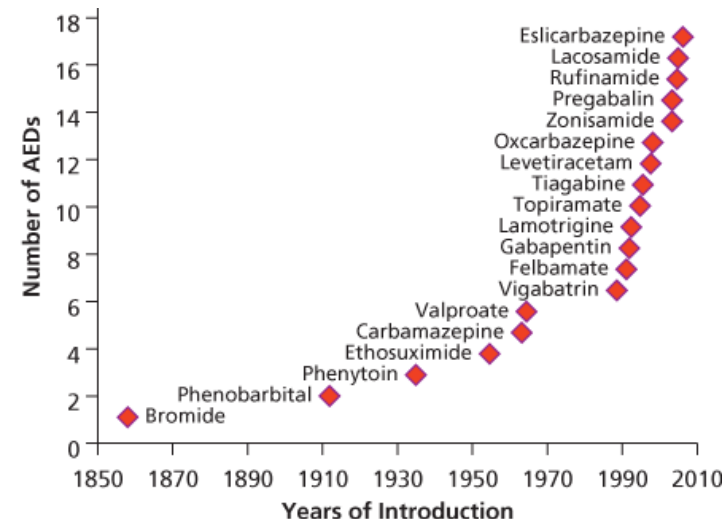


# Neonatal seizures

Geraldine Boylan & Ronit Pressler

- Diagnosis is made clinically or aEEG, not adequate for drug development (Boylan et al 2013)
- No evidence base for current management of neonatal seizures (Boots and Evans, 2004; WHO, 2011)
- No new AED developed (1<sup>st</sup> line PB)
- Risk due to frequent off -label use of antiepileptic drugs
- Outcomes poor (Uria-Avellanal et al 2013)



# Challenges of drug development in neonatal seizure

- Age dependent mechanisms of neurotransmitter
- Ethical predicament
  - Vulnerable age group
  - Acute seizures, critically ill, co-morbidity
- Logistical difficulties
  - Diagnosis and monitoring
  - Challenges of AE & AR Reporting
  - Recruitment
  - Regulatory requirements (EMA/FDA, GCP)
- Expensive, but low return



# How to overcome the challenges of clinical trials in neonatal seizure

- Target-specific AED design (Pressler, et al 2015)
- Study design
  - Randomised controlled trials
  - Pure placebo group not justifiable
  - Gold standard for seizure diagnosis (cEEG)
  - Innovative methods (EEG analysis, statistics, PK)
- High ethical standards (e.g. continuous consenting)
- High standards of conduct (GMP, GCP)
- Multicenter, collaborative trials
- Central funding necessary

