PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Cellulitis in Children: a retrospective single centre study from Australia
AUTHORS	Salleo, Elise MacKay, Conor I Cannon, Jeffrey King, Barbara Bowen, Asha C

VERSION 1 – REVIEW

REVIEWER	Reviewer name: Dr. Kevin C Lee Institution and Country: Resident, Division of Oral and Maxillofacial Surgery, NewYork-Presbyterian/Columbia University Irving Medical Center, New York, NY. Competing interests: None
REVIEW RETURNED	22-Apr-2021

GENERAL COMMENTS	The authors have presented a good paper evaluating the burden of pediatric cellulitis. They highlight some important findings: that facial cellulitis required higher rates of admission and socioeconomic disparities in admission rates. Please cite: Lee KC, Wu BW, Park E, Chuang SK, Koch A. What Is the Health Care Burden of Treating Pediatric Dental Infections on an Inpatient Basis? J Oral Maxillofac Surg. 2020 Mar;78(3):343-349.

REVIEWER	Reviewer name: Dr. Eirini Koutoumanou Institution and Country: University College London, United Kingdom of Great Britain and Northern Ireland Competing interests: None
REVIEW RETURNED	01-Jun-2021

GENERAL COMMENTS	This paper sets out to explore several aspects of cellulitis in children presenting to hospital in Western Australia. The sample studied is split amongst children admitted to hospital and not and their various demographics, possible causes, location, management, outcomes and investigations with regards to cellulitis. This manuscript is titled as "BRiCK: an analysis of the burden and response in cellulitis in kids", but actually the term BRiCK does not feature anywhere in the paper except the title. It would be more coherent to have further reference to this acronym throughout the paper. The authors close the introduction section with their aims, one of which is to describe adherence to guidelines for cellulitis – I am unclear as to whether this last aim has been met. If it has, it should be emphasised more in the results and discussion section (or please direct me to the paragraphs this is already done as I was not able to identify it).

	Following on from the above comment, I am also unclear as to how the following statement actually holds true: "Adherence to treatment duration was assessed against the IV to oral switch guidelines.". Could the authors please add more details about this? The way Figure 1 has been put together does not match closely with what's written at the start of the results section with regards to changes in sample size, i.e. the final numbers are correct but there are additional numbers on the table that are not mentioned in the text. I recommend that the authors simply state that more details on exclusion reasons are presented in Table 1, but also refer in the main text to the original sample size of the two main groups, 311 and 556. Several statistical significance tests have been performed, but the p-values of only very few comparisons are presented in the text. No p-values are presented in any of the tables, which does not help with transparency. Additionally, no confidence intervals are reported which is a major flaw. For at least the clinical and statistically significant comparisons (if not all, which would be the ideal), 95% or 99% confidence intervals should be presented to give a measure of the precision of the differences observed. Also, the authors seem to swap between reporting in the main text of the paper estimates for the entire study group and the admitted/non-admitted subgroups. I found that confusing when matching the text with the tables and I would recommend that there is a clearer distinction of the reporting of the results for the entire group vs when comparisons between the admitted/non-admitted groups are done. I was not able to identify the evidence to back the following statements, therefore I recommend that these are either rephrased or corrected: - "children under five years … are disproportionately affected by cellulitis" – is this true? Of the under 5s, nearly identical proportion of children were in the admitted and non-admitted groups, 48.5 vs 48.9 Table 1 – could you please clarify? Apologies if I have misunderstood. - "We confirm that paediatric cellulitis accounts for a significant burden on the hospital system." – I feel that this is a bit of an overstatement based on the data shown in this manuscript, but I feel I might not be the best judge of that considering I do not come from a clinical background. But flagging it up for the editor's opinion. - Finally, even though the authors have made several references to a future GAS vaccine throughout the paper, I do not think it's fitting to close the paper with such comment, as this was not the aim of the paper. Minor - In the very first paragraph of the paper, I recommend editing the "…due to…" to something along the lines of "…caused by…" or similar. - Explain what IV stands for at the end of the Methods section (it is already included in the abstract) - For better clarify I recommend that the following phrase "Eleven (3.6%) children re-presented within the study period: 3 children…" is slightly edited to read as: "Eleven (3.6%) children re-presented with cellutitis…", or similar - Instead of mean and sd for age in the text, could the authors please use median and IQR as looking at the mean and sd values, it is obvious that age was not symmetrically distributed. In the abstract, median and IQR age are presented instead of mean/sd in the paper which is an incostisency that needs addressing either way.

