

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)	A repeated cross-sectional survey assessing changes in diet and nutrient quality of English primary school children's packed lunches between 2006 and 2016
AUTHORS	Evans, Charlotte; Melia, Kathryn; Rippin, H.; Hancock, Neil; Cade, Janet

VERSION 1 – REVIEW

REVIEWER	Joanna Myszkowska-Ryciak, PhD assistant professor, Warsaw University of Life Sciences, Department of Dietetics, Poland
REVIEW RETURNED	25-Feb-2019

GENERAL COMMENTS	<p>Dear Authors,</p> <p>I have read the manuscript with great interest, but a few aspects are not clear to me.</p> <p>In my opinion, the title, goal, scope of work, methodology and presented results are not completely consistent.</p> <p>The title suggests an assessment and comparison of the quality of packed lunches in 2006 and after 10 years. In objectives, however, (Abstract, page 2), an assessment of the consumption of packaged lunch by children was mentioned. In the methodology the method of obtaining this data, i.e. weighing the food before and after lunch has been accurately describes. However, data on consumption is only included in the supplementary materials, there is no reference to them in the results, discussions and conclusions. This is a very interesting element of the work, and in my opinion should be more emphasized. Another option to consider is to focus only on comparing the quality of packaged lunch, without analyzing the amount consumed by children (which could be a separate article).</p> <p>For readers outside the UK, a few additional explanations are necessary for a better understanding of the study.</p> <p>1. What are packed lunches? I have the impression that these are ready sets to buy in stores, canteens? Whether they are manufactured industrially or prepared on the spot from the scratch?</p> <p>Page 4, line 69: instead "intake" should be rather "level/amount"</p> <p>Page 5, lines 76-77: "Only 1 in 5 children included any vegetables.." Is it the children themselves who choose the packed lunch ingredients?</p> <p>Page 6, line 123: Was the season the same in 2006 and 2016? Another season can cause differences in the availability of vegetables or fruit?</p> <p>Page 7, line 137: What is "flapjack"?</p>
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	Page 13, lines 250-252. The title of the paragraph indicates the content of nutrients in packed lunches, but in the text children intake are described? Please, clarify this section.
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REVIEWER	Michael Nelson Public Health Nutrition Research Ltd. UK
REVIEW RETURNED	20-Mar-2019

GENERAL COMMENTS	<p>The paper is clear and generally well-written, but there are some changes needed.</p> <p>Abstract: Lines 9-15. Clarify the selection procedure and methods Line 24. Conclusions - "low quality" compared with what? Rephrase</p> <p>Strengths and limitations: line 34. Rephrase: "...data in each year were collected on only one day." line 35. Delete "Furthermore"</p> <p>Discussion: The Discussion is over-speculative. Line 322-3. Delete "The concern is that ...diet inequalities." Line 327. Delete "... perhaps thorough.. vegetables." Not realistic on a mass scale. Line 334. Delete "...preferably in recyclable packaging." Not the focus of this study. Line 338. Delete first sentence. Begin para: "A strength of the study was the consistent approach taken for both studies." Line 343. Delete ", making it subject...bias." Change to: "Efforts were made to reduce bias by..." line 347. "... and therefore is not up to date." should read: "...and therefore does not reflect current food composition."</p> <p>Conclusion: line 354. "Although some children..." line 356. "hasn't" should read "has not" line 358 "...but continue to be poor quality..." should read: "but continue to contain levels of saturated fat...and sodium that exceed current standards and recommendations." line 364. "...if continued progress...next 10 years." should read: "if packed lunch quality is to improve in the next 10 years."</p>
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REVIEWER	Emma Patterson Affiliated researcher, Department of Public Health Sciences, Karolinska Institutet, Sweden
REVIEW RETURNED	02-Apr-2019

