Summary, Highlights, Reflections, Challenges

XXVIII IERASG 2023, Cologne, Germany

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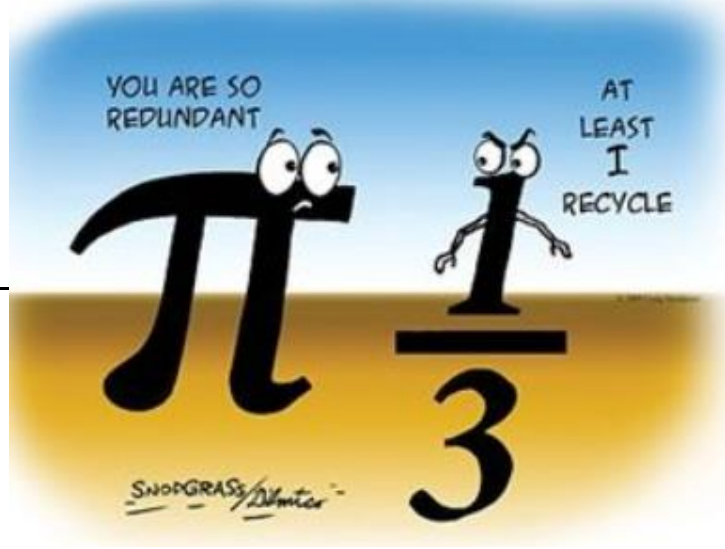
September 2023

Summary of who’s who, from where

NUMBERS AND SUCH

Numbers



Scientific Committee reviewed 121 abstracts

- 63 Oral presentations

- 58 Poster presentations

IMPORTANTLY: 25 student abstracts in person and another 7 online

Where in the world are the abstracts from?

Belgium	12
Denmark	6
France	1
Germany	20
Netherlands	5
Poland	2
Spain	4
Sweden	2
Switzerland	2
United Kingdom	7

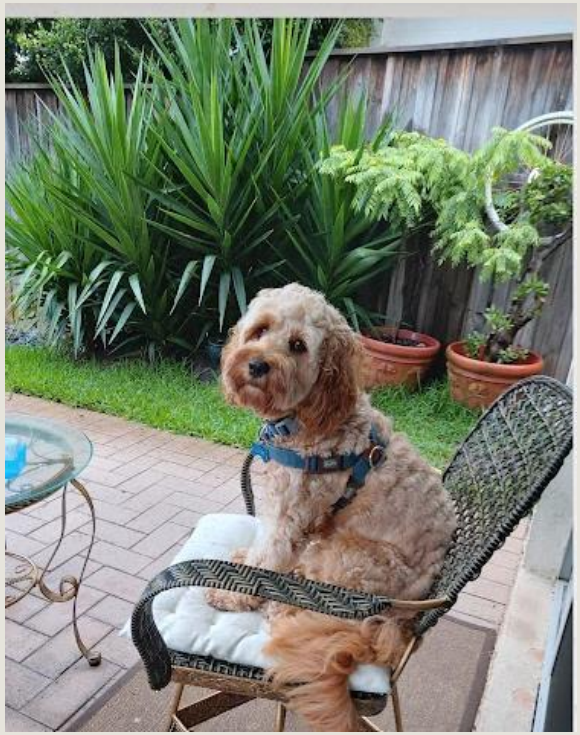
Consideration

- We have attracted consistent representation from India, Malaysia, Egypt since 2019
- Newcomers: Czech Republic, Litvania, Mexico, Romania, Switzerland, Turkey
- New Initiative: Semi-Hybrid Symposium; industry talks, interactive panel disscussions

- The Study Group was first held in 1970 and we have held conferences in several countries since then, including the country down under, could we do more to have representation of the world?

  – Does the Study Group need to reach more low/middle income clinicians/researchers?
  – Should we be doing online conferences every other year? Or at least keep the semi-hybrid approach in future conferences?

REFLECTIONS



Research

Our goal: a reminder that what we do, assess and recommend has implications for our clients and affects them!