	- Similarly, the mean and SD white blood cell counts and C-Reactive protein should be replaced by median and IQR. - "Extremities are the hands and feet including digits." – by digits, do the authors mean fingers/toes? - At the end of the results paragraph, the figures about the ceftriaxone and flucloxacillin counts do not match the Table 3 values. In the text, it is reported that 38 out of 46 were given these antibiotics, but in the table is 41+41=82. - The % of those receiving oral antibiotics is said to be 96 in the text, but in Table S2, the oral antibiotics section adds up to 95

REVIEWER	Reviewer name: Dr. Li Jun Thean Institution and Country: Murdoch Childrens Research Institute, Tropical Diseases Group, Murdoch Children's Research Institute, Melbourne, Victoria, Australia Competing interests: None
REVIEW RETURNED	29-May-2021

GENERAL COMMENTS	This is a very valuable study describing the epidemiology of cellulitis and its management at a tertiary hospital in Western Australia. Information from this article can be broadly applied nationally and in high income countries. It also provides some baseline data prior to possible future health interventions such as a GAS vaccine. Abstract - Please include the different time frames for data collection for hospitalised and non hospitalised presentations - Lines 20-25, the percentages are a bit confusing. Is it 25% of total admissions had facial cellulitis? Might be better to state the percentage of facial cellulitis that were admitted compared to what percentage of presentations overall were admitted? - Line 33, can delete either % of MRSA or MSSA to be concise - Line 50, need clarification. Does it mean prevention of cellulitis? Which skin infections? Page 6 -Lines 3-8, Is there a reference available for data regarding ED presentations? Page 8 -Line 6, were only cases with a primary condition of cellulitis included? Would patients who were admitted for other reasons but also had cellulitis that was treated been included in the study? May need clarification of this in the Methods. If they were not included, this would have to be discussed in the limitations as it is another reason that the burden described is underestimated. - Lines 42-45, suggest using median age and IQR as data are not normally distributed. - Line 52, best to include this demographic information in the Methods section as it need referencing. -Lines 53-57, it would be great to have a p-value or confidence intervals to know if this was statistically significant. Page 10 -Lines 42-44, regimen meaning using both ceftriaxone and flucloxacillin or regimens with flucloxacillin being the most common followed by ceftriaxone? Table 3 - Please also add a row for range of days oral and IV antibiotics were used for Discussion Page 13

	- Second paragraph, please include where cellulitis ranks in terms of frequency/proportion among other conditions for hospital presentations and admissions. Page 14 -Line 15-18, please include references for these prevention strategies Line 30, suggest stating that there was a higher proportion of facial cellulitis presentations thar were hospitalised compared to presentations with cellulitis on other sites. To me, disproportionate also impies that admissions might be uneccesary when the are not. -Lines 57-60, can you also please discuss why Aboriginal children were more likely to be admitted compared to non Aboriginal? Would this be because of acuity of presentation/ remoteness of residence/ concerns of adherence? -Line 59, it is not clear which two groups are being refered to Page 15 -Lines 3-8 , the statement about the effect of HiB and S. pneumoniae vaccines needs references -Lines 21-26, I don't think the isolation of MRSA in the 3 recurrent cellulitis was mentioned in the results. Please include this information if it is discussed here. Page 16 -Lines 3-6, this statement reads ambiguously. Are the authors implying that clindamycin and bactrim be used as empiric oral therapy for cellulitis? If so, in which populations? -Lines 26-37, please include a statement about HITH services at PCH in the methods- that it is available, and if direct referral from ED is an option. Please also discuss why direct ED to HITH referrals did not happen often in this cohort. Page 17 -Line 15, do you mean objective? rather than non-objective/subjective Note- I referenced page numbers at the top of the page.