GENERAL COMMENTS	<p>This is a very interesting study, of public health importance, and is a credit to the researchers who were able to re-create a study after such time had passed. This usually requires a whole new study plan, new funding etc and is difficult to pull off. More long-term and follow-up studies are needed in the field of public health.</p> <p>That said, it brings with it its own set of challenges. I feel the authors could discuss these a lot more. It is very unclear how comparable the school/children/lunches really are. This does not have to be a major issue, the results of the 2016 survey are</p>
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	<p>sufficiently interesting and a comparison is motivated regardless, I would just like to see more transparency in the methods section so that the reader knows how to interpret any comparisons.</p> <p>My main issue is that data is lacking about the participants, and therefore the comparability, and generalizability, is unclear. This is a problem, especially as this is the main research question. Also, several details about how the data were collected are lacking.</p> <p>It is great that a STROBE-statement is provided, but unfortunately it is not complete. Some of the sections have been left blank, without explanation. Such as “14.a Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders.”</p> <p>I also have a number of small comments which have to do with the clarity of the language. Grammatically it is fine, but it would be good if another person who was not as familiar with the study, or the context of English school lunches, could have read it to pick up on these small things.</p> <p>Minor comments:</p> <p>Good title. I'd suggest “between 2006 and 2016” and avoid “from” and “to”.</p> <p>Abstract</p> <p>Both “standards” and “legislation” are used but it's not clear if they are interchangeable. Are the mandatory?</p> <p>It's not clear that packed lunches co-exist with (cooked) school meals in England and that a very high proportion eat packed lunches.</p> <p>Unclear if schools from both years were comparable. (See below.)</p> <p>How was data collected? Observed? Reported? (See below.)</p> <p>Introduction</p> <p>L47 Consider listing childhood effects like school absenteeism before mentioning risks in adulthood.</p> <p>L57 Packed or provided, or both? Suggest you add “in England”.</p> <p>L78 “Smart lunchbox”? Please provide a reference and some more details. Was this a study? Local/national? Short-term, long-term?</p> <p>L81 Replacing “packed lunches with the ‘new Nordic diet’”. Is a bit like saying replacing packed lunches with the Mediterranean diet. Maybe “with a school lunch based on “New Nordic diet” principles”, or just “with a school lunch” or “with a prepared school lunch”.</p> <p>L84 It seems like the legislation is being used as justification for the study but it is not needed. It's also not clear that you are referring to national (not lunch) recommendations. Also, only industry is mentioned here as a way of improving the quality, which is odd, and in contrast to the discussion. And I'm not sure how ref #25 supports the statement that by providing more nutritious options and smaller portion sizes, quality would improve. Just “This survey aims...” etc is enough on its own.</p> <p>L97 Was consent provided? I wonder about the data collection (see below) – were children's lunchboxes examined and weighed in the classroom in front of other children? Were children asked questions about the contents in front of others, or drawn aside? How were foods like sandwiches or salads dealt with?</p> <p>L100 Recruitment. Understandably tricky. The extra wave was designed to be nationally representative, but a) was it?, and b) if so/if not, did this mean the difference to the 2006 survey was large?</p> <p>L108 Do schools keep data on which children have packed lunches?</p> <p>L110 Good description of power calculation. But how many children in 2 year groups?</p>
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	<p>L122 Data collected in summer, late June. Any risk that the fact that it was close to end of school year had an effect? What about 2006? Could seasonal variation be a factor?</p> <p>L131 Was food swapping between children likely to have been an issue? Handling of missing data is also absent from the STROBE report - were you able to record before and after for every single participant?</p> <p>L140 The validation of myfood24 is irrelevant surely if data has been collected some other way. It is only being used here as a data entry tool, isn't it?</p> <p>L143 Think a "based on" is missing.</p> <p>L148 Implies nutritional information was collected, and, in addition, weights and types was collected. Surely this is backwards? Generally you collect type and weight, then analyse for nutritional content. Please present as chronologically as possible. All information about collection should come earlier and analysis later.</p> <p>L144 Diaries in the traditional sense were not kept - maybe "records" better?</p> <p>L185 Good you took account of clustering within schools, but please describe the model in more detail. In which Tables are the results of the model? Could be good to add as a table footnote.</p> <p>L187 Schools – very low response rate 12 out of 70. No information provided about the characteristics of the schools either in 2006 or 2016. Am unable to judge the comparability or generalizability of the results.</p> <p>L208 Vegetables unpopular – but this paragraph is about weights. You mean lightest? Then next paragraph is about proportions - maybe change heading?</p> <p>L218 Remove "with an". "Were present in the same proportion of lunches" maybe? Unclear sometimes if you're referring to weight, content or %.</p> <p>Table 4 – Informative! Good idea to include. Does "Wotsits" really need to be mentioned? Surely "crisps" is enough information?</p> <p>L244 This sentence seems a bit misplaced. This might suffice as part of limitations; doesn't seem to go with previous table or paragraph.</p> <p>L268 The direct comparison is problematic until the methodological issues are ironed out.</p> <p>L279 "standards for Vitamin A, C zinc" – Earlier stated there are no nutrient standards for school lunches, and particularly not for packed lunches. Table 5 heading could be made clearer – to specify that the standards are for (provided) school meals, and footnotes could also help.</p> <p>L288 maybe clarify that reformulation occurred in advance of/in anticipation of the levy, otherwise dates don't seem logical.</p> <p>L299 Maybe "only small portions"? Also, 15g from a biscuit and yoghurt may be just exactly within the limits but this allows almost nothing from other sources, such as some breads, dried fruit, sandwich fillings.</p> <p>L304 More appropriate in what way? And than what? 2006 portion sizes?</p> <p>L310 but proportion of lunches of the standard dropped a lot – perhaps more important no?</p> <p>L311 You have information on portions. See comment on L244. Not sure what L244 was saying.</p> <p>L320 You know if these schools had policies, why have you not analysed if there are differences here? Is a companion paper to follow? (Also, is an analysis per gender, or per school SES on the way? Would be very interesting!)</p>
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	<p>L322 Great point, but I think you need to say something about the types of schools that might introduce policies. It's implied, but could be much clearer for a reader who is not familiar with public health/inequalities.</p> <p>L332 "Increasingly being utilized" or "very common"? One implies a (comparable) increase over time. If you believe the cited studies support an increase, then that's fine.</p> <p>L334 "a more effective approach"? They certainly have a role to play but to say they would be more effective may be a bit strong. Perhaps in the short term? And one proven very effective way to encourage reformulation of products is through e.g. legislation (as seen in advance of the recent sugar tax in England) so I think policy, whether for lunches or for nutrient content, is still very important.</p> <p>I note one of the funding sources is from a company that makes, among other things, convenience foods for school lunchboxes. I also note the funding statement is short on details and doesn't explicitly say that the funders had no input into the e.g. design, manuscript etc. It is unlikely that they did, but it is good to be clear about it.</p> <p>L337 Does reference #25 really support the idea that "portion sizes of savoury snacks [are causing] children filling up on more appealing foods and refusing nutritious elements such as their sandwich"?</p> <p>L340 "Most of the foods"? In methods it sounded like everything was weighed. Please expand/explain.</p> <p>L343 Limitations must also address how comparable schools were, and the generalizability of the results.</p> <p>L352 How was the spread of schooldays in both years? See also earlier comment about seasonal variation. Can you adjust for day of week?</p> <p>L354 Think it is good that conclusion focuses on results for 2016 first, they are interesting and strong enough on their own. Think comparisons with 2006 could be tempered with "although not directly comparable".</p>
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VERSION 1 – AUTHOR RESPONSE

