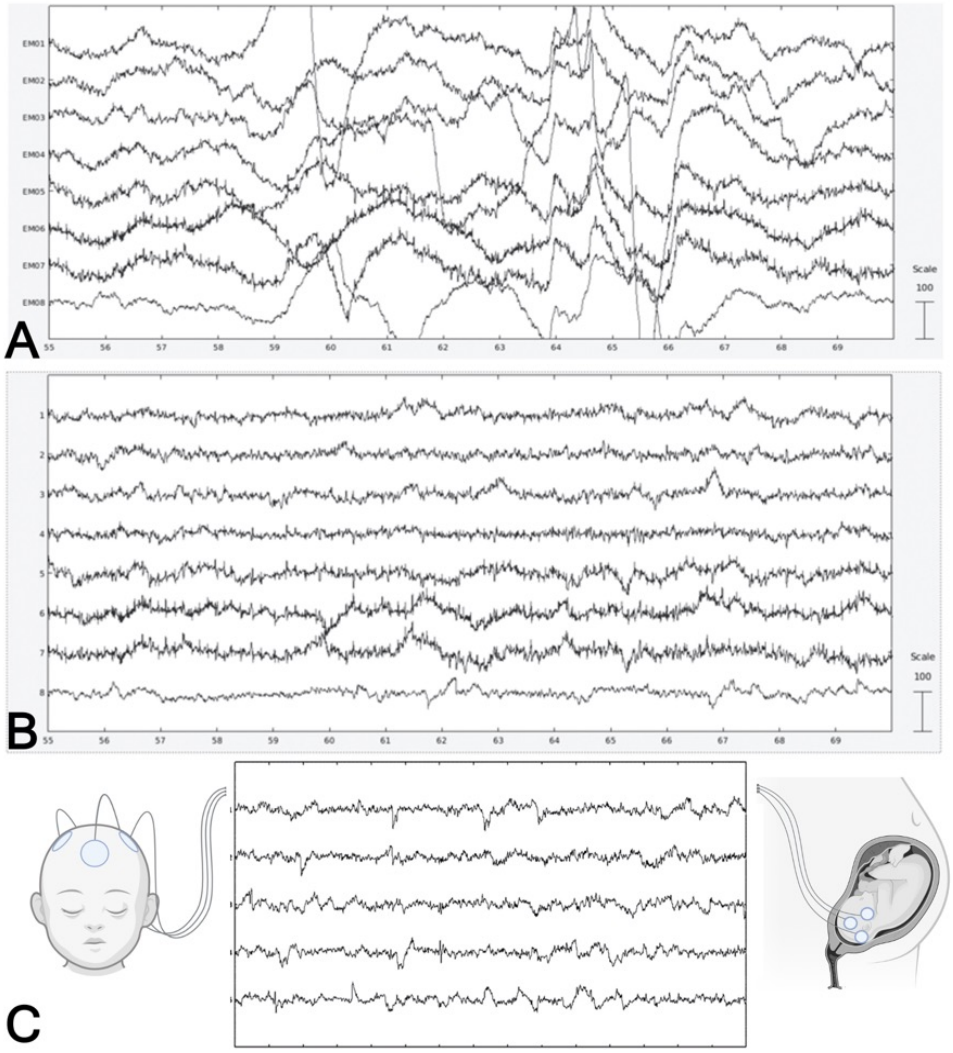
Advances in artificial intelligence & signal processing makes non-invasive fetal EEG possible.

We have developed a **proprietary non-invasive method & algorithm to measure fetal EEG.**

Non-invasive fetal EEG can directly measure the baby's brain activity

- Our non-invasive fetal EEG uses AI to reconstruct the baby's brain activity
- We can measure a **direct marker** of brain health
- **Non-invasive, clinically feasible**
- **Earlier detector** of brain injury compared to current methods

We have validated our method in a population of pregnant patients



Our solution has strong potential market

3.75 million births

per year in the US alone

4,600 clinic devices

1 per 10 obstetricians

19,000 hospital devices

for use in labor

Recurring sales

- Device maintenance
- Annual software subscription
- Replaceable EEG electrodes

Our goals & milestones

- ✓ Development of algorithm
- ✓ NIH K12 award for $125,000
- ✓ Clinical validation in pregnant population
- ✓ Provisional patent filed
- Development of clinical nomogram
- Development of device prototype
- Begin prospective clinical trial

Jose Cortes-Briones, PhD

Assistant Professor, Psychiatry

NIH Trailblazer R21 Award

Background in electrical engineering

Emily Lee, MD

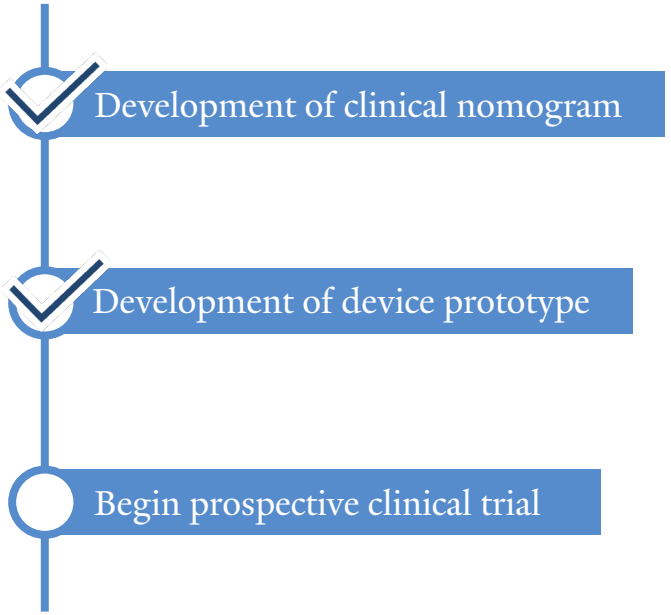
Instructor, Obstetrics, Gynecology and Reproductive Sciences Department

Fellow, Maternal-Fetal Medicine

NIH Women's Reproductive Health Research K12 Award

Use of funds

- Formal validation study and publication of results
- EEG machines and ancillary materials
- Research team and staff
- Subject recruitment compensation
- Development and manufacturing of device prototype
- Ultimate goal for funding of a large, multi-center clinical trial



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