Reviewer's report

Title: A Global Patient Outcomes Registry: Cochlear Paediatric Implanted Recipient Observational Study (P-IROS)

Version: 4 Date: 5 August 2014

Reviewer: Karyn Galvin

Reviewer's report:

This manuscript reports on the design and proposed implementation of a large-scale observational study of the longitudinal outcomes of paediatric cochlear implantation. The global collection of homogenous data from a very large cohort of paediatric implant users will provide important and useful information for those involved in the clinical management children or in implant research, funding, or policy development. In answer to the question posed by the Assistant Editor:

1. Will the study design adequately test the hypothesis?
   No specific hypotheses have been proposed. Some comments on the objectives are made below. The study design is reasonable to achieve the stated objectives – although information of expected numbers of patients has not been provided.

2. Are sufficient details provided to allow replication of the work or comparison with related analyses: if not, what is missing?
   As noted below, there is information which could be usefully added to the manuscript, including more clarity on the roles of clinicians, investigators etc., predicted number of clinics, patients etc. likely to be registered, and more explanation of the choice of assessment tools.

3. Is the planned statistical analysis appropriate?
   No plan for statistical analysis is presented.

4. Is the writing acceptable?
   This manuscript requires very careful proofreading and editing prior to publication. These are minor essential revisions. There are numerous minor issues of writing style, punctuation etc., including
   • inconsistent use of a comma before the “and” in a list of items
   • use of semicolons in lists rather than commas
   • lack of comma usage to set off parenthetical element in a sentence (eg. comma should be before and after the phrase “which began in January 2010 and ended in December 2012” on pg 4); and to separate adjectives
   • beginning a sentence with “however”
   • inconsistent use of terminology (making it more difficult for the reader to follow the text)
o eg. bone conduction hearing implants versus osseointegrated hearing implants; implantable hearing devices versus implantable hearing solutions versus implantable hearing systems

o inconsistent use of capitalization and acronym for “Cochlear Paediatric Implanted Recipient Observational Study” – full term defined as P-IROS on page 6, but then Cochlear P-IROS is used on page 16 and defined in list of abbreviations; P-IROS registry also used

o inconsistent use of Cochlear trademark

o mixed use of “patient”, “child”, and “recipient”

• phrases which are not meaningful or are grammatically incorrect

o eg. “9% of this population is represented by children”, “in pediatrics…”, “in the otolaryngology setting…”, “the decision for use of bone conduction hearing implants”, “the auditory performance benefits..”, “the degree of success achieved in children”, “benefits…in hearing impaired children or their families”

There are other specific issues which I would also consider minor essential revisions, including:

Page 3, para 1
• line 3: change “was” to “has been”
• “various aetiologies that may also be influenced by local factors” is unclear
• final line: unclear; does this mean that, in low- and middle-income countries, there is a relationship between hearing loss and regions ?

Page 3, para 2
• line 3-4: implantable hearing devices do not “restore” hearing; in many clinics these devices are not limited to those “unable to successfully use conventional amplification”
• cochlear implantation is not generally recommended for children with moderate hearing loss

Page 3, para 3
• text implies commercialization of bone conduction hearing implants occurred 30 years ago?; “large investments into research and development” have not

Page 4, para 3
• the “audit” does not “report” results
• bilateral implants can be assumed to provide bilateral sound input but this does not equal binaural hearing

Page 4, para 4
• first line: missing space after “even” (“Despite….” may be a better term); change “may not be” to “is not”
• line 7: is this success with the implant? or success in habilitation? Unclear
• line 8: what may be assessed through use of measures of auditory
performance?

- penultimate sentence refers to assessment of auditory performance and final sentence refers to “hearing-independent benefits” so this is contradictory. Or perhaps the author is not referring to the same thing in these two sentences? It is unclear.

- the “Speech Spatial Qualities Index” should be the “Speech, Spatial and Qualities of Hearing Scale” (acronym the SSQ) (as per the original version developed by Noble and Gatehouse). The version for parents should be referred to as the “Speech, Spatial and Qualities of Hearing Scale for Parents” (acronym SSQ-P)

Page 5, para 2

- line 7: “to this end” suggests a solution to the previously identified problem is about to be provided, but this is not the case; also, “Bond and colleagues note that…” suggests that the lack of high quality long-term data has a particular effect – but the sentence simply ends.

- unclear what is meant by the final point in this paragraph

Page 6, para 2: aims/objectives are usually specified at the end of the Introduction

Page 7, 2.1 title: acronym already contains the word “study”

Page 7, Objectives

- Objective 3: hyphenate patient-related; replace semicolon with comma;

Page 7, Population

- line 4: insert “the” before “Cochlear”; “has made available” is incorrect; what is meant by the phrase “to address the trend for intervention….” - it implies intervention only occurs in children showing significant auditory performance benefits?