REVIEWER	Reviewer name: Dr. Rafael Llanes Institution and Country: Instituto de Medicina Tropical. Cuba Competing interests: None
REVIEW RETURNED	05-Jun-2021

GENERAL COMMENTS	It is a retrospective study that characterises the epidemiology, clinical features and treatment of paediatric patients presenting to a tertiary hospital in Western Australia, in 2018. Results In page 11, lines 54-57, the authors refered that most non-admitted patients received oral antibiotics only (93/96, 96.9%). However the revision of the table 2, page 22, lines 41-47 reveals that the true number of non-admitted patients is 95, instead of 93. Also the percentage of patients receiving amoxicillin-clavulanic acid is 10,4% instead of 1%. In page 12, lines 16-21, the authors mentioned that blood cultures were performed in 45.6% (94/206) of admitted cases with only two positive results: Cellulomonas species and coagulase negative Staphylococcus. However, in table 4, lines 39-40, only one blood culture was positive in such admitted patients. In page 13, lines 22-23, *Neisseria gonorrhoeae* was identified in culture of wound swab, which is an uncommon finding. That STIs

	bacterial pathogen usually produces urethritis, vaginitis, proctitis and pharyngitis in children, but also complications as pelvic inflammatory disease. The authors should clarify about such finding in paediatric patients with cellulitis. Discussion Page 22. Authors should number the figure as 1 and also to include its title. Page 14, lines 15-18, the authors should include references for these prevention strategies Page 14, lines 57-60, please clarify why Aboriginal children were more likely to be admitted to a tertiary hospitals in comparison to non Aboriginal ones? Please, see the following references: 1) Dossetor et al. Pediatric hospital admissions in Indigenous children: a population-based study in remote Australia. BMC Pediatrics (2017) 17:195 DOI 10.1186/s12887-017-0947-0. 2) Falster et al. Inequalities in pediatric avoidable hospitalizations between Aboriginal and non-Aboriginal children in Australia: a population data linkage study. BMC Pediatrics (2016) 16:169. DOI 10.1186/s12887-016-0706-7 Page 15, lines 3-4, the authors refer about the positive effect of vaccination against *Haemophilus influenzae* b and *Streptococcus pneumoniae* on reduction of periorbital cellulitis in children below 5 years. Please include the references that support such statement.

VERSION 1 – AUTHOR RESPONSE

Editor in Chief Comments to Author:
Title please change to " Cellulitis in Children : a retrospective single centre study from Australia"
Discussion 1st sentence delete "This is the first study". Journal style is to avoid stating this is the first study to. Similarly Discussion page 16 line 42 delete "However, being the first study to"
Table 5 delete % column - not needed for n=101 or n=10
Respond fully to the reviewers

Thank you for feedback, we have made all above suggested changes. Please see below the responses to reviewer comments.

Reviewer: 1
Dr. Kevin Lee
Comments to the Author:
The authors have presented a good paper evaluating the burden
of pediatric cellulitis. They highlight some important findings: that facial cellulitis required higher rates of admission and socioeconomic disparities in admission rates.

Thank you for your positive appraisal of our manuscript.

Please cite: Lee KC, Wu BW, Park E, Chuang SK, Koch A. What Is the Health Care

Burden of Treating Pediatric Dental Infections on an Inpatient Basis? J Oral Maxillofac Surg. 2020 Mar;78(3):343-349.

In this paper, we have excluded the cases of dental cellulitis to help refine the data presented for the clinician to just facial and limb cellulitis. We do have another dataset that will be published in coming months and will reference this important paper in the upcoming manuscript on dental cellulitis.