Corrections to repeated packed lunch survey paper

We are extremely grateful to all the reviewers who have made useful suggestions to improve the quality of our manuscript. We have addressed each point and summarised the changes made in the table below.

N	Comment	Correction	lines
	Editor Comments to Author:		
1	Provide more context for readers outside of the UK. Please indicate how packed lunches work and clarify for overseas readers whether this applies to home prepared food or are a pre-packaged set that is bought in a supermarket. Do most children take packed lunches? Don't children eat meals prepared in school?	Additional information has been provided in the introduction for classification as well as a reference.	56-61

2	Include discussion of the international context and not just the UK, particularly countries which had successful results which the UK should aim to emulate.	Packed lunches are reported to be poor quality in many countries such as Australia and the US. A review has found that introducing programmes targeted at families can be helpful but more changes in the environment are needed. A recent systematic review is cited on this	344-9
	Reviewer: 1		
3	The title, goal, scope of work, methodology and presented results are not completely consistent. The title suggests an assessment and comparison of the quality of packed lunches in 2006 and after 10 years. In objectives, however, (Abstract, page 2), an assessment of the consumption of packaged lunch by children was mentioned. In the methodology the method of obtaining this data, i.e. weighing the food before and after lunch has been accurately describes. However, data on consumption is only included in the supplementary materials, there is no reference to them in the results, discussions and conclusions. This is a very interesting element of the work, and in my opinion should be more emphasized. Another option to consider is to focus only on comparing the quality of packaged lunch, without analyzing the amount consumed by children (which could be a separate article).	The authors agree that it would be more appropriate to analyse the consumption data in a separate paper and therefore this has been removed from this study.	n/a
4	For readers outside the UK, a few additional explanations are necessary for a better understanding of the study. 1. What are packed lunches? I have the impression that these are ready sets to buy in stores, canteens? Whether they are manufactured industrially or prepared on the spot from the scratch?	A sentence explaining the 2 different lunch types has been added to explain the UK system.	56-61
5	Page 4, line 69: instead "intake" should be rather "level/amount"	This word has been changed.	73
6	Page 5, lines 76-77: "Only 1 in 5 children included any vegetables.." Is it the children themselves who choose the packed lunch ingredients?	In addition to the above explanation of lunch types we have clarified that packed lunches are usually prepared by parents with input from children.	56-61
7	PAge 6, line 123: Was the season the same in 2006 and 2016? Another season can cause differences in the availability of vegetables or fruit?	All the questionnaires were collected in June for both surveys and a statement has been added to clarify this	124-5
8	Page 7, line 137: What is "flapjack"?	These are oat based cereal bars and this clarification has been added.	138-9