Path to Translation

Interdisciplinary

Transdisciplinary interactions

Basic research

Clinical research

Public Health

Techniques

Stimuli

Clinical populations

Age

Number of clients/patients

Cross sectional studies

Longitudinal studies

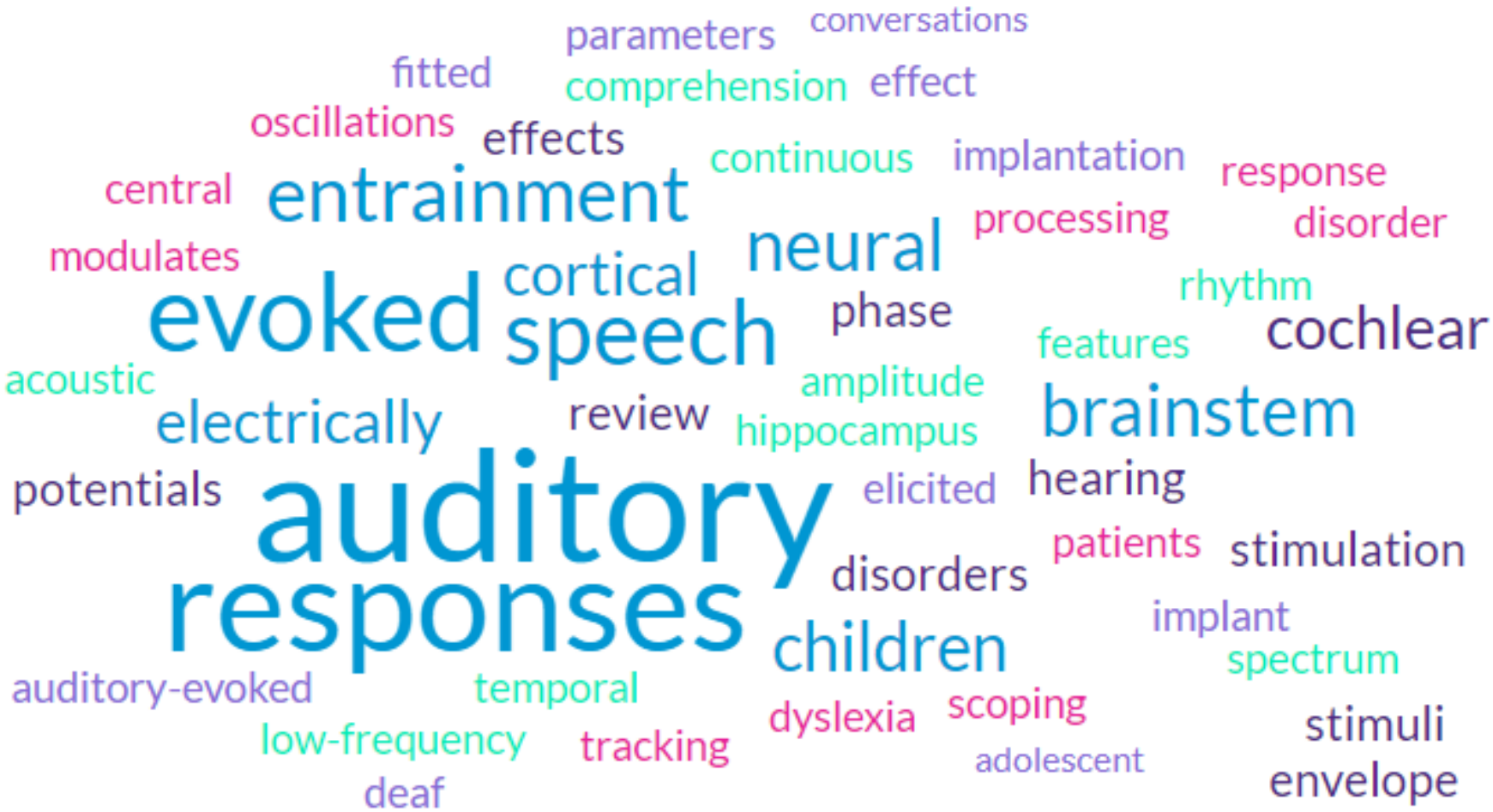
Datalink studies

Current literature on EEG (source PUBMED)