Reviewer: 2
Dr. Li Thean, Murdoch Childrens Research Institute
Comments to the Author:
This is a very valuable study describing the epidemiology of cellulitis and its management at a tertiary hospital in Western Australia. Information from this article can be broadly applied nationally and in high income countries. It also provides some baseline data prior to possible future health interventions such as a GAS vaccine.

Thank you for your acknowledging the importance of our research. We appreciate your review.

Abstract
- Please include the different time frames for data collection for hospitalised and non hospitalised presentations

Time frames for data collection have been added to the abstract for clarity.

- Lines 20-25, the percentages are a bit confusing. Is it 25% of total admissions had facial cellulitis? Might be better to state the percentage of facial cellulitis that were admitted compared to what percentage of presentations overall were admitted?

Yes, that is correct. These percentages represent the proportion of the admitted group with facial cellulitis (27.2%) vs the proportion of non-admitted patients with facial cellulitis (5.2%). We have reworded the sentence to better represent this. Unfortunately, because we only collected data for ED presentations for 6 months rather than the total year, we are unable to calculate the percentage of facial cellulitis presentations that were admitted to hospital.

- Line 33, can delete either % of MRSA or MSSA to be concise

The proportion and percentage of MRSA is now removed as MSSA is the greater proportion.

- Line 50, need clarification. Does it mean prevention of cellulitis? Which skin infections?

Yes, that is correct. Children with impetigo or scabies can develop a superimposed bacterial infection, leading to cellulitis surrounding the skin wound. The sentence has been edited to better reflect this.

Page 6
-Lines 3-8, Is there a reference available for data regarding ED presentations?

The number of ED presentations were reported in the Child and Adolescent Health Service Annual Report. We have now included this reference.

Page 8
-Line 6, were only cases with a primary condition of cellulitis included? Would patients who were admitted for other reasons but also had cellulitis that was treated been included in the study? May need clarification of this in the Methods. If they were not included, this would have to be discussed in the limitations as it is another reason that the burden described is underestimated.

Yes, that is correct. We only included patients with a primary diagnosis of cellulitis in the study to investigate the reasons why patients with cellulitis require admission to hospital. We have changed the methods to clarify this. We have also amended the limitations to explicitly state this.

- Lines 42-45, suggest using median age and IQR as data are not normally distributed.

Thank you for pointing this out. We have changed it to report median and IQR.

- Line 52, best to include this demographic information in the Methods section as it need referencing.

This information has been added to the Methods section.

-Lines 53-57, it would be great to have a p-value or confidence intervals to know if this was statistically significant.

We have now included p-value and confidence intervals, which confirm the statistical significance.

Page 10
-Lines 42-44, regimen meaning using both ceftriaxone and flucloxacillin or regimens with flucloxacillin being the most common followed by ceftriaxone?

The most common regimen in peri-orbital cellulitis is ceftriaxone and flucloxacillin concurrently. The wording has been changed for clarity.

Table 3
- Please also add a row for range of days oral and IV antibiotics were used for

This is indicated in row 6, labelled “Total duration of antibiotic therapy”.

Discussion

Page 13
- Second paragraph, please include where cellulitis ranks in terms of frequency/proportion among other conditions for hospital presentations and admissions.

Thank you for this suggestion, as this would be interesting information to know. Unfortunately, to our knowledge there is no published data ranking presentations to Perth Children's Hospital and we have not collected this in this study. However we have now included how cellulitis ranks in terms of paediatric presentation to Royal Darwin Hospital from Buntsma et al. In their study cellulitis was the 8th most common presentation.

Page 14
-Line 15-18, please include references for these prevention strategies

Apologies for missing this. We have now included references.

Line 30, suggest stating that there was a higher proportion of facial cellulitis presentations that were hospitalised compared to presentations with cellulitis on other sites. To me, disproportionate also implies that admissions might be unnecessary when the are not.

Thank you for drawing attention to this. We have now change this to read "children with facial cellulitis are more frequently hospitalised than children with cellulitis of other sites". We hope this now reflects that hospitalisation is more frequently required in this group due to the requirement for IV antibiotics and specialist review as supported by the literature.