9	Page 13, lines 250-252. The title of the paragraph indicates the content of nutrients in packed lunches, but in the text children intake are described? Please, clarify this section.	This section is solely information on nutrients provided. 2 values have been changed to ensure all values were based on nutrients provided.	259 & 264
	Reviewer: 2		
10	Abstract: Lines 9-15. Clarify the selection procedure and methods Line 24. Conclusions - "low quality" compared with what?	The mention of consumed data has been removed. The words 'food and nutrient' has been inserted before standards to clarify the term low quality.	9-24
11	line 34. Rephrase: "...data in each year were collected on only one day."	This has been changed.	34
12	line 35. Delete "Furthermore"	This has been deleted.	35
13	The Discussion is over-speculative. Line 322-3. Delete "The concern is that ...diet inequalities."	This sentence has been deleted.	332
14	Line 327. Delete "... perhaps thorough.. vegetables." Not realistic on a mass scale.	This part of the sentence has been deleted.	335
15	Line 334. Delete "...preferably in recyclable packaging." Not the focus of this study.	This part of the sentence has been deleted.	353
16	Line 338. Delete first sentence. Begin para: "A strength of the study was the consistent approach taken for both studies."	This sentence has been deleted.	360
17	Line 343. Delete ", making it subject...bias." Change to: "Efforts were made to reduce bias by..."	These sentences were changed.	368
18	line 347. "... and therefore is not up to date." should read: "...and therefore does not reflect current food composition."	This sentence has been changed.	375
19	Conclusion: line 354. "Although some children..."	This word has been changed.	384
20	line 356. "hasn't" should read "has not"	This word has been changed.	386
21	line 358 "...but continue to be poor quality..." should read: "but continue to contain levels of saturated fat...and sodium that exceed current standards and recommendations."	This sentence has been changed.	388-9
22	line 364. "...if continued progress...next 10 years." should read: "if packed lunch quality is to improve in the next 10 years."	This sentence has been changed.	395
	Reviewer: 3		
23	It is very unclear how comparable the school/children/lunches really are. This does not have to be a major issue, the results of the 2016 survey are sufficiently interesting and a comparison is motivated regardless, I would just like to see more	We are very grateful for the reviewer highlighting this important point that we have not covered in the manuscript. We agree that the representativeness of the schools should be compared at both time points. We don't have socio-economic	

	transparency in the methods section so that the reader knows how to interpret any comparisons.	data on individuals but as it was a clustered survey we tried to ensure that the sample was representative by recruiting schools that are representative in terms of %fsm and expected academic standards for the whole of England. The results are now compared with national means and found to be broadly representative of English schools as indicated in the following sections 24, 35 and 43.	
24	Data is lacking about the participants, and therefore the comparability, and generalizability, is unclear. This is a problem, especially as this is the main research question.	See comment above. We only collected gender and no other demographic data from children and we include this as a limitation of the study. More data is available on schools as we recruited schools rather than individuals.	364-7 371-3
25	Several details about how the data were collected are lacking. It is great that a STROBE-statement is provided, but unfortunately it is not complete. Some of the sections have been left blank, without explanation. Such as "14.a Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders."	The gaps have been completed in the STROBE checklist with explanations of why something was not carried out when applicable.	strobe
26	I also have a number of small comments which have to do with the clarity of the language. Grammatically it is fine, but it would be good if another person who was not as familiar with the study, or the context of English school lunches, could have read it to pick up on these small things.	The manuscript has been read by a non UK PhD student who has not experienced the UK school system to check the information provided is clear and minor amendments made in the introduction.	79
27	Good title. I'd suggest "between 2006 and 2016" and avoid "from" and "to".	The title has been updated.	title
28	Abstract: Both "standards" and "legislation" are used but it's not clear if they are interchangeable. Are they mandatory? It's not clear that packed lunches co-exist with (cooked) school meals in England and that a very high proportion eat packed lunches. Unclear if schools from both years were comparable. (See below.) How was data collected? Observed? Reported? (See below.)	The word mandatory has been inserted into the first sentence. Information to say half of children have a packed lunch has been added. The 300 word abstract does not allow detailed information on methods unfortunately but more information is added to the main methods section.	1, 12
29	L47 Consider listing childhood effects like school absenteeism before mentioning risks in adulthood.	These have been switched round.	47-50

