PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Screening and assessment tools for early detection of malnutrition in hospitalized children: a systematic review of validation studies
AUTHORS	Klanjsek, Petra; Pajnkihar, Majda; Marcun Varda, Natasa; Povalej Brzan, Petra

VERSION 1 - REVIEW

REVIEWER	Andrew Day UOC, New Zealand
REVIEW RETURNED	09-Aug-2018

GENERAL COMMENTS	This report provides a systematic analysis of the performances of nutritional risk screening tools in children. Specific Comments 1. Most sections of the manuscript (esp. Discussion) could be shortened extensively. This would improve readability 2. The ABSTRACT is adequate. The comment about submission to a peer-review journal is not required. The term in the conclusion should be gold standard. 3. It would be optimal to revise the INTRODUCTION. The first paragraph is just one sentence: a subsequent paragraph is extremely long. Revision with formatting would enhance readability. 4. The OBJECTIVE is separate - is this as per the journal requirements 5. The first part of the METHODS lacks a subheading 6. The RESULTS is long and comprehensive 7. There are several errors with the References that all need correction 8. There are numerous errors of English language (word usage, grammar etc) in all sections of the manuscript. These should be corrected.

REVIEWER	Philippa C Thomas Southampton Children's Hospital and University Hospital Southampton NHS Foundation Trust, Southampton, UK
REVIEW RETURNED	21-Sep-2018

GENERAL COMMENTS	Thank you for the opportunity to review this systematic review of validation studies of paediatric nutritional screening and assessment tools. This review highlights the heterogeneity of both

the tools available and the studies in which they are validated and the challenges which result from this.

As discussed by the authors a meta-analysis is not appropriate given the heterogeneity of the studies available however they have performed a thorough review of the current literature using an appropriate framework (PRISMA). They have clearly defined, and appropriate, research questions and the QUADAS-2 tool has been used appropriately to assess the methodological quality of the studies reviewed.

The authors report on 8 validated screening tools and 3 assessment tools and although a further 6 tools were identified these were excluded from analysis as inclusion criteria was not met, due to validation data that was not reported. They go on to highlight the significant exclusion criteria of each tools, again emphasising the difficulties in comparing the tools within the clinical context. This is then further emphasised in the characteristics of the studies included within the review where the exclusion criteria varied as did the reference standard used.

The authors have made a good attempt in evaluating the tools available however I feel there is some confusion in the ordering of the results and discussion and some specific areas which need clarifying when discussing the specificity and sensitivity of the tools and I have elaborated on this below.

The authors comment on other reviews available in the literature and it is important that it is not overlooked that the results of these compared to this review do vary, however this review includes more tools for both the general paediatric population together with neonates / specific conditions.

The authors conclude, in agreement to previous literature, that without a gold standard for reference values it is very difficult to compare tools currently available and validate these within clinical practice. Overall although this review does not report a new conclusion it adds to the consensus that the current methodology for assessing paediatric patients nutritional risk needs to be revised.

General comments:
Throughout the paper, particularly within the introduction, there are a number of grammatical errors and sentence structures which need to be addressed. There is also duplication of a sentence on page 5 within the search strategy and a typo page 9; 'The sample sizes varied from 32 to 14.477 participants.'

I also have concerns with regards to the referencing as the references within the text do not appear to correlate with the references of each study in the Tables 3 & 4 and this needs to be resolved prior to publication.

There are a number of abbreviations used throughout the paper including both reference values and tools and I feel that a table of abbreviations would be helpful for the reader.

Specific points:
Abstract:
The abstract is appropriate however the authors should clarify the results section. This is inaccurate; "Twenty-six studies that met the inclusion criteria only 11 of 14 screening and three assessment tools were included." 26 studies met the criteria and were included in the review and within these studies 8 screening tools and 3 assessment tools were identified. As discussed below the authors should ensure that when discussing studies which have a good

performance they are in fact referring to particular tools within 3 studies.

Introduction:

The aim should be clarified with regards to the tools ability to predict the risk of malnutrition given that the review looks at the validity of the tools vs. the reference standards set by the authors of each original data rather than a consensus gold standard.