-Lines 57-60, can you also please discuss why Aboriginal children were more likely to be admitted compared to non-Aboriginal? Would this be because of acuity of presentation/ remoteness of residence/ concerns of adherence?

Thank you for this comment. Previous literature has shown that Aboriginal children in Australia are more likely to be admitted for all health conditions compared to non-Aboriginal children. This difference in admission rate is even more pronounced in infectious diseases including skin infections. There are several reasons contributing to this disparity including poor access to healthcare, financial concerns and living in remote locations which result in later presentation to hospital and hence more severe illness. In addition, factors that contribute to the spread of infection such as overcrowded housing impact on the rate of skin infections. We have added this in the discussion as we agree it is an important point to address.

-Line 59, it is not clear which two groups are being referred to

The two groups we were referring to were (1) Aboriginal children and (2) children under 5. We have reworded this for clarity.

Page 15
-Lines 3-8 , the statement about the effect of HiB and S. pneumoniae vaccines needs references

Reference have been added to address this.

-Lines 21-26, I don't think the isolation of MRSA in the 3 recurrent cellulitis was mentioned in the results. Please include this information if it is discussed here.

Apologies, this has now been added to the final paragraph of the results section.

Page 16
-Lines 3-6, this statement reads ambiguously. Are the authors implying that clindamycin and bactrim be used as empiric oral therapy for cellulitis? If so, in which populations?

Apologies for the ambiguity. This recommendation comes from a recent systematic review which synthesised evidence supporting the use of these agents in uncomplicated SSTI in the outpatient setting. Particularly for purulent cellulitis and impetigo. Whilst B-lactam agents remain the treatment of choice for non-purulent cellulitis, in the context of increasing rates of MRSA these agents could be considered.

-Lines 26-37, please include a statement about HITH services at PCH in the methods- that it is available, and if direct referral from ED is an option. Please also discuss why direct ED to HITH referrals did not happen often in this cohort.

Statement now included in the methods, describing the HITH service.

Page 17
-Line 15, do you mean objective? rather than non-objective/subjective

Yes, that's correct. Thank you for recognising this error.

Reviewer: 3
Dr. Eirini Koutoumanou, University College London
Comments to the Author:
This paper sets out to explore several aspects of cellulitis in children presenting to hospital in Western Australia. The sample studied is split amongst children admitted to hospital and not and their various demographics, possible causes, location, management, outcomes and investigations with regards to cellulitis.

Thank you for your review of our research. We appreciate your comments for improvement.

This manuscript is titled as "BRiCK: an analysis of the burden and response in cellulitis in kids", but actually the term BRiCK does not feature anywhere in the paper except the title. It would be more coherent to have further reference to this acronym throughout the paper.

The title has now been changed in line with recommendations from the editor.

The authors close the introduction section with their aims, one of which is to describe adherence to guidelines for cellulitis – I am unclear as to whether this last aim has been met. If it has, it should be emphasised more in the results and discussion

section (or please direct me to the paragraphs this is already done as I was not able to identify it).

This is in reference to the antibiotic guidelines and is addressed in detail in paragraph 6 of the discussion. I have changed the sentence in the introduction to more clearly state that aim is referring to adherence to antibiotic guidelines.

Following on from the above comment, I am also unclear as to how the following statement actually holds true: “Adherence to treatment duration was assessed against the IV to oral switch guidelines.”. Could the authors please add more details about this?

Similarly to the previous comment, this is addressed in paragraph 6 of the discussion, which outlines the median duration of IV antibiotics and oral antibiotics and compares this to the recent recommendations by McMullan et al.

The way Figure 1 has been put together does not match closely with what’s written at the start of the results section with regards to changes in sample size, i.e. the final numbers are correct but there are additional numbers on the table that are not mentioned in the text. I recommend that the authors simply state that more details on exclusion reasons are presented in Table 1, but also refer in the main text to the original sample size of the two main groups, 311 and 556.

Thank you for pointing this out. We have taken your suggestion and edited the text as recommended.