30	L57 Packed or provided, or both? Suggest you add "in England".	The words school meal and in England have been added	60-61
31	L78 "Smart lunchbox"? Please provide a reference and some more details. Was this a study? Local/national? Short-term, long-term?	A reference is provided and details of reach and term.	83-4
32	L81 Replacing "packed lunches with the 'new Nordic diet'". Is a bit like saying replacing packed lunches with the Mediterranean diet. Maybe "with a school lunch based on "New Nordic diet" principles", or just "with a school lunch" or "with a prepared school lunch".	This sentence has been changed to improve clarity.	86-7
33	L84 It seems like the legislation is being used as justification for the study but it is not needed. It's also not clear that you are referring to national (not lunch) recommendations. Also, only industry is mentioned here as a way of improving the quality, which is odd, and in contrast to the discussion. And I'm not sure how ref #25 supports the statement that by providing more nutritious options and smaller portion sizes, quality would improve. Just "This survey aims..." etc is enough on its own.	The first 2 sentences in this paragraph have been deleted as suggested.	89
34	L97 Was consent provided? I wonder about the data collection (see below) – were children's lunchboxes examined and weighed in the classroom in front of other children? Were children asked questions about the contents in front of others, or drawn aside? How were foods like sandwiches or salads dealt with?	Consent was required from schools and opt out consent was used for pupils. A statement with this information has been added. Children were taken aside and this is now stated in the text.	100 and 130
35	L100 Recruitment. Understandably tricky. The extra wave was designed to be nationally representative, but a) was it?, and b) if so/if not, did this mean the difference to the 2006 survey was large?	Nfer is an expert organisation specialising in recruiting schools that are representative. Information on different school metrics has now been included in the methods, results and discussion and demonstrate that both surveys included a nationally representative sample of schools.	158-159 198-205 364-7
36	L108 Do schools keep data on which children have packed lunches?	Yes the schools provided this data to us.	n/a
37	L110 Good description of power calculation. But how many children in 2 year groups?	We have clarified this statement that 12 per class are expected to be recruited and classes are generally 25-30 pupils.	119-20
38	L122 Data collected in summer, late June. Any risk that the fact that it was close to end of school year had an	The end of the school year in the UK is around 20 th July so we don't believe that a	n/a

	effect? What about 2006? Could seasonal variation be a factor?	June collection would have been different from a normal school week.	
39	L143 Think a “based on” is missing.	These words have been inserted.	152
40	L148 Implies nutritional information was collected, and, in addition, weights and types was collected. Surely this is backwards? Generally you collect type and weight, then analyse for nutritional content. Please present as chronologically as possible. All information about collection should come earlier and analysis later.	The order of the information has now been updated to improve flow.	142-54
41	L144 Diaries in the traditional sense were not kept - maybe “records” better?	This word is now replaced with records.	146
42	L185 Good you took account of clustering within schools, but please describe the model in more detail. In which Tables are the results of the model? Could be good to add as a table footnote.	The models are now described in more detail. The tables for each analysis are already provided in the results section so are not given in the methods section. Table legends state that the analyses are adjusted for school clusters	186-190 Tables 2, 3 and 5
43	L187 Schools – very low response rate 12 out of 70. No information provided about the characteristics of the schools either in 2006 or 2016. Am unable to judge the comparability or generalizability of the results. L268 The direct comparison is problematic until the methodological issues are ironed out.	Information on the characteristics of the schools is now included and compared by survey year and also national averages.	158-159 198-205 364-7
44	L208 Vegetables unpopular – but this paragraph is about weights. You mean lightest? Then next paragraph is about proportions - maybe change heading?	We have changed the heading to include the word proportions and moved the sentence on vegetables to later in the paragraph.	218-32
45	L218 Remove “with an”. “Were present in the same proportion of lunches” maybe? Unclear sometimes if you’re referring to weight, content or %.	These words have been removed. The sentence on drinks has been moved to the end to ensure consistency when covering proportion, weight or portion size.	218-32
46	Table 4 – Informative! Good idea to include. Does “Wotsits” really need to be mentioned? Surely “crisps” is enough information?	The word wotsits has been removed.	Table 4
47	L244 This sentence seems a bit misplaced. This might suffice as part of limitations; doesn’t seem to go with previous table or paragraph.	We think the reviewer was referring to line 254. This sentence is moved to the limitations.	378-81
48	L279 “standards for Vitamin A, C zinc” – Earlier stated there are no nutrient standards for school lunches, and particularly not for packed lunches. Table 5 heading could be made	In line 259 the words “historically set for school meals” have been inserted and in table 5 the word historical is added.	259 Table 5 heading