- line 8: Patient Administered Speech, Spatial, and Quality – should be “the SSQ for Children” (SSQ-C)

- line 12: misspelt study

- line 15: “prior to first external device activation” is unclear (to readers not familiar with cochlear implant terminology)

Page 8, Study period

- line 1: the registry does not “collect” data

- line 2: insert “in the” prior to long term

- line 3: insert “at” prior to any

- line 5: the information in brackets is confusing

- line 8: comma required after Table 1

- line 10: specify who determines 2 year follow-up is “compulsory”, and how is the family compelled?

Page 8-9, Ethical Considerations
• line 2: either delete “as” and comma after Helsinki, or insert comma before “as”; “obligations” cannot be implemented; they are “met” or “fulfilled”

• ISO 14155: the author must briefly explain what this ISO standard is for the reader (in addition to providing the reference); also, the relevant year for the standard should be included in the text; there is a 2011 standard so why is the 2003 standard referred to here?

• the reader needs to know what is meant exactly by the terms “Sponsor” (why the capital?) and “investigator”

• one or two examples of the obligations and how they will be fulfilled would be informative

• para 2, line 1: what does “favourable opinion” mean?

• para, line 2: inconsistent capitalization of ethics committee; again, meaning of “opinion” unclear; explain why requirement was waived – or do the authors mean these were jurisdictions in which approval was not required (as discussed on pg 8)

• para 2, line 7: capital required for “city”

Page 9, Consent

• vital that consent is “voluntary” so this should be specified

• given that a Human Research Ethics Committee would usually require that the person obtaining consent was sufficiently informed about the project (actually this would usually need to be an investigator named on the ethics application) to ensure that the person giving consent understood the implications of participation – the authors should explain how this issue will be dealt with or why it is not deemed necessary for an investigator to obtain consent

• line 2: consent is required from the person with legal responsibility for the child, i.e., parent or guardian; the “caregiver” looks after the child (eg. grandparent or nanny)

• line 4: explain what the decision should be independent of

Page 9-10, Evaluation Measures

• para 2, line 1: the study does not “administer”; a “customized questionnaire” is a standard questionnaire which has been altered to fit a purpose; I don’t think this is what the authors mean

• para 2, line 3: delete space before “caregivers”; why “in particular”

• para 2, line 4: “leading industry experts” requires explanation

• para 2, line 6: change “into” to “in”; “questionnaires’ is plural - relevant variables were included in all questionnaires?

Page 10-11, Evaluation forms for the clinician

• para 1, line 2: delete “specific” (and in line 3); “it was developed with the aim to collect” is wordy – more straightforward just to list the information which is collected
• para 1, line 7: unclear what is meant by the term “and other comorbidities/syndromes” – assume “other comorbidities, and syndromes”
• para 2, line 6: insert ‘the” before “patient’s”
• para 3, line 1: hyphenate 10-points
• para 3, line 4: delete “progressive”; cross cultural would usually be hyphenated
• para 3, line 2: clarify is meant by “binaural hearing state and skills”
• para 4 & 5: the form does not “capture” or “provide”; multiple rather inappropriate terms (hearing capability, hearing performance, are used here to describe what is simply sound detection or threshold measurement
• para 4, line 3: “detailed summary” is something of an oxymoron; in any case, it is simply the standard hearing thresholds
• para 4, line 4: delete colon; are these thresholds all “routinely measured” in all clinics?
• para 4, line 6-10: wordy and difficult to follow sentence – perhaps it is missing commas? or a word after “or later”?
• para 4, line 11: delete “measurements”
Page 12, Evaluation forms for the parent
• para 1, line 3: delete “and”
• para 2, line 3: “family wellbeing” or “the wellbeing of the family”
• para 2, line 6: again, “industry experts” is unclear – experienced paediatric cochlear implant clinicians? experienced teachers-of-the deaf?
• para 2, line 8: the meaning of the term “four-week-recall is unclear here
• para 4 & 5: as above, the acronyms around the SSQ are confusing
• para 4, line 1: given the citation of reference 51, assume this is the SSQ for Children?; what is meant by “standardized”
• para 5, final line: “William Noble (University of New England), the co-developer of the original SSQ” would be more informative; it is correct practice in scientific writing to include personal communications (including date) in the reference list (or a separate list, depending upon journal requirements) rather than in the text
Page 13, Data Management
• line 3: insert “the” before “international”
• line 8: has Hindi been left off this list?
Page 14, Data Privacy
• the information about the registration of the adult registry does not seem relevant
• line 9: change “by the study” to “as part of the study”; should “questionnaires” be “evaluation forms”?
Page 15, Electronic Case Report Forms
• para 1, line 6: what are “patient side forms”
• para 1, line 7: languages are not “applicable to” countries; extra space after India
• para 2, line 3: how does the registry “complement” routine follow-up?; the second half of this sentence is an incomplete phrase
Page 15, Data Outputs
• line 2: what is meant by “recruitment age at implantation”?  
Page 16-17, Discussion
• para 2, line 2: what is meant by “who are presented to routine clinical practice”?  
• para 2, line 3: “translated into” or “translated to”
• para 2, line 5: grammatically incorrect  
• para 2, penultimate line: change “a” to “the”  
• para 3, line 4: insert “the” before “development”
• para 5, line 2: why “in the meantime”? – suggests the P-IROS will be relevant only for a period of time until there is local development of a registry?  
• para 5, final line: “using …..longitudinally” is awkward
Page 25, Table 1
• “evaluation tools” used in table title, versus “electronic case report form” in column heading  
• footnote 1: “resemble”/
Page 26, Table 2
• insufficient detail in title
Page 30, Table 3
• are there maximum numbers of permitted users for any role apart from Chief Investigator?  
• users who may obtain consent seems contradictory with statement in first line of section 2.1.6
• row 8: who is the request made of?