MACQUARIE University

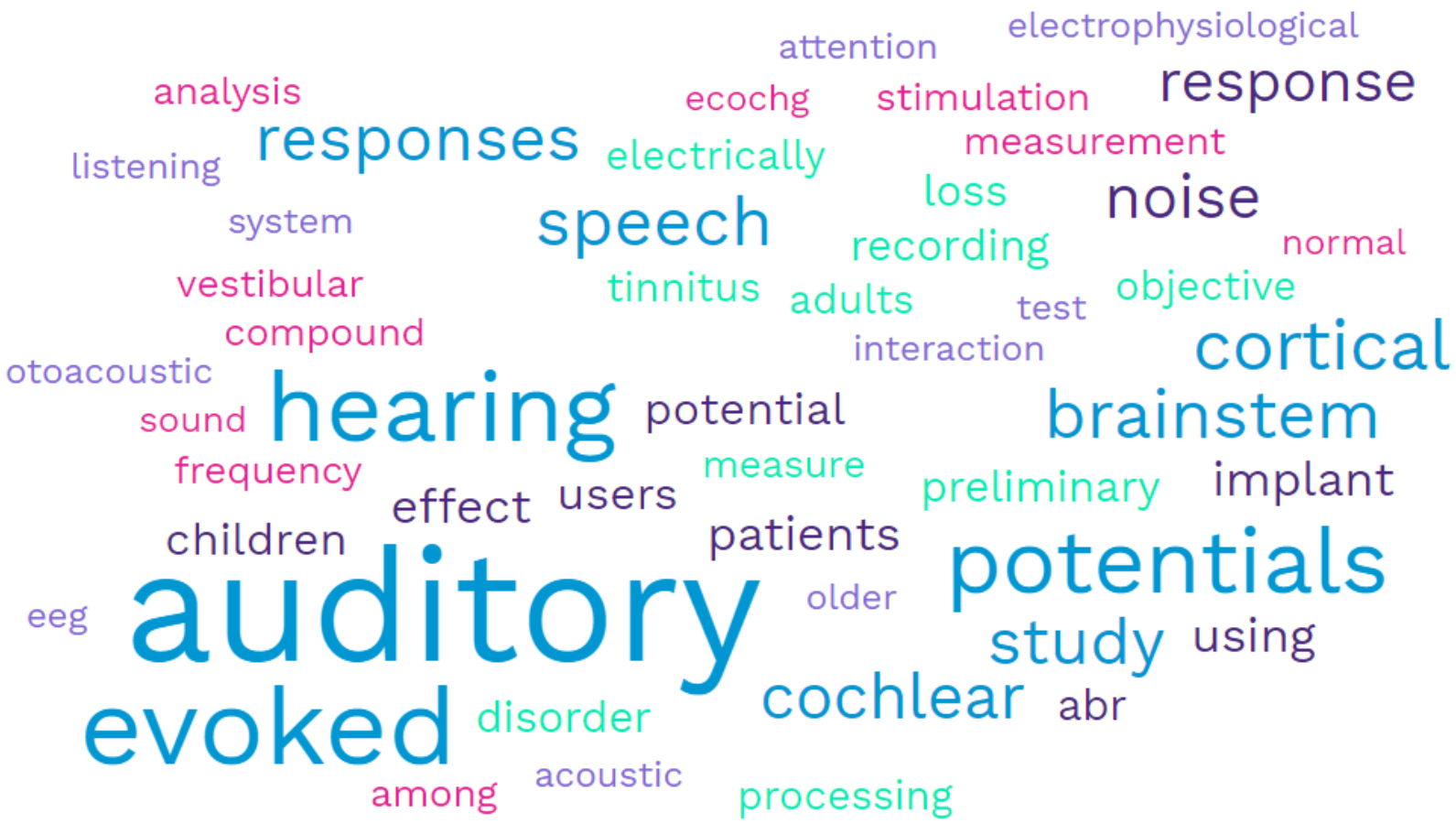
PAPERS IN 2022-23; THEMES IDENTIFIED

Did the presentations pose
or use
or focus on
similar themes?