	clearer – to specify that the standards are for (provided) school meals, and footnotes could also help.		
49	L288 maybe clarify that reformulation occurred in advance of/in anticipation of the levy, otherwise dates don't seem logical.	Further clarification has been added so it is clear to the reader that reformulation occurred between 2016 and 2018 after the announcement of the levy.	296-9
50	L299 Maybe “only small portions”? Also, 15g from a biscuit and yoghurt may be just exactly within the limits but this allows almost nothing from other sources, such as some breads, dried fruit, and sandwich fillings.	The word only is now inserted. Additional wording to say it does not account for contributions from additional foods is now provided.	309-12
51	L304 More appropriate in what way? And than what? 2006 portion sizes?	This sentence is now clarified to say in terms of fats and sugars and compared with 2006.	316-7
52	L310 but proportion of lunches of the standard dropped a lot – perhaps more important no?	The sentence has been expanded to make it clear that many children did not have dairy and did not meet the standard.	318-9
53	L311 You have information on portions. See comment on L244. Not sure what L244 was saying.	Line 244 has been moved to the limitations. We didn't have weight of vegetables within a sandwich which is a source of error.	379-81
54	L320 You know if these schools had policies, why have you not analysed if there are differences here? Is a companion paper to follow? (Also, is an analysis per gender, or per school SES on the way? Would be very interesting!)	This is a good point and we did ask for this information but unfortunately a lot of the schools did not provide information on policies. We have decided to try to carry out some further work getting hold of this information and report in a different paper (together with this information from 2006). We have not carried out an analysis due to the smaller numbers in 2016 meaning it is not powered to see differences by gender. The results would therefore not be informative. School SES has already been addressed.	n/a
55	L322 Great point, but I think you need to say something about the types of schools that might introduce policies. It's implied, but could be much clearer for a reader who is not familiar with public health/inequalities	Information has been added on schools and councils that provide resources to help schools and that variation in implementation will be significant.	332-7
56	L332 “Increasingly being utilized” or “very common”? One implies a (comparable) increase over time. If you believe the cited studies support an increase, then that's fine.	This has been changed to very common.	350-51

57	L334 “a more effective approach”? They certainly have a role to play but to say they would be more effective may be a bit strong. Perhaps in the short term? And one proven very effective way to encourage reformulation of products is through e.g. legislation (as seen in advance of the recent sugar tax in England) so I think policy, whether for lunches or for nutrient content, is still very important.	The word more has been removed so that it reads “an effective approach”. National policies have been covered in the beginning of the paragraph and the word legislative has been inserted.	352 337
58	I note one of the funding sources is from a company that makes, among other things, convenience foods for school lunchboxes. I also note the funding statement is short on details and doesn’t explicitly say that the funders had no input into the e.g. design, manuscript etc. It is unlikely that they did, but it is good to be clear about it.	A sentence stating no involvement of the funder in the design and analysis of the study has now been inserted	Funding statement
59	L337 Does reference #25 really support the idea that “portion sizes of savoury snacks [are causing] children filling up on more appealing foods and refusing nutritious elements such as their sandwich”?	The reference has now been removed.	n/a
60	L340 “Most of the foods”? In methods it sounded like everything was weighed. Please expand/explain.	As explained in the methods the sandwich components were estimated. The words are replaced with ‘majority of the foods’	361
61	L343 Limitations must also address how comparable schools were, and the generalizability of the results.	The sample of schools in both surveys were similar to national averages in terms of % free school meals and expected academic standards. A sentence to this effect is now included in the strengths.	364-7
62	L352 How was the spread of schooldays in both years? See also earlier comment about seasonal variation. Can you adjust for day of week?	We have not adjusted for day of the week, however, both surveys included a spread of days of the week to capture any possible differences which we have included in the strengths. In 2006 the percent of lunches Monday to Friday was 20, 28, 17, 14 and 20% respectively and in 2016 was 19, 20, 22, 33 and 6% respectively. We have no reason to believe that lunch nutrient composition would differ between days. We have tested for differences in energy by day of the week and found small non-significant differences for both years combined. The energy (kcal) provided for Monday to	366-7

		Friday in 2006 is 633, 629, 649, 629 and 592kcal respectively and for 2016 is 632, 575, 615, 550 and 657kcal. We believe this is sufficient reason for not redoing all the regression models adjusting for day of the week which would be a great deal of work and would be unlikely to substantially change any of the results or the interpretation of the results.	
63	L354 Think it is good that conclusion focuses on results for 2016 first, they are interesting and strong enough on their own. Think comparisons with 2006 could be tempered with "although not directly comparable".	These words have been added to the beginning of the sentence starting 'results'.	386-7