Methods:

Within the discussion the authors acknowledge that 9 studies did not report sensitivity, specificity, PPV and NPV and these calculations have subsequently been performed by the authors and go on to form the basis of their results when discussing the validity of the studies and the tools being assessed. I think it is therefore important that this is highlighted within the method so the readers are aware of this prior to reading the results as although this is marked by an asterisk within Table 4 it is not as apparent to the reader as perhaps it should be.

Results:

Given that there is no clearly defined reference standard and some studies use another tool as a reference standard the authors should be careful in their interpretation of the results in particular in relation to sensitivity and specificity. I would suggest that the authors discuss each screening tool / assessment tool individually and then pull general conclusions to end the section on "evaluation of the paediatric nutritional screening tools". This will also ensure that the difference between the screening tools and full nutritional assessments can be highlighted.

The authors should also ensure that the do not misrepresent a good performance of a study. The authors state "When the combination of sensitivity and specificity is considered, as defined in Table 2, only three of the selected studies by Souza Dos Santos et al. (39), Chourdakis et al. (62) and Galera-Martinez et al. (60) showed good performance (Se=85%, Sp=95.2%; Se=90.91%, Sp=81.97% and Se=87.5%, Sp=82.79% respectively)." However, on analysis of the data further other than the study by Souza Dos Santos et al. the sensitivity and specificity calculations have been performed by the authors of this review rather than the original researchers and it is only specific tools in relation to specific reference standards, all of which vary, that have a "good performance" rather than the entire study itself.

Discussion and Conclusions:

As with the results section it may provide more clarity if this was subdivided further into each tool or each reference standard used, this will however depend on how the authors divide the results.

Recommendations:

Overall this is good review of a complex topic given the heterogeneity of the studies / populations included. It would be strengthened by clarification of the points raised above together with separation of the analysis in a more succinct format.

REVIEWER	Valerie B. Duffy
	Department of Allied Health Sciences, University of Connecticut, USA
REVIEW RETURNED	17-Nov-2018

| GENERAL COMMENTS | This manuscript describes a systematic review of tools that are used to screen for malnutrition or risk of malnutrition of children in a hospitalized setting. The review represents a thorough examination of the available tools and grading against standardized metrics of quality and validity.

However, a number of points need to be addressed in the reporting and implications of the results.

1) The abstract needs to be rewritten to provide summary information. There is quite a bit of jargon, abbreviations and vague language, which makes understanding the main findings very challenging.
2) The strengths and limitations need clarification on the limitations.
3) The term, dietetic assessment, was used throughout the manuscript and was never defined or clarified. This includes full dietetic assessment versus dietetic assessment versus full nutritional assessment.
4) The authors should use the same terminology for clarity. For example, what is the difference between "reference standard" and "gold standard"?
5) The manuscript needs a thorough copying editing for standard grammar, usage and typos (e.g., consistent use of articles, commas, typos, repeated words, etc.). This reviewer will not provide copy editing of the submitting manuscript.
6) Please evaluate what information is put in tables versus text versus supplemental information. For example, the text could easily accommodate the information presented in Table 1 to allow Figure 1 of the supplemental files to be included in the main text.
7) Provide context for the kappa statistic (coefficient) on the top of page 6 by providing out of XX number of studies.
8) Please provide more information on the key domains of the QUADAS-2. The text could allow for a brief description of patient selection, index test, reference standard as well as flow and timing.
9) There is inconsistent use of definition of the abbreviations. Please correct.
10) There is repeating of information shown in the tables and repeating in the text. The information should not be repeated. The text should highlight the main findings or the interpretation. This is especially true of the information provided in Table 3 and regurgitation in the text.
11) Referring to a study by the authors names is unnecessary. Instead a better method would be to describe a quantitative feature about the study (e.g., patient population) or just the number citation.
12) The summary on page 22 of who in the health care team should perform the nutritional screening is completely not justified. There was no evidence presented that should come to this conclusion and the authors provide weak justification for the case of nurses to perform the screening. This needs to be deleted.
13) The authors should make a recommendation on the best screening tool(s) of that evaluated along with the plea that more research is needed. This should be in the discussion and abstract. Otherwise, the reader is left with the question of why the systematic review is needed. |

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Andrew Day

Institution and Country: UOC, New Zealand

Specific Comments

• Most sections of the manuscript (esp. Discussion) could be shortened extensively. This would improve readability

Our reply: We thank the Reviewer for this comment. We have now shortened all of the sections.