Several statistical significance tests have been performed, but the p-values of only very few comparisons are presented in the text. No p-values are presented in any of the tables, which does not help with transparency. Additionally, no confidence intervals are reported which is a major flaw. For at least the clinical and statistically significant comparisons (if not all, which would be the ideal), 95% or 99% confidence intervals should be presented to give a measure of the precision of the differences observed.

Thank you for this feedback. We have ensured that there are now p-values for all statistical tests mentioned in the methods and are now presented in the tables. We have gone through the manuscript and added in confidence intervals where appropriate.

Also, the authors seem to swap between reporting in the main text of the paper estimates for the entire study group and the admitted/non-admitted subgroups. I found that confusing when matching the text with the tables and I would recommend that there is a clearer distinction of the reporting of the results for the entire group vs when comparisons between the admitted/non-admitted groups are done.

To make it clearer we have redone the tables, adding additional tables to illustrate what tests were done on what groups. Table 2 and Table 3 demonstrate where we have compared the total study population to the WA population. Tables 4,5,7 and 8 compare the two groups. The p-values have now been included in the tables to demonstrate where statistic tests have been performed. We hope this makes it

clearer.

I was not able to identify the evidence to back the following statements, therefore I recommend that these are either rephrased or corrected:
- “children under five years … are disproportionately affected by cellulitis” – is this true? Of the under 5s, nearly identical proportion of children were in the admitted and non-admitted groups, 48.5 vs 48.9 Table 1 – could you please clarify? Apologies if I have misunderstood.

This statement is referring to the finding that children under five years make up a greater proportion of the total study population, therefore more over-represented compared to other age groups. We have added in a table (Table 2) to demonstrate that the proportion of younger children in our study group is statistically different to the WA population.

- “We confirm that paediatric cellulitis accounts for a significant burden on the hospital system.” – I feel that this is a bit of an overstatement based on the data shown in this manuscript, but I feel I might not be the best judge of that considering I do not come from a clinical background. But flagging it up for the editor’s opinion.

We found that cellulitis accounted for 1.1% of all presentations to the hospital in that year. This is a larger proportion than expected when one considers that cellulitis can often be managed as an outpatient. It was not thought to be a key driver of paediatric admissions when we started this study, and to find 1 in every 100 admissions is due to cellulitis does have a more significant impact on the hospital system than expected.

- Finally, even though the authors have made several references to a future GAS vaccine throughout the paper, I do not think it’s fitting to close the paper with such comment, as this was not the aim of the paper.

This is a useful insight. Recent literature has presented cellulitis as the major contributor to GAS burden across the life-course and used ICD-10 coded data to determine this. (Cannon JW, Jack S, Wu Y *et al.* An economic case for a vaccine to prevent group A streptococcus skin infections. *Vaccine*. 2018;**36**(46):6968-6978). This has predominantly been for adults. A key driver for our research was to better understand the burden of cellulitis for children, whether the ICD-10 codes are accurate and hence inform the need for a GAS vaccine for cellulitis. This is why we chose to close the paper in this context. However, we take on board these concerns, and have modified the conclusions accordingly.

Minor
- In the very first paragraph of the paper, I recommend editing the “…due to…” to something along the lines of “…caused by…” or similar.

This has been modified accordingly.

- Explain what IV stands for at the end of the Methods section (it is already included in the abstract)
Abbreviation introduced with parenthesis.

- For better clarify I recommend that the following phrase “Eleven (3.6%) children re-presented within the study period: 3 children…” is slightly edited to read as: “Eleven (3.6%) children re-presented with cellutitis…”, or similar

Thank you for this suggestion. Edited accordingly.

- Instead of mean and sd for age in the text, could the authors please use median and IQR as looking at the mean and sd values, it is obvious that age was not symmetrically distributed. In the abstract, median and IQR age are presented instead of mean/sd in the paper which is an inconsistency that needaddressing either way.

Thank you for pointing this out. We have changed the reporting as suggested.