Terms that popped up in IERASG 2023

ABSTRACTS



SUMMARY

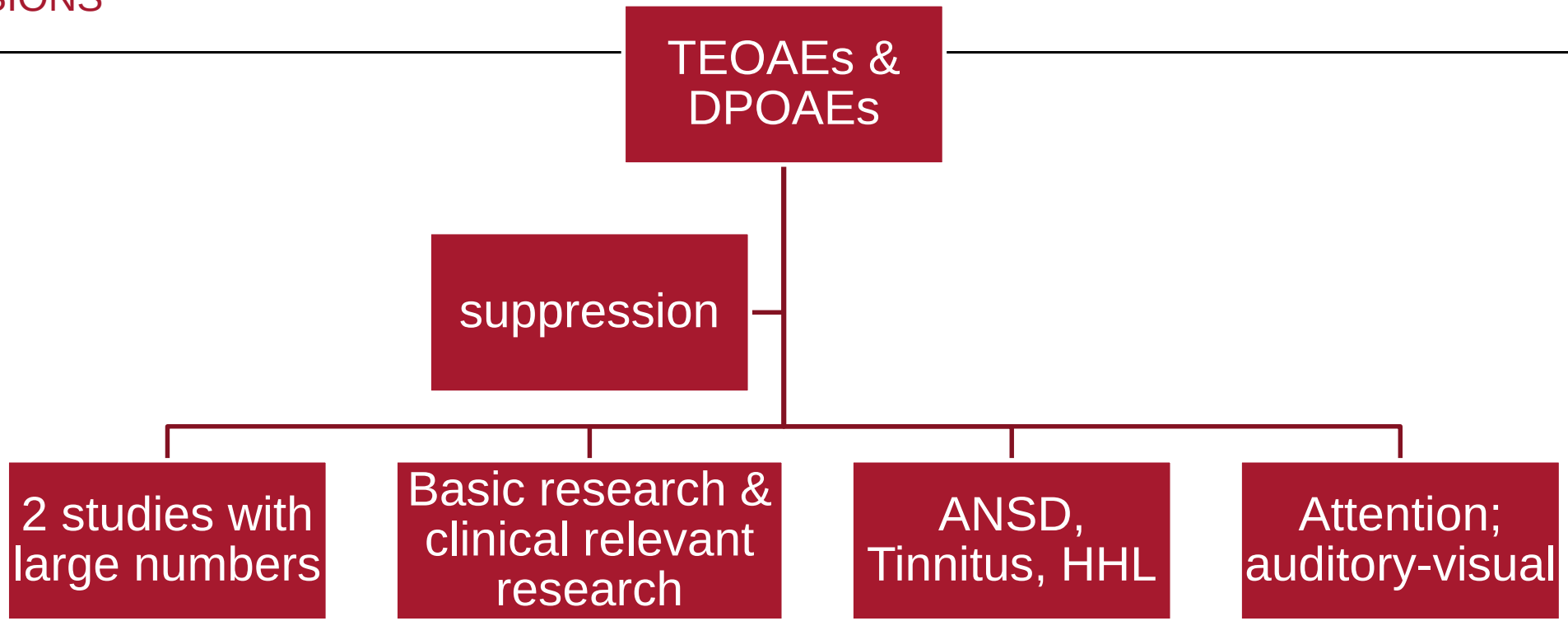
Workshops

1. Unique feature that we need to continue. IERASG has study group in the title after all

2. Mention of auditory processing- important as hearing research appears to have become limited to percept

OAEs

11 SUBMISSIONS



- Exciting: investigations into efferent systems; looking at improving clinical practice; also investigating Auditory pathway using multiple techniques – ABR; Acoustic reflexes (rather understated tool!)
- Testing babies must be efficient
- HHL: still not convincing evidence in humans; but it is tackling the auditory processing abilities, and there is a recognised listening in noise issue in absence of hearing loss

Electrocochleography

14 SUBMISSIONS

EcochG

- Cochlear Implants (hybrid), Meniere's Disease, Aging, hearing loss
- Clinical and Basic research
- 1 study that investigated the longitudinal effects postCI

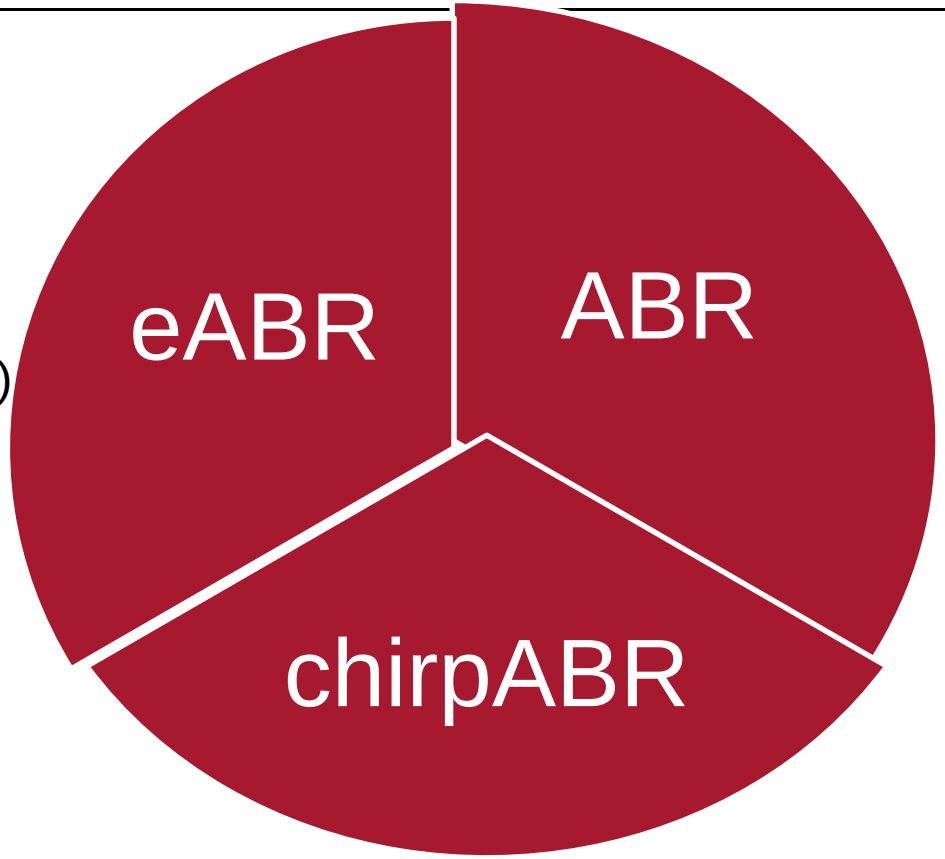
There certainly seems to be a good space for EcochG in the clinical space especially with CI but good to see that MD and aging effects were also explored.