• The ABSTRACT is adequate. The comment about submission to a peer-review journal is not required. The term in the conclusion should be gold standard.

Our reply: We have revised the Abstract as recommended by the Reviewers and Editors.

• It would be optimal to revise the INTRODUCTION. The first paragraph is just one sentence: a subsequent paragraph is extremely long. Revision with formatting would enhance readability.

Our reply: The Introduction section has been revised according to the comments of all of the Reviewers and Editors, which should also have been helped by the full English editing for grammar and clarity by our Mother-tongue scientific English editor.

• The OBJECTIVE is separate - is this as per the journal requirements

Our reply: We have combined the description of the objectives of the study with the Introduction.

• The first part of the METHODS lacks a subheading

Our reply: We thank the Reviewer for this comment. The subheading has now been included in the Methods section.

• The RESULTS is long and comprehensive

Our reply: The Results section has now been shortened according to the Reviewers' comments.

• There are several errors with the References that all need correction

Our reply: We thank the Reviewer for this observation. We have checked things through fully now and corrected the references throughout the revised manuscript.

• There are numerous errors of English language (word usage, grammar etc) in all sections of the manuscript. These should be corrected.

Our reply: Apologies. The fully revised manuscript has now also been edited by a Mother-tongue scientific English editor, so we believe that these problems should now be sorted.

Reviewer: 2

Reviewer Name: Philippa C Thomas

Institution and Country: Southampton Children's Hospital and University Hospital Southampton NHS Foundation Trust, Southampton, UK

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below

Thank you for the opportunity to review this systematic review of validation studies of paediatric nutritional screening and assessment tools. This review highlights the heterogeneity of both the tools available and the studies in which they are validated and the challenges which result from this.

As discussed by the authors a meta-analysis is not appropriate given the heterogeneity of the studies available however they have performed a thorough review of the current literature using an appropriate framework (PRISMA). They have clearly defined, and appropriate, research questions and the QUADAS-2 tool has been used appropriately to assess the methodological quality of the studies reviewed.

The authors report on 8 validated screening tools and 3 assessment tools and although a further 6 tools were identified these were excluded from analysis as inclusion criteria was not met, due to validation data that was not reported. They go on to highlight the significant exclusion criteria of each tools, again emphasising the difficulties in comparing the tools within the clinical context. This is then further emphasised in the characteristics of the studies included within the review where the exclusion criteria varied as did the reference standard used.

The authors have made a good attempt in evaluating the tools available however I feel there is some confusion in the ordering of the results and discussion and some specific areas which need clarifying when discussing the specificity and sensitivity of the tools and I have elaborated on this below.

The authors comment on other reviews available in the literature and it is important that it is not overlooked that the results of these compared to this review do vary, however this review includes more tools for both the general paediatric population together with neonates / specific conditions.

The authors conclude, in agreement to previous literature, that without a gold standard for reference values it is very difficult to compare tools currently available and validate these within clinical practice. Overall although this review does not report a new conclusion it adds to the consensus that the current methodology for assessing paediatric patients nutritional risk needs to be revised.

General comments:

• Throughout the paper, particularly within the introduction, there are a number of grammatical errors and sentence structures which need to be addressed. There is also duplication of a sentence on page 5 within the search strategy and a typo page 9; 'The sample sizes varied from 32 to 14.477 participants.'

Our reply: We thank the Reviewer for this observation. We corrected the mistakes, and the fully revised manuscript has also been edited by a Mother-tongue scientific English editor, so we believe that these problems should now be sorted.

• I also have concerns with regards to the referencing as the references within the text do not appear to correlate with the references of each study in the Tables 3 & 4 and this needs to be resolved prior to publication.

Our reply: Apologies. We thank the Reviewer for this comment. We have been through the fully revised manuscript and believe that we have now corrected these mistakes.

• There are a number of abbreviations used throughout the paper including both reference values and tools and I feel that a table of abbreviations would be helpful for the reader.