- Similarly, the mean and SD white blood cell counts and C-Reactive protein should be replaced by median and IQR

This has now been amended.

- “Extremities are the hands and feet including digits.” – by digits, do the authors mean fingers/toes?

Yes, we have changed it to “fingers and toes” to avoid confusion.

- At the end of the results paragraph, the figures about the ceftriaxone and flucloxacillin counts do not match the Table 3 values. In the text, it is reported that 38 out of 46 were given these antibiotics, but in the table is 41+41=82.

The value 38/46 is referring to the number of patients who received ceftriaxone and flucloxacillin in combination, whereas in the table the values represent the total number of patients that received each antibiotic.

- The % of those receiving oral antibiotics is said to be 96 in the text, but in Table S2, the oral antibiotics section adds up to 95

Apologies, we have corrected this accordingly.

Reviewer: 4
Dr. Rafael Llanes
Comments to the Author:
It is a retrospective study that characterises the epidemiology, clinical features and treatment of paediatric patients presenting to a tertiary hospital in Western Australia, in 2018.

Thank you for your review of our research. We appreciate your comments and suggestions for improvement.

Results

In page 11, lines 54-57, the authors referred that most non-admitted patients

received oral antibiotics only (93/96, 96.9%). However the revision of the table 2, page 22, lines 41-47 reveals that the true number of non-admitted patients is 95, instead of 93. Also the percentage of patients receiving amoxicillin-clavulanic acid is 10,4% instead of 1%.

Thank you for pointing this out. We have now edited accordingly.

In page 12, lines 16-21, the authors mentioned that blood cultures were performed in 45.6% (94/206) of admitted cases with only two positive results: Cellulomonas species and coagulase negative Staphylococcus. However, in table 4, lines 39-40, only one blood culture was positive in such admitted patients.

Apologies, this result was included in error. Our original report included patients with odontogenic cellulitis, and this is a result from one of the patients that has since been excluded.

In page 13, lines 22-23, *Neisseria gonorrhoeae* was identified in culture of wound swab, which is an uncommon finding. That STIs bacterial pathogen usually produces urethritis, vaginitis, proctitis and pharyngitis in children, but also complications as pelvic inflammatory disease. The authors should clarify about such finding in paediatric patients with cellulitis.

We agree with the reviewer's comments. Due to the sensitive nature of reporting this pathogen in association with child protection concerns, and the request for more specific details about this pathogen in childhood, we have elected to remove this from the manuscript. It is unlikely that this clinical scenario would commonly occur in childhood, and as such we have removed this. It would be too identifying of the case in question as it was one child with N. gonorrhoeae identified on two occasions for this to be included and as such this data has been removed.

Discussion

Page 22. Authors should number the figure as 1 and also to include its title.

We have ensured all tables and figures numbered and labelled.

Page 14, lines 15-18, the authors should include references for these prevention strategies

Thank you for this comment. This was also pointed out by Reviewer 2 and has been addressed accordingly.

Page 14, lines 57-60, please clarify why Aboriginal children were more likely to be admitted to a tertiary hospital in comparison to non-Aboriginal ones?
Please, see the following references:

1) Dossetor et al. Pediatric hospital admissions in Indigenous children: a population-based study in remote Australia. BMC Pediatrics (2017) 17:195
DOI 10.1186/s12887-017-0947-0.

2) Falster et al. Inequalities in pediatric avoidable hospitalizations between Aboriginal and non-Aboriginal children in Australia: a population data linkage study. BMC Pediatrics (2016) 16:169. DOI 10.1186/s12887-016-0706-7

Thank you for this comment. This is an important point to discuss as well outlined in the articles you referenced. We have amended the discussion to reflect this,

Page 15, lines 3-4, the authors refer about the positive effect of vaccination against *Haemophilus influenzae* B and *Streptococcus pneumoniae* on reduction of periorbital cellulitis in children below 5 years. Please include the references that support such statement.

Thank you for pointing this out. This was also raised by Reviewer 2 and has been addressed accordingly.