The relationship between aging and cognition- we really need to understand this association and clearly the aging effects are not limited to "central pathways" either

ABR + eABR + chirp ABR

21 SUBMISSIONS

Single sided Deafness;
Tinnitus; Conductive loss;
Cochlear implantees;
Autism Spectrum Disorder
Cochlear synaptopathy
Binaural Interaction Component (BIC)
Extracochlear electric stimulation



Some exciting presentations

- Individual case studies
- Stem cell in animals as a way to reverse hearing loss
- Use of high rate ABR to identify ASD
- High Frequency ABR to detect Ototoxicity effects

- The focus seemed to be on “improving” ABR; statistical detection methods
- FF ABR- HA verification- needs clarification
- Most importantly, how narrow is the NBchirp?
- ASD and hearing loss: this co-morbidity is a concern and thus a renewed interest is fantastic

ASSR n EFR n FFR

14 SUBMISSIONS

The EFR, FFR literature is messy!

“Speech ABR” adds further confusion in this space

Why /da/????

ASSR

- NB chirps; multiplexed AM stimuli; ear-EEG
- Hearing loss infants; ANSD

EFR

- Noise exposure (pre and pos-concert; ototoxcity; aging

FFR

- /da/; continuously changing stimuli /dao, doa/; simultaneously recording FFR-CAEPs

Should we be investigating both Envelope and Temporal Fine structure in clinical populations?

CAEPs/LLRs/ALRs/eACR/ACEP: what's in a name?