Our reply: Indeed, we can agree with the Reviewer on this comment. We have now added the following list of abbreviations after the Abstract:

LIST OF ABBREVIATIONS

Expressions of validity

k   kappa

NPV   negative predictive value

PPV   positive predictive value

Se   sensitivity

Sp   specificity

Reference standards

ASPEN American Society for Parenteral and Enteral Nutrition

CDC   Centers for Disease Control and Prevention

CFF   Cystic Fibrosis Foundation

NCHS National Center for Health Statistics

WHO   World Health Organization

Screening tools

CANS Clinical Assessment of Nutritional Status

ICD   International Statistical Classification of Diseases and Related Health Problems

NNST Neonatal Nutrition Screening Tool

NRS   Nutrition Risk Score

PeDiSMART   Pediatric Digital Scaled Malnutrition Risk Screening Tool

PNST Pediatric Nutrition Screening Tool

PYMS Pediatric Yorkhill Malnutrition Score

SANSI St Andrew´s Nutrition Screening Instrument

SCAN Nutrition Screening Tool for Childhood Cancer

SGA   Subjective Global Assessment

SGNA Subjective Global Nutritional Assessment

SPNRS Simple Pediatric Nutrition Risk Score

STAMP Screening Tool for the Assessment of Malnutrition in Pediatrics

STRONGkids Screening Tool for Risk on Nutritional Status and Growth

Expressions of anthropometric measurements

BMI body mass index

HFA height for age

MAC mid-arm circumference

MAMC mid-arm muscle circumference

MUAC mid-upper arm circumference

TSFT triceps skinfold thickens

WFA weight for age

WFH weight for height

Others

IBD irritable bowel disease

LOS length of hospital stay

PRISMA Preferred Reporting Items for Systematic Reviews and Meta-Analyses

SCI spinal cord injury

SD standard deviation

Specific points:

Abstract:

• The abstract is appropriate however the authors should clarify the results section. This is inaccurate; "Twenty-six studies that met the inclusion criteria only 11 of 14 screening and three assessment tools were included." 26 studies met the criteria and were included in the review and within these studies 8 screening tools and 3 assessment tools were identified. As discussed below the authors should ensure that when discussing studies which have a good performance they are in fact referring to particular tools within 3 studies.

Our reply: We thank the Reviewer for this comment. The sentences here have been modified as follows: "The 26 validation studies that met the inclusion criteria for this systematic review used eight screening and three assessment tools."

According to the comments of Reviewer 2, we have rewritten the Results section in the Abstract and excluded the referred studies.

Introduction:

• The aim should be clarified with regards to the tools ability to predict the risk of malnutrition given that the review looks at the validity of the tools vs. the reference standards set by the authors of each original data rather than a consensus gold standard.

Our reply: According to these suggestions, we have now clarified the aim of the study in the Abstract and in the last paragraph of the Introduction, as follows:

"The aim of the present study was to systematically review the available publications on the screening and/or assessment tools for hospitalized children, with a focus on the ability of these tools to predict the risk or presence of malnutrition, in order to identify the most useful tool for use in the clinical environment."

Methods:

• Within the discussion the authors acknowledge that 9 studies did not report sensitivity, specificity, PPV and NPV and these calculations have subsequently been performed by the authors and go on to form the basis of their results when discussing the validity of the studies and the tools being assessed. I think it is therefore important that this is highlighted within the method so the readers are aware of this prior to reading the results as although this is marked by an asterisk within Table 4 it is not as apparent to the reader as perhaps it should be.

Our reply: We can agree with the Reviewer's comment here, and we have now included the following clarification in the Methods Data extraction and synthesis section:

"Studies that did not report sensitivity, specificity, PPV and/or NPV, but that provided the data that enabled calculation of these values, were also included in the study. These metrics were subsequently calculated manually by the authors, and are indicated as such in the results Tables."

Results:

• Given that there is no clearly defined reference standard and some studies use another tool as a reference standard the authors should be careful in their interpretation of the results in particular in relation to sensitivity and specificity. I would suggest that the authors discuss each screening tool / assessment tool individually and then pull general conclusions to end the section on "evaluation of the paediatric nutritional screening tools". This will also ensure that the difference between the screening tools and full nutritional assessments can be highlighted.