There are other specific issues which I would also consider major compulsory revisions, including:
Page 3, para 3
• line 3: both safety and clinical efficacy are referred to here, but the authors provide very limited detail regarding efficacy
Page 4, para 3
• this paragraph lacks detail; the outcomes of the UK audit are not described sufficiently; some gaps in the data collected are referred to, but the importance of this type of data is not explained; the final sentence is to sudden a change from the lack of broad outcomes data to the lack of any outcomes data for subgroups;
additional explanatory sentences are required if this paragraph is to contribute to the understanding of the reader

Page 4, para 4
• this paragraph needs more coherence and depth
• the first few sentences skim over language, literacy and education, and then moves to habilitation; more detail is required to link these ideas together or the authors should consider if it is worthwhile commenting on these areas
• lines 10-11: why these measures and not other measures? It would be valuable for the reader to have an explanation of the choice of measures

Page 7, Objectives
• some reference to the types of benefits here would be useful
• Objective 2: what is meant here by statistically valid? how is this validity to be achieved?
• Objective 3: explain what is meant here by patient related benefits (as distinct from “benefit” in objective 1)

Page 9, Consent
• line 1: it should be made clearer that obtaining consent is the responsibility of the local clinician working directly with the child; it would be helpful to have a section earlier in the paper which describes the roles of those involved (clinician, sponsor, investigator, global administrators) to benefit the reader’s comprehension

Page 9-10, Evaluation Measures
• para 1: the second sentence is too long and is difficult to read. The points need to be broken up into a number of sentence and the relevance of the points made clear.

Page 10-11, Evaluation forms for the clinician
• para 1, line 6: “physical and mental handicap” are old-fashioned terms which should no longer be used

Page 15, Data Monitoring
• random spot checks may be undertaken? the authors should specify is they will occur or not? If they are to occur, some indication of frequency is required so the reader has an idea of the likely reliability of the data to be collected

Page 16-17, Discussion
The discussion primarily repeats information provided previously. Some discussion of anticipated numbers of clinics, countries, and patients, and predicted timelines would add depth. As would more links between the actual data collected and the potential uses of this data.

Page 16-17, Discussion
• para 4: clarify what is meant by ‘statistically validated evidence”; statistical analysis has not been discussed prior to this point
• Para 4, final two sentences: a list of points; wording and meaning could be improved by putting relevant points together. eg. “or” suggests implantable hearing solution or bimodal – even though bimodal also includes an implantable solution; first sentence refers to unilateral versus CI+HA and second sentence refers to unilateral versus CI+CI – why not have these two together in one sentence. Particularly difficult to understand the point of the second half of second sentence.

Page 26, Table 2
• Column 4:
  o Far too much text in this column to make this a useful table
  o Typos/errors in the text eg. pot-surgery; educational placement, educational placement of child
  o Information often repetitive with manuscript text eg. frequencies for hearing testing, use of objective tests for infants

Page 30, Table 3
• There is no mention in the text of some of these users, so it is not meaningful to have them simply listed in the table eg. cochlear country project leader, study nurse; where is the “clinician” referred to in the text
• Column 2 contains a lot of repeated text; if the information was presented differently (eg. a couple of columns to replace column 2) the amount of text would be reduced and the accessibility of the information would be increased

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I am employed in The University of Melbourne Department of Audiology and Speech Pathology; this Department receives funding from Cochlear Limited. I have also received travel funding from Med-El UK Ltd.