NICE National Institute for Health and Care Excellence

National Institute for Health and Care Excellence
Centre for Health Technology Evaluation

Pro-forma Response

External Assessment Centre Report factual check

Parafricta Bootees and Undergarments to reduce skin breakdown in people with frail skin or at risk of pressure ulcers

Please find enclosed the assessment report prepared for this assessment by the External Assessment Centre (EAC).

You are asked to check the assessment report from Birmingham and Brunel to ensure there are no factual inaccuracies contained within it. If you do identify any factual inaccuracies you must inform NICE by 4pm, **14 April 2014** using the below proforma comments table. All your comments on factual inaccuracies will receive a response from the EAC and when appropriate, will be amended in the EAC report. This table, including EAC responses will be presented to the Medical Technologies Advisory Committee and will subsequently be published on the NICE website with the Assessment report.

10 April 2014, 4.30am

Issue 1

Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
1.1 Scope of the sponsor's submission			
Line 15 Reads 'There was no useful information on time to healing, patient compliance, quality of life, morbidity and device-related adverse events'.	As below: 'The intervention is Parafricta Bootees and Undergarments used as an adjunct with pressure reducing devices as in standard NHS clinical practice There was limited information on time to healing, patient compliance, quality of life, morbidity and device-related adverse events. Stephen-Haynes (2011) provides information on these outcomes, including the organisational and patient impact of the garments, and demonstrates their ease of use in complex settings. Statistically significant results showing reversal of oedema and by association healing of tissue damage are described in Hampton (2009) and Sponsor's submission Appendix 5. No adverse events have been reported to the company or MHRA and none is recorded in the relevant databases. '	There were useful and statistically significant results showing reversal of oedema and by association healing of tissue damage in Hampton (2009) and Sponsor's submission Appendix 5 – there can be no healing without reversal of tissue damage. Stephen-Haynes (2011) provides information on these outcomes, including the organisational and patient impact of the garments, and demonstrates their ease of use in complex settings. No adverse events have been reported to the company or MHRA and none is recorded in the relevant databases.	Stephen-Haynes (2011) was not a comparative study therefore there was no useful information. No change to report.

Issue 2

Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
1.2 Summary of clinical evidence submitted by the sponsor			

Para 2 Line 2 & Section 3.4 & Table 1 A single Parafricta Bootee was used on the right heel in 10 patients, with the left heel used as comparator.	A single Parafricta Bootee was used on the right heel in 10 patients, with the left heel used as comparator. *In addition, A normal heel was used as an additional comparator in both heel and sacral deep ultrasound measurements*	Important to clarify that a normal-heel comparator was used in both heel and sacral deep ultrasound studies.	In Hampton (2009) "residents with red heels were provided with one Parafricta Bootee for the right heel." There is no mention of a normal heel and also this would not be useful for a comparator for a sacral pressure ulcer. No change to report.
Para 2 Line 4 & Table 1 The duration of follow up was possibly four weeks.	*The duration of follow up was ~~possibly~~ four weeks.*	The study clearly states measurement at 0, 2, and 4 weeks in all cases.	"possibly" removed.
Para 2 Line 10 The ultrasound graphs were an attempt to measure thickening of the skin from oedema and were felt to be the most reliable outcome measure.	*The ultrasound scans were a method to image and measure oedema in the sub-epidermal and dermal layers, and hence level of damage therein, and were felt to be the most reliable outcome measure.* Also Table 1 Outcomes #3 should read 'Ultrasound Imaging' not graphs	The scan data is used in the graphs and is to measure oedema, not skin thickness.	No factual inaccuracy; therefore no change to report.
Para 3 last line & Table 1 Comment & Section 3.6 There were no statistically significant differences in length of stay between cohorts 1 and 2 but the lengths of stay were not	Although the published study reported no statistically significant differences in length of stay between the comparable pathways groups in cohorts 1 and 2, lengths of stay varied in	Important clarification.	"In the published Smith (2010) paper" added.

given.	each pathway as shown in Table 8.		
Para 5 At the Trust there was also a general investment in pressure reducing/relieving products including 4-sectional electric profiling beds, pressure-reducing foam, alternating air mattresses, heel troughs and cushions.	At the Trust there was also a general investment in pressure reducing/relieving products including 4-sectional electric profiling beds, pressure-reducing foam, alternating air mattresses, heel troughs and cushions, *as per the normal equipment replacement programme.*	It should be made clear that these pressure relieving interventions and the equipment was already present in the prior year but equipment was replaced as per normal cycle. All of this standard of equipment will have already been in place.	No factual inaccuracy, therefore no change to report.