Our reply: We acknowledge the Reviewer's comment here. We have now focused on each screening/ assessment tool where possible. However, we believe that in the studies that validate more than one tool on the same cohort of patients, the additional comparison of the results is extremely useful.

• The authors should also ensure that the do not misrepresent a good performance of a study. The authors state "When the combination of sensitivity and specificity is considered, as defined in Table 2, only three of the selected studies by Souza Dos Santos et al. (39), Chourdakis et al. (62) and Galera-Martinez et al. (60) showed good performance (Se=85%, Sp=95.2%; Se=90.91%, Sp=81.97% and Se=87.5%, Sp=82.79% respectively)." However, on analysis of the data further other than the study by Souza Dos Santos et al. the sensitivity and specificity calculations have been performed by the authors of this review rather than the original researchers and it is only specific tools in relation to specific reference standards, all of which vary, that have a "good performance" rather than the entire study itself.

Our reply: We thank the Reviewer for this observation. We have rewritten the Results section according to the Editors' and Reviewers' comments.

In several other systematic reviews (especially the ones that include meta-analysis) like Huysentruyt K, Devreker T, Dejonckheere J, et al. Accuracy of nutritional screening tools in assessing the risk of undernutrition in hospitalized children. Journal of Pediatric Gastroenterology and Nutrition 2015;61:159–66.doi:10.1097/mpg.0000000000000810, the missing data are calculated by the authors of the systematic review when the raw data is presented in the study.

If we did not calculate the values of the evaluation metrics for the studies that did not report them (but provided the data), we would have to exclude all of those studies from our review. Consequently, the power of this review would be considerably reduced.

We have additionally emphasized in the Methods section that the evaluation metrics in the studies that provided the data for calculation were manually calculated. We have also added the following explanation:

"The studies which did not report sensitivity, specificity, PPV and/or NPV value, but provided the data that enabled the calculation of those values, were also included in the study. These metrics have subsequently been calculated manually by the authors and are marked in the results table."

Discussion and Conclusions:

• As with the results section it may provide more clarity if this was subdivided further into each tool or each reference standard used, this will however depend on how the authors divide the results.

Our reply: The Discussion section has been revised according to the comments provided by the Editors and all of the Reviewers.

Recommendations:

• Overall this is good review of a complex topic given the heterogeneity of the studies / populations included. It would be strengthened by clarification of the points raised above together with separation of the analysis in a more succinct format.

Our reply: We would like to thank the Reviewer for all of these useful observations and comments. We believe that they are now all considerably improved, along with the quality and readability of the manuscript.

Reviewer: 3

Reviewer Name: Valerie B. Duffy

Institution and Country: Department of Allied Health Sciences, University of Connecticut, USA

Please state any competing interests or state 'None declared': None

Please leave your comments for the authors below

This manuscript describes a systematic review of tools that are used to screen for malnutrition or risk of malnutrition of children in a hospitalized setting. The review represents a thorough examination of the available tools and grading against standardized metrics of quality and validity.

However, a number of points need to be addressed in the reporting and implications of the results.

• The abstract needs to be rewritten to provide summary information. There is quite a bit of jargon, abbreviations and vague language, which makes understanding the main findings very challenging.

Our reply: The Abstract has been rewritten according to the comments of all of the Reviewers and Editors. The fully revised manuscript has also been edited by a Mother-tongue scientific English editor, so we believe that these problems should now be sorted.

• The strengths and limitations need clarification on the limitations.

Our reply: The Strengths and limitations have been rewritten according to the comments of all of the Reviewers and Editors.

• The term, dietetic assessment, was used throughout the manuscript and was never defined or clarified. This includes full dietetic assessment versus dietetic assessment versus full nutritional assessment.

Our reply: We agree with the Reviewer's comments here, and therefore we have now included the following clarification in the Introduction:

"Dietetic/ nutritional assessment is the systematic process of collecting and interpreting information to make decisions on the nature and causes of nutrition-related health issues that affect an individual. Full nutritional assessments also include biochemical parameters (24). However, dietetic/ nutritional assessments vary across different countries due to differences in educational standards (3)."

• The authors should use the same terminology for clarity. For example, what is the difference between "reference standard" and "gold standard"?