VERSION 2 – REVIEW

REVIEWER	Joanna Myszkowska-Ryciak Department of Dietetics, Warsaw University of Life Sciences, Poland
REVIEW RETURNED	29-Jul-2019

GENERAL COMMENTS	I appreciate the corrections made after the comments of all reviewers and I think that the quality of the manuscript has improved significantly.
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REVIEWER	Michael Nelson King's College London England
REVIEW RETURNED	02-Sep-2019

GENERAL COMMENTS	The authors have comprehensively addressed the questions and comments by the reviewers.
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REVIEWER	Emma Patterson Karolinska Institutet, Sweden
REVIEW RETURNED	04-Sep-2019

GENERAL COMMENTS	<p>The authors have done a great job in revising the manuscript. The major issues that I had with it have been addressed satisfactorily. This is important work and I believe the manuscript is now far clearer and stronger with hopefully a greater chance of having an impact on public health.</p> <p>I do however have a few minor comments that I hope the authors will be willing to take on board.</p> <p>Table 1 (possibly elsewhere) Why is 2006 data not restricted to England everywhere? In other places you have (appropriately) restricted the data to England as you only have English data from 2016. I appreciate this would be a lot of work but not doing it</p>
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	<p>requires a justification or at least a comment in the discussion regarding how it may affect your results.</p> <p>"Dietary data were analysed using myfood24 which has been validated with biomarkers"</p> <p>To me this is slightly inaccurate. It is important to mention the validity of the instrument and methods used to measure the data of course, but unless I am mistaken, in this case myfood24 is not gathering the data but processing it. If anything, the validity of the questionnaire and the reliability of the administrators are what should be mentioned.</p> <p>"The nutrient analysis was run in both the 6th and 7th editions of the composition of foods"</p> <p>And was the average taken? Why were both used? Unclear.</p> <p>"Regression models were used to compare the results for foods, food groups and nutrients in 2016 compared with results from 2006."</p> <p>Could be clearer. Unsure what the outcome and predictors are in this/these regression models. Are you describing the 2016 adjusting for 2006? Are you running multiple models for every food, food group and nutrients? Could you say something about the inflated risk of a type 1 error with the multiple tests being run?</p> <p>"In 2016, the metric used was eligibility for FSM over the past 6 years and the sample and national means were 24.3% and 25% respectively."</p> <p>The way this is written unfortunately raises the question - why the change in metric? And/or why not provide a comparable metric?</p> <p>Table 1 = Most common examples in each food group - should they add up to 100? So water (16%), pure juice (14%)? This can't be correct, so I assume it is the prevalence in all lunches? Contents of table good, but think description needs to be reworded.</p> <p>Ref 27 and 29 are the same. Also, should ref 29 on line 95 not be 26 though?</p> <p>"The schools were described in terms of mean % free school meals and % meeting expected academic standards"</p> <p>Not sure mean % free school meals will be understandable to international readership.</p> <p>Later on you write "percent of pupils eligible for free school meals (%FSM)" which is much clearer. Adding that this variable is a proxy for the socioeconomic position of the school's catchment area/pupils would be clearer still.</p> <p>"The largest component by weight of a packed lunch is typically the sandwich" - "A sandwich" surely better? Presupposes that all packed lunches contain, or even should contain, a sandwich.</p> <p>The percentage of children provided with three food types changed substantially between 2006 and 2016 (see table 2). -></p> <p>Not children with three food types. Suggest re-write: For three food types, the percentage of children provided with them changed substantially between 2006 and 2016 (see table 2).</p>
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	<p>Other food types remained approximately the same. -> "Other food types were provided to approximately the same degree" or "the provision of other food types remained"...</p> <p>"Popular" - is "common" perhaps more suitable/neutral?</p> <p>"For food groups the percent of lunches meeting the food based standard for school meals for each food group is reported." A "food group" too many here?</p> <p>Table 2 Vegetables/salad (in/outside s/w) Vegetables/salad outside s/w</p> <p>Should "outside" be in both rows? Why not inside and outside?</p>
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VERSION 2 – AUTHOR RESPONSE

Minor revisions for repeated survey of packed lunches

We thank the reviewers for the time taken to make suggestions to improve our manuscript. Please find details of the changes made in the table below.