Issue 3

Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
1.3 Summary critique of clinical evidence submitted by the sponsor			
Para 2 also Section 3.6 and Section 6 For Smith (2010) there were no	In Smith (2010) as published, there were no numbers of deaths or demographic characteristics in either cohort, and no	Detailed data on the different lengths of stay in the two cohorts were provided by the Sponsor and	Change to report: "The only information we do have is the Waterlow score from the Sponsor's economic submission which suggests that the cohort not given Parafricta ~~were~~ may have been- more at

numbers of deaths or demographic characteristics in either cohort, and no numerical results of length of stay by cohort were given. So it is impossible to tell how similar the cohorts were as there is no information on confounding factors. The only information we do have is the Waterlow score from the Sponsor's economic submission which suggests that the cohort not given Parafricta were more at risk of pressure ulcers than those given Parafricta.	numerical results of length of stay by cohort were given; *although these were supplied by the sponsor and are listed in Table 8. The information provided by the Sponsor shows that the Waterlow scores of the two cohorts were statistically identical.*	are listed in Table 8 of the EAC report. Statistical analysis of the Waterlow scores, provided by the Sponsor, shows that the Waterlow scores of the two cohorts are statistically identical. Table 6, page 29, in the EAC report is incorrect.	risk of pressure ulcers than those given Parafricta." Also, from page 30 and 61: "We do not know whether confounding factors rather than clinical effectiveness of Parafricta Bootees and Undergarments are responsible for any differences observed."
Para 2 last sentence Also, if patients couldn't reposition (an inclusion criterion for the study) then movement would be limited so it would be likely that any pressure ulcers occurring would have been caused by pressure rather than friction.	Also, if patients couldn't reposition (an inclusion criterion for the study) then movement would be limited so it might be thought likely that any pressure ulcers occurring would have been caused by pressure rather than friction. *However, Table 2 of Appendix 5 in the Sponsor's submission shows that the patients studied had almost exclusively only grade 1 or grade 2 ulcers, which Lahmann (2011a, 2011b) correlate with friction and shear, not lack of mobility.*	Table 2 of Appendix 5 in the Sponsor's submission shows that the patients studied had almost exclusively only grade 1 or grade 2 ulcers, which according to Lahmann correlate with friction and shear, not lack of mobility (Lahmann 2011a, 2011b). This contradicts the assumption that the selection of patients that could not reposition unaided would mean that any PUs	No factual inaccuracy, therefore no change to report.

		occurring would be caused by pressure, not friction and shear.	
4 Description of factual inaccuracy	**Description of proposed amendment**	**Justification for amendment**	**EAC response**
1.4 Summary of economic evidence submitted by the sponsor			
Para 2 last line Also that the pressure ulcer was there for a whole year.	Remove sentence	Incorrect – The **hospital** model calculates the savings **per at-risk patient episode** and the **community** model calculates the **savings per year per at-risk patient.** In neither case is it assumed that any particular pressure ulcer is present for a whole year.	The sentence has been removed as a misnomer. However, to be clear: The community model assumes a steady-state of one prevalent case (without Parafricta), with costs presented over a year. Savings are then reflected by multiplying the costs of Pressure ulcers in the community before Parafricta, by the relative point prevalence of Parafricta versus no Parafricta. Therefore, the community model does not calculate saving per at-risk patient, but estimates per prevalent case (with 2 other at-risk, but not prevalent cases at all times in the base case). In the base case, this equates to per 3 at-risk patients. Savings would have to be

			scaled (by a factor of 1/3) accordingly to be presented per at-risk patient.