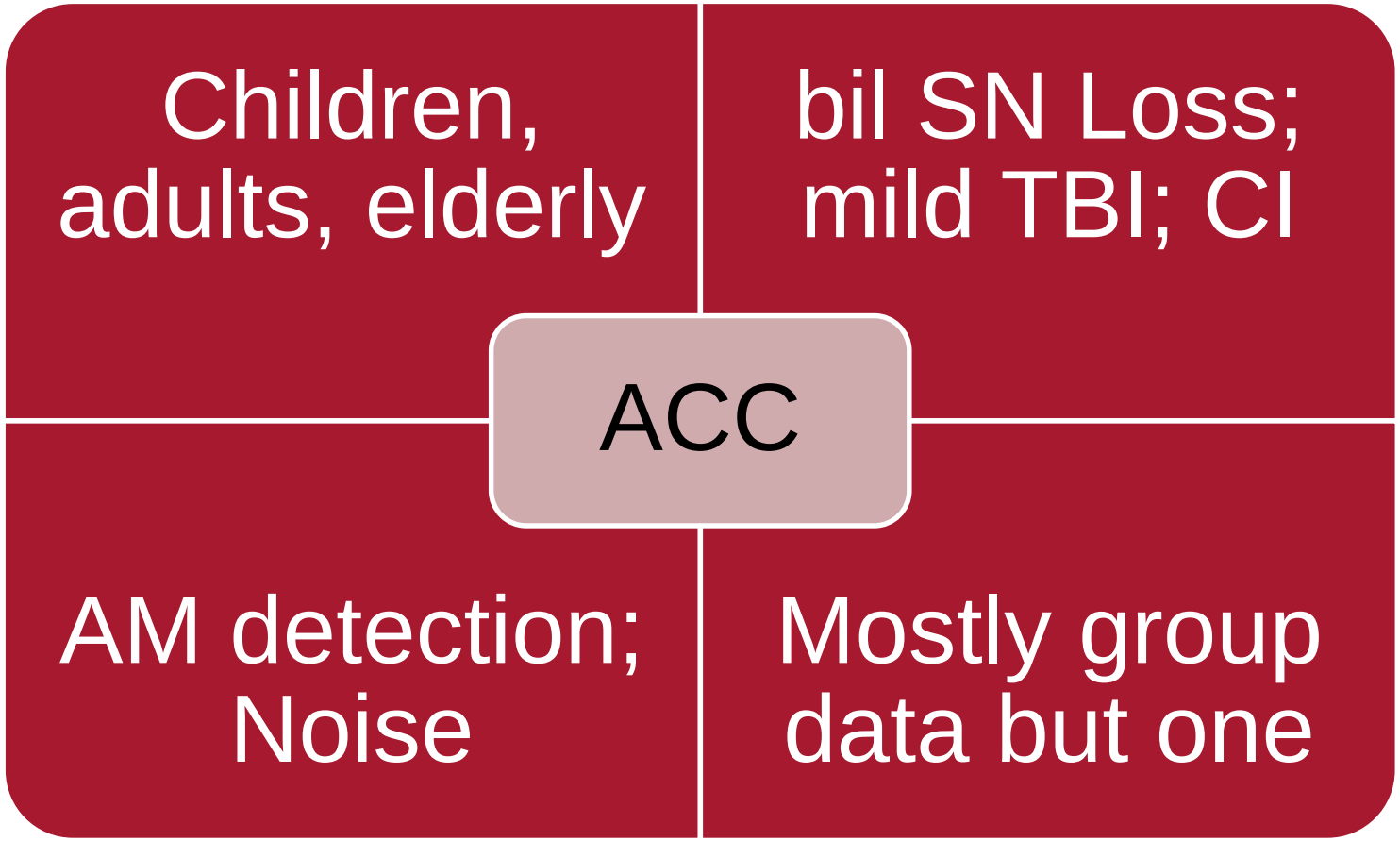
MACQUARIE University

17 SUBMISSIONS

The gap in literature:

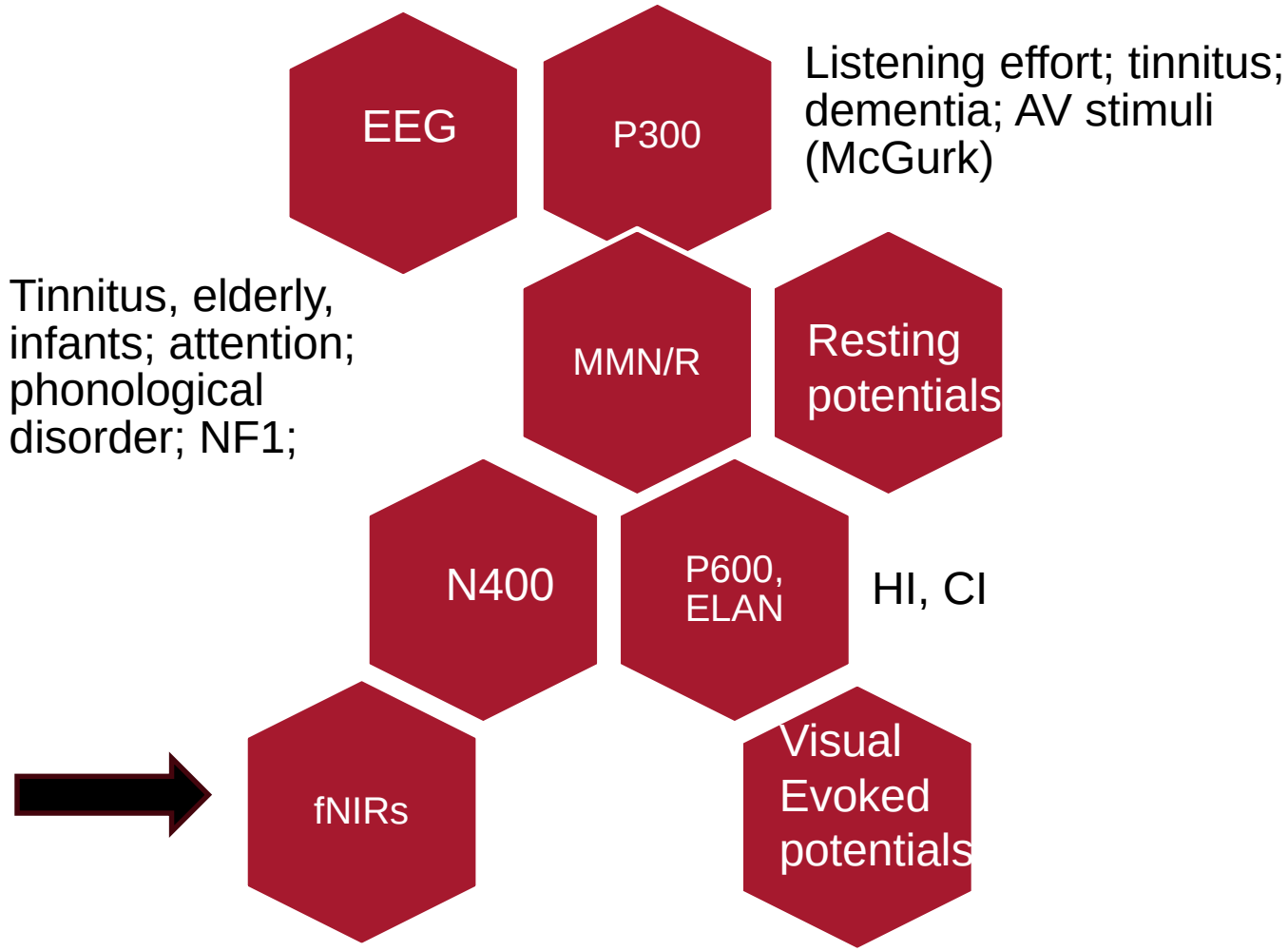
Is ACC a measure of discrimination? We need to see research exploring associations to behaviour measures

It was great to see some individual data



MMN, P300, N400, P600

ALPHABET AND NUMERIC SOUP! 15 SUBMISSIONS



- To make these responses applicable in clinics, we need individual data. We need more specificity & sensitivity data
- Auditory discrimination in infants is still not a clinical reality
- Listening effort: need to make an effort to define this concept! Literature shows this to be driven by personality. So where does that leave us?
- fNIRs: not sure how this fits but it is here and as Stephen Hawking said: the biggest enemy of knowledge is not ignorance but the illusion of knowledge!”