No.	Comments	Responses	Line No
1	Table 1 (possibly elsewhere) Why is 2006 data not restricted to England everywhere? In other places you have (appropriately) restricted the data to England as you only have English data from 2016. I appreciate this would be a lot of work but not doing it requires a justification or at least a comment in the discussion regarding how it may affect your results.	Thank you for insisting that we stick to English data throughout. It was a bit of work to go back to the old database of foods but it is much neater now that the data is consistent	Table 1
2	<p>"Dietary data were analysed using myfood24 which has been validated with biomarkers"</p> <p>To me this is slightly inaccurate. It is important to mention the validity of the instrument and methods used to measure the data of course, but unless I am mistaken, in this case myfood24 is not gathering the data but processing it. If anything, the validity of the questionnaire and the reliability of the administrators are what should be mentioned.</p>	We have removed this part of the sentence regarding myfood24 as we agree it is not relevant.	154

3	<p>"The nutrient analysis was run in both the 6th and 7th editions of the composition of foods"</p> <p>And was the average taken? Why were both used? Unclear.</p>	<p>This sentence has been revised. Myfood24 originally used food composition data from 2002 but we updated to the recent version from 2014. We mentioned that any differences could be due to reformulation between 2002 and 2014 (e.g. reductions in salt in crisps)</p>	157-8
4	<p>"Regression models were used to compare the results for foods, food groups and nutrients in 2016 compared with results from 2006."</p> <p>Could be clearer. Unsure what the outcome and predictors are in this/these regression models. Are you describing the 2016 adjusting for 2006? Are you running multiple models for every food, food group and nutrients? Could you say something about the inflated risk of a type 1 error with the multiple tests being run?</p>	<p>A sentence has been added to make it clear what variables are the outcome and predictor. A sentence has been added on the limitations of multiple testing.</p>	191-2 381-3
5	<p>"In 2016, the metric used was eligibility for FSM over the past 6 years and the sample and national means were 24.3% and 25% respectively." The way this is written unfortunately raises the question - why the change in metric? And/or why not provide a comparable metric?</p>	<p>This was due to changes in the methods used by the department of education and this reason has been added.</p>	211
6	<p>Table 1 = Most common examples in each food group - should they add up to 100? So water (16%), pure juice (14%)? This can't be correct, so I assume it is the prevalence in all lunches? Contents of table good, but think description needs to be reworded.</p>	<p>The legend for table 1 has been revised to make it clear that the percentages are percentages of total number of children's lunches. As these are the most common foods there are additional foods that aren't listed so the foods in each category do not add up to 100% (or in some cases such as vegetables only about 20% of children included them in a packed lunch)</p>	Table 1
7	<p>Ref 27 and 29 are the same. Also, should ref 29 on line 95 not be 26 though?</p>	<p>We apologise for this error. The mistake has now been rectified.</p>	references
8	<p>"The schools were described in terms of mean % free school meals and % meeting expected academic standards"</p>	<p>This sentence has been revised so it is clear it is % eligibility and that it is a proxy for SEP.</p>	163-4

	<p>Not sure mean % free school meals will be understandable to international readership.</p> <p>Later on you write "percent of pupils eligible for free school meals (%FSM)" which is much clearer. Adding that this variable is a proxy for the socioeconomic position of the school's catchment area/pupils would be clearer still.</p>		
9	"The largest component by weight of a packed lunch is typically the sandwich" - "A sandwich" surely better? Presupposes that all packed lunches contain, or even should contain, a sandwich.	This has been changed to 'a sandwich'	230
10	<p>The percentage of children provided with three food types changed substantially between 2006 and 2016 (see table 2).</p> <p>-></p> <p>Not children with three food types. Suggest re-write: For three food types, the percentage of children provided with them changed substantially between 2006 and 2016 (see table 2).</p>	This sentence has been revised as suggested.	235
11	<p>Other food types remained approximately the same.</p> <p>-> "Other food types were provided to approximately the same degree" or</p> <p>-> "the provision of other food types remained"...</p>	This sentence has been revised as suggested.	238-9
12	"Popular" - is "common" perhaps more suitable/neutral?	The word 'popular' has been replaced with the word 'common' in 2 places.	240 363
13	<p>"For food groups the percent of lunches meeting the food based standard for school meals for each food group is reported."</p> <p>A "food group" too many here?</p>	The sentence has been revised as suggested.	182
14	<p>Table 2</p> <p>Vegetables/salad (in/outside s/w)</p>	The vegetables inside the sandwich couldn't be weighed but a percent of children provided with vegetables inside	Table 2

	Vegetables/salad outside s/w Should "outside" be in both rows? Why not inside and outside?	or outside (now named 'any') is informative even if there is no weight. This has been clarified in the table.	
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