5 Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
2.1 Overview and critique of sponsor's description of clinical context			
Para 2 last sentence & Section 3.11 Skin damage is also believed to be caused by friction, shear and moisture (NICE 2005), but the extent of the contribution of these is low – 7.5% in a sample of 28,299 hospital patients (Lahmann 2011a) and 13.9% in a sample of 17,966 long term care residents (Lahmann 2011b).	*Skin damage is also believed to be caused by friction, shear and moisture (NICE 2005), the extent of the contribution of these is significant – in a sample of 28,299 hospital patients studied by Lahmann, the prevalence in this group was more than 6 times higher (638.9%) than average (2011a) and in a sample of 17,966 long term care residents, those with friction and shear problems have up to 4 times the average prevalence of PUs. (Lahmann 2011b).*	The data presented by the two papers from Lahmann et al have been misinterpreted. As a result the conclusions drawn on pages 9, 30 and 61, based on the two papers Lahmann (2011a and 2011b) are incorrect. Consequently the report text contradicts Lahmann et al.'s validated conclusions that friction and shear are major contributing factors in the development of Grade I and II PUs and pressure the major contributing factor for Grade III & IV. Lahmann (2011a) shows in a sample of 28,299 hospital patients that those with friction and shear problems have 5 to 6 times the average prevalence of category II	In Lahmann (2011a) the first line of the results in the abstract reads: "7.5% of the hospital patients had friction and shear problems…" In Lahmann (2011b) figure 1 the stated proportion of patients with friction and shear problem was 13.9%. No factual inaccuracy, therefore no change to report.

		PUs. Lahmann (2011b) shows in a sample of 17,966 long-term care (LTC) residents that those with friction and shear problems have up to 4 times the average prevalence of PUs. In the LTC study the factors friction and shear are higher contributors to PU prevalence than moisture, mobility, activity, nutrition & sensory perception	
Para 4 'Pressure ulcers can lead to delayed hospital discharge but it is currently unclear as to how much of this is happening in the NHS.'	'Pressure ulcers can lead to delayed hospital discharge; *whilst* it is currently unclear as to how much of this is happening in the NHS, *there are a number of references in the Smith (2010) study that point to delayed discharge and extended hospital stay*.'	A number of independent references have shown the extended stay. [1] Gallagher, P., Barry, P., Hartigan, I. et al. Prevalence of pressure ulcers in three university teaching hospitals in Ireland. J Tissue Viability 2008;17: 4, 103-109. [2] Anthony, D., Reynolds, T., Russell, L. The role of hospital acquired pressure ulcer in length of stay. Clin Eff Nurs 2004; 8: 1, 4-10. [3] Graves, N., Birrell, F., Whitby,	Reference 1 refers to Ireland, so is not NHS relevant. Reference 2, is from 2004, so will not be relevant to current practice. Reference 3 is from 2005, so has similar problem. Smith (2010) does give length of stay data, but we do not know whether patients had illnesses which were worsening such as chest infections and that may have been why they stayed longer or whether is was just because of the pressure ulcer. No change to report.

		M. Effect of pressure ulcers on length of hospital stay. Infect Control Hosp Epidemiol 2005; 26: 3, 293–297. 19.	

6 Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
2.3.4 Outcomes 'There is no useful information on time to healing, patient compliance, quality of life, morbidity and device-related adverse events.'	*'There is **limited** information on time to healing, patient compliance, quality of life, morbidity and device-related adverse events. Stephen-Haynes (2011) provides information on these outcomes, including the organisational and patient impact of the garments, and demonstrates their ease of use in complex settings. Statistically significant results showing reversal of oedema and by association healing of tissue damage are described in Hampton (2009) and Sponsor's submission Appendix 5. No adverse events have been reported to the company or MHRA and none is recorded in the relevant databases.'*	There were useful and statistically significant results showing reversal of oedema and by association healing of tissue damage in Hampton (2009) and Sponsor's submission Appendix 5 – there can be no healing without reversal of tissue damage. Stephen-Haynes (2011) provides information on these outcomes, including the organisational and patient impact of the garments, and demonstrates their ease of use in complex settings. No adverse events have been reported to the company or MHRA and none is recorded in the relevant databases.	See response to issue 1.