Everything else

SPEECH ENTRAINMENT, VEMPS, SIGNAL PROCESSING, OTHERS…

Challenges that these are proving useful; but we need to keep considering how this will help the clinical practice and hence highlights the importance of industry-researchers collaboration!

Running speech= ABR and CAEPs

- Deconvolution of AEPs

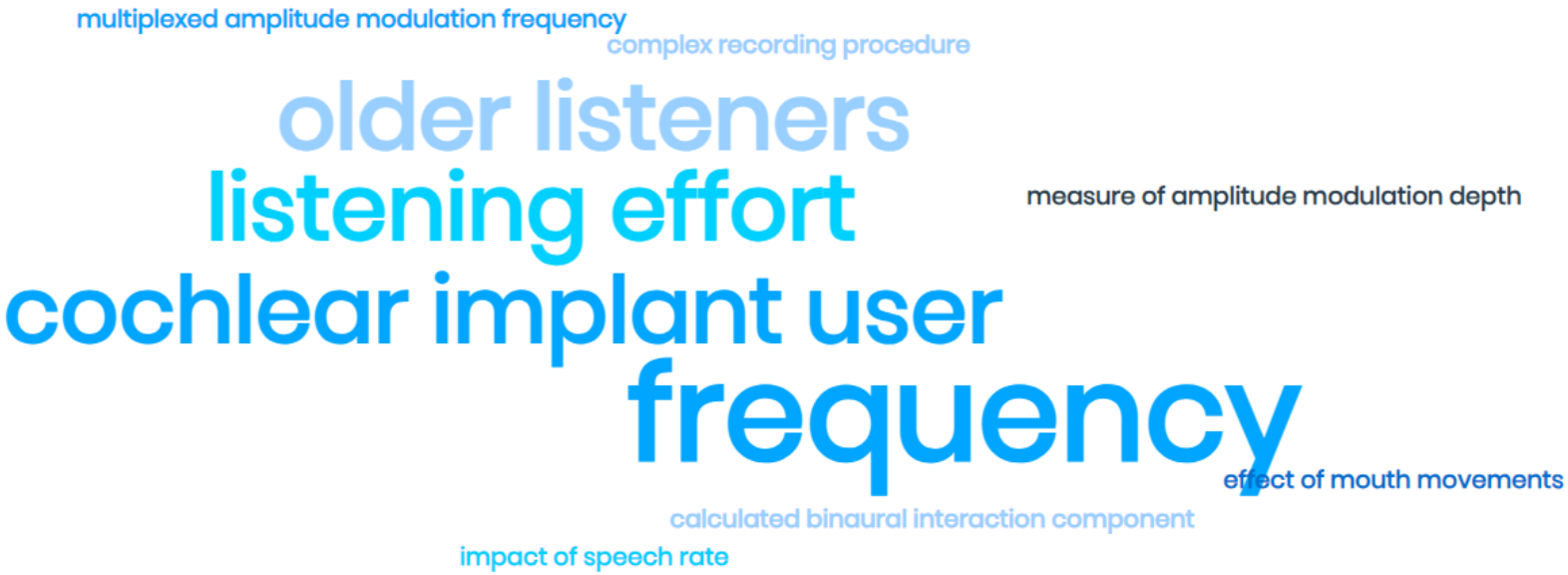
Fmpi: new way to detect AEPs

HIGHLIGHTS

How some people view the psychophysiologist at work.

Student presentations

DIVERSE TOPICS



Highlights from the conference

PEARLS OF WISDOM AND QUOTES OF THE DAY

Day 1

Question of asymmetry “it is complicated”

“if it looks and Smells like an ABR”- Guy’s criteria

“drag race” between ABR N ASSR.
“there was no difference between the test time but that does not mean that there is no difference in timing!”

“why are there no artifacts?”

Highlights from the conference

PEARLS OF WISDOM AND QUOTES OF THE DAY

Day 2-4

“ Too long ago; I am old now; if they are mean enough to ask” and lastly “I am back!”

NBchirp are “complicated”

MMR: “it is complex”

Panel: no agreement on the stimuli/practice for infant hearing assessment amongst the experts!

My thoughts:
Click ABR is only for neural integrity/polarity effects.

Thresholding has to be undertaken with frequency specific stimuli.