Our reply: We thank the Reviewer for this comment. The terms gold standard and reference standard are now clarified in the Introduction.

• The manuscript needs a thorough copying editing for standard grammar, usage and typos (e.g., consistent use of articles, commas, typos, repeated words, etc.). This reviewer will not provide copy editing of the submitting manuscript.

Our reply: Apologies. The fully revised manuscript has now also been edited for grammar, clarity and structure by a Mother-tongue scientific English editor, so we believe that these problems should now be sorted.

• Please evaluate what information is put in tables versus text versus supplemental information. For example, the text could easily accommodate the information presented in Table 1 to allow Figure 1 of the supplemental files to be included in the main text.

Our reply: Figure 1 has now been included in the main text. The basic information about the inclusion criteria is now included in the text, and the previous Table 1 has been moved to the Supplementary Materials (Supplementary File 5).

• Provide context for the kappa statistic (coefficient) on the top of page 6 by providing out of XX number of studies.

Our reply: We thank the Reviewer for this useful comment. The number of studies has been added to the text.

• Please provide more information on the key domains of the QUADAS-2. The text could allow for a brief description of patient selection, index test, reference standard as well as flow and timing.

Our reply: The following description of the key domains has now been included in the Methods Quality appraisal section:

"The QUADAS-2 tool used four key domains to rate the risk of bias and the applicability of primary diagnostic accuracy studies. The key domains were: patient selection (sampling, inclusion/ exclusion criteria, sampling bias, adequacy), index tests (the validated tool, correct use and interpretation, possible bias), reference standards (the reference tool, correct use and interpretation, possible bias) and the flow and timing (the sequence, time interval, correct performance of reference standard and index test, possible bias). The results from QUADAS-2 can be expressed as high/ unclear/ low risk of bias and as high/ unclear/ low applicability concerns."

• There is inconsistent use of definition of the abbreviations. Please correct.

Our reply: We agree with the Reviewer's comment here. We have now corrected the inconsistencies and added a list of abbreviations to the manuscript.

• There is repeating of information shown in the tables and repeating in the text. The information should not be repeated. The text should highlight the main findings or the interpretation. This is especially true of the information provided in Table 3 and regurgitation in the text.

Our reply: We thank the Reviewer for this comment. We have now considerably shortened the text in Results section that describes the information in the Tables.

• Referring to a study by the authors names is unnecessary. Instead a better method would be to describe a quantitative feature about the study (e.g., patient population) or just the number citation.

Our reply: We thank the Reviewer for this comment. We have corrected the references in the text where possible.

• The summary on page 22 of who in the health care team should perform the nutritional screening is completely not justified. There was no evidence presented that should come to this conclusion and the authors provide weak justification for the case of nurses to perform the screening. This needs to be deleted.

Our reply: We have followed the Reviewer's comment here, and have excluded this sentence from the Summary.

• The authors should make a recommendation on the best screening tool(s) of that evaluated along with the plea that more research is needed. This should be in the discussion and abstract. Otherwise, the reader is left with the question of why the systematic review is needed.

Our reply: Indeed, we thank the Reviewer for this comment. We have now included the recommendations in the Abstract and Conclusions. The Discussion has also been modified.

VERSION 2 – REVIEW

REVIEWER	ANDREW DAY
	University of Otago, New Zealand
REVIEW RETURNED	14-Jan-2019

GENERAL COMMENTS	This MS has been improved with attention to the comments from editors and reviewers.
	Specific Comments
	1. Please review reference details carefully. There is at least one error (reference 68) to be corrected

	2. Some sections of the MS could still be reduced in length if required

REVIEWER	Philippa C Thomas
	Southampton Children's Hospital and University Hospital
	Southampton NHS Foundation Trust, Southampton, UK
REVIEW RETURNED	09-Feb-2019