7 Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
2.3.5 Cost analysis Para 2 The six garments can be washed and used by a total of three different successive patients.	The six garments can be washed and used by a *minimum* of three different successive patients.	Whilst the study and model assume 3 uses in the calculation given as an example, users have reported the garments being washed and used on successive patients for up to a year (Smith and Gleason hospital experience by private communication and re-order cycle of existing direct purchase community customers).	The EAC notes that correspondence from clinicians using Parafricta suggests that the garments may last longer than is assumed in the base case. Text has been amended on page 12 and page 48: "In the base case it was assumed the six garments can be washed and used by a total of three different successive patients. This may be a conservative estimate, based on experience of users."

8 Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
3.5 Overview and critique of the sponsor's critical appraisal for each study			

Para 2 Important confounding factors in this instance may arise from changes in the usual NHS care for prevention and treatment of pressure ulcers. These changes may arise from quality initiatives aimed at improving nursing patient care as well as changes in the use of medical technology.	ADD*: However, this needs to be put into perspective for the Smith (2010) study – no alterations in the regime for preventing and treating PU occurred during the study. One of the elements of selecting this hospital was the fact that the staff is highly trained in delivering consistent care for preventing PU, monitoring patients and PU status. In addition, other than the use of Parafricta no 'changes in the use of medical technology' in the sector of PU prevention and treatment occurred at the study site during the period of the study.*	While the questions raised by the EAC's remark are valid they do not apply to the circumstances of the Smith (2010) study.	Smith (2010) states "the protocol of all other interventions was identical" but we don't know whether the actual care given was the same. Report changed on page 17 to read: "Important confounding factors in this instance may have arisen from a variety of unknown issues that result from not having an adequate control group."
Table 1, Smith (2010) Comment If patients couldn't reposition then movement would be limited so likely that pressure ulcers caused by pressure rather than friction.	ADD: *However, Table 2 of Appendix 5 in the Sponsor's submission shows that the patients studied had almost exclusively only grade 1 or grade 2 ulcers, which Lahmann (2011a, 2011b) correlate with friction and shear, not lack of mobility.*	Table 2 of Appendix 5 in the Sponsor's submission shows that the patients studied had almost exclusively only grade 1 or grade 2 ulcers, which correlate with friction and shear, not lack of mobility (Lahmann 2011a, 2011b). This contradicts the assumption that the selection of patients that could not reposition unaided would mean that any PUs occurring would be caused by pressure, not friction and shear.	See response to issue 5.

9 Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
3.6 Results			
Critique: These colour graphs and their captions are difficult to interpret if the reproduction is in monochrome. The axes report pixel number by intensity and do not appear to report skin thickness. There are four curves – one a 'normal' heal or sacrum and three from the study reporting the affected tissues at time 0, 2 and 4 weeks. It is unclear whether the graphs are depicting skin oedema and its resolution or not. The results in Table 3 are difficult to interpret as it is unclear what 'Diff' refers to (oedema, skin thickness or pixel number).	Omit: "These colour graphs and their captions are difficult to interpret if the reproduction is in monochrome." *The axes report pixel number by intensity and report sub-epidermal and dermal oedema.* Omit: "It is unclear whether the graphs are depicting skin oedema and its resolution or not. The results in Table 3 are difficult to interpret as it is unclear what 'Diff' refers to (oedema, skin thickness or pixel number)". Insert the Figures 7, 8 & 9 in the provided documents *NHSIL Health Economics Unit paper copy for Drug Tariff Jan 31 2010 pdf* and *Parafricta Trial Final Results JCN Statistical Analysis* which gives the statistical analysis methodology and results for the Hampton et al (2009) data.	Clinicians monitor scans like this routinely and the scans would never be used in monochrome. Inclusion in the paper is illustrative. Expert diagnosis is made using the technique in situ. Clarifies that the deep ultrasound scans measure sub-epidermal and dermal oedema. The deep ultrasound scans measure sub-epidermal and dermal oedema. The inclusion of Figures 7, 8 and 9 is critical to clarifying the interpretation of the data. The difference in pixel number per time stage reflects resolution of oedema.	No factual inaccuracy, therefore no change to report. It is anticipated that clinical experts will be able to clarify at the appraisal committee.