PTA would be deemed incomplete with only AC testing, should we not have the same expectation for infants?

Challenge

CLINICAL CONUNDRUM:
SPEECH PERCEPTION IN NOISE

Auditory Processing

Hearing: percept of sound

Listening: hearing with intent (involves auditory processing including discrimination)

Comprehension: “unidirectional “ reception of information

Communication: “bidirectional” exchange of meaningful information

Pichora-Fuller & Singh, 2006

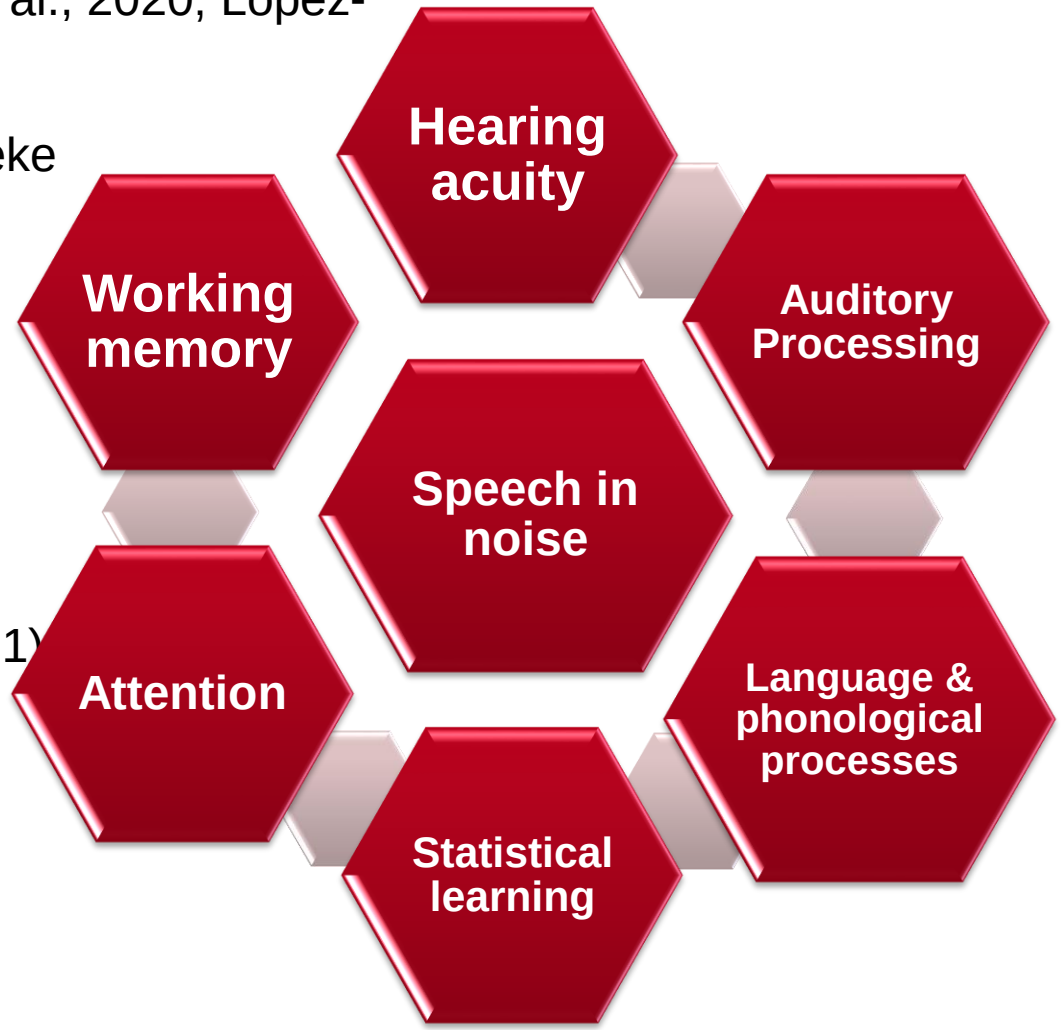
Speech Perception/Recognition: framework? Contributing Factors

Mosnier et al., 2015; Ng et al., 2020; Lopez-Poveda et al., 2017

Yeend et al. (2018), Winneke et al. (2020), Chen et al. (2021), Finke et al. (2016)

Heinrich et al. (2015), Dai et al. (2018)

Badajoz-Davila et al. (2021) Neal et al. (2022)



Modified from
Humes, 1996

- What can we do to make Speech Perception/recognition/understanding in noise as our focus?
- A recent scope reviewing found less than a quarter of the papers looked at speech in noise?
- It would be good to see renewed focus on this clinical concern. Linguists, speech pathologists and us- we are all working in their area perhaps considering more Transdisciplinary approach?

Thank you for listening!

SIGNING OFF IERASG 2023