GENERAL COMMENTS	Thank you for the opportunity to review the revised manuscript of this systematic review of validation studies of paediatric nutritional screening and assessment tools. The authors have demonstrated that they have revised the article in line with the recommendations and should be commended for this.
	There are still a number of grammatical / spelling errors despite the editing by an English-speaking editor for example "chronical conditions" should be "chronic" in the abstract and "WHF" used instead of "WFH" in the body of the text. A further spelling and grammar edit should take place and this reviewer will not provide this.
	I thank the authors for clarifying where they have extrapolated data to calculate sensitivity, specificity, PPV and/or NPV when it has not been reported in the original articles.
	The evaluation of paediatric nutritional screening tools within the results section has been shorted considerably which has improved the readability and the use of Table 2 and 3 is helpful for the reader to compare studies. The authors have rated the validity of each screening or assessment tools as good, fair or poor as part of the evaluation and therefore a short statement with regard to this in the results would be beneficial as this is then discussed in more detail within the discussion.
	Overall I feel this revision of the manuscript has helped the readability and a few minor changes will enable this to be published.

REVIEWER	Valerie B. Duffy
	Allied Health Sciences, University of Connecticut U.S.A.
REVIEW RETURNED	21-Jan-2019

GENERAL COMMENTS	The manuscript is much improved and the authors have addressed the reviewer comments. I would recommend removing the word "urgent" in the statement in the abstract and overall conclusion of study. Please check the manuscript for spelling errors (specialties; need capital—Malnutrition Risk screening Tool; considerd the TSFT and MAMC on admission)
	This systematic review identifies the urgent need for definition of the gold
	standard for validation of screening tools.

VERSION 2 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: ANDREW DAY

Institution and Country: University of Otago, New Zealand

This MS has been improved with attention to the comments from editors and reviewers.

Specific Comments

1. Please review reference details carefully. There is at least one error (reference 68) to be corrected

We thank the reviewer for this important observation and apologize for our mistake! We corrected the reference #68 and checked all others.

2. Some sections of the MS could still be reduced in length if required

Due to clarity reasons we did not further reduce the length of this manuscript.

Reviewer: 3

Reviewer Name: Valerie B. Duffy

Institution and Country: Allied Health Sciences, University of Connecticut, U.S.A.

Please leave your comments for the authors below

The manuscript is much improved and the authors have addressed the reviewer comments. I would recommend removing the word "urgent" in the statement in the abstract and overall conclusion of study. Please check the manuscript for spelling errors (specialties; need capital—Malnutrition Risk screening Tool; considerd the TSFT and MAMC on admission)

We thank the reviewer for the useful comments. We apologize for spelling mistakes. We corrected them all. We also removed the word "urgent" as suggested.

This systematic review identifies the urgent need for definition of the gold standard for validation of screening tools.

Reviewer: 2

Reviewer Name: Philippa C Thomas

Institution and Country: Southampton Children's Hospital and University Hospital, Southampton NHS Foundation Trust, Southampton, UK

Please leave your comments for the authors below

Thank you for the opportunity to review the revised manuscript of this systematic review of validation studies of paediatric nutritional screening and assessment tools. The authors have demonstrated that they have revised the article in line with the recommendations and should be commended for this.

There are still a number of grammatical / spelling errors despite the editing by an English-speaking editor for example "chronical conditions" should be "chronic" in the abstract and "WHF" used instead of "WFH" in the body of the text. A further spelling and grammar edit should take place and this reviewer will not provide this.

We thank the reviewer for the useful comments. We apologize for spelling mistakes. We corrected them all.

I thank the authors for clarifying where they have extrapolated data to calculate sensitivity, specificity, PPV and/or NPV when it has not been reported in the original articles.

The evaluation of paediatric nutritional screening tools within the results section has been shorted considerably which has improved the readability and the use of Table 2 and 3 is helpful for the reader to compare studies. The authors have rated the validity of each screening or assessment tools as good, fair or poor as part of the evaluation and therefore a short statement with regard to this in the results would be beneficial as this is then discussed in more detail within the discussion.

We thank the reviewer for this useful remark. We added a short sentence to results section. Added the following:

The combination of sensitivity and specificity was evaluated as good only in 4 studies (7, 40, 61, 63) according to classification outlined in Table 1.

Only two studies reported intra-observer agreement, where there was substantial agreement with the kappa value of 0.6 for STRONGkids (51), and 0.6 for STAMP (14).

Overall I feel this revision of the manuscript has helped the readability and a few minor changes will enable this to be published.

We think that all reviewers and editors contributed enormously to this manuscript with their valuable comments and we sincerely thank them all for that.