Critique: There were no numbers of deaths or demographic characteristics in either cohort, and no numerical results of length of stay by cohort were given. So it is impossible to tell how similar the cohorts were as there is no information on confounding factors. The only information we do have is the Waterlow score from the Economic submission (see additional work carried out by the EAC below) which suggests that the cohort not given Parafricta were more at risk of pressure ulcers than those given Parafricta. The difference in pressure ulcers could also be because the Parafricta cohort patients were less ill than those in the historical comparison cohort	Although in the published Smith (2010) there were no numbers of deaths or demographic characteristics in either cohort, nor were detailed numerical results of length of stay by cohort given, the latter were supplied by the sponsor and are listed in Table 8. The information provided by the Sponsor also shows that the Waterlow scores of the two cohorts were statistically identical, countering against the possibility that the difference in pressure ulcers could also be because the Parafricta cohort patients were less ill than those in the historical comparison cohort.	For heels the application of the Kolmogorov-Smirnov statistical test showed that the symptoms of the treated heel had improved significantly over time when compared to the control heel at times 0 and 4 weeks and the level of oedema as measured by ultrasound mean pixel distribution had moved significantly towards the profile of normal heels Detailed data on the different lengths of stay in the two cohorts were provided by the Sponsor and are listed in Table 8 of the EAC report. Statistical analysis of the Waterlow scores, provided by the Sponsor, shows that the Waterlow scores of the two cohorts are statistically identical. Table 6, page 29, in the EAC report is incorrect.	See response to issue 3

10 Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
3.8 Description of the adverse events reported by the sponsor			
If Parafricta Bootees and Undergarments are used on more than one person, there is a risk of cross-infection if the garments are not adequately washed.	If Parafricta Bootees and Undergarments are used on more than one person, there is a risk of cross-infection if the garments are not adequately washed. *However washing instructions advise washing at the highest temperature possible with the washing machine – usually 80°C*	Parafricta products can be machine washed up to 80°C and have been tested to 100 washes. As with other garments and bed linen they should be safely disposed of if contaminated. A search of NHS Evidence and the Cochrane Library revealed no evidence that garments and bed linen correctly laundered, or disposed of if contaminated, are a significant concern with respect to infection control. To the extent that there is any potential infection by this route it will already be present to a greater extent due to hospital gowns, pyjamas, bedding, etc.in both with-Parafricta and without-Parafricta situations.	No factual inaccuracy, therefore no change to report.
11 Description of factual	**Description of proposed amendment**	**Justification for amendment**	**EAC response**

inaccuracy			
3.10 Additional work carried out by the External Assessment Centre in relation to clinical evidence			
Table 6	Replace with Table 1 from Appendix 5 of the Sponsor's submission.	Table 6 showing the Waterlow Scores from the study by Smith et al, on page 29, is incorrect. This was identified by the sponsors and the correct information presented in Appendix 5. Using only the data in table 6 has led to the erroneous suggestion that the cohort not given Parafricta were more at risk of pressure ulcers than those given Parafricta.	Table replaced with table 1 from appendix 5 of the sponsor submission.

12 Description of factual inaccuracy	Description of proposed amendment	Justification for amendment	EAC response
3.11 Conclusions on			

the clinical evidence			
Para 3 The main development of Parafricta is the material having less friction and shear than standard materials such as bed linen and cotton. However, the evidence suggests that only a small proportion of pressure ulcers are due to this (7.5% to 13.9%) so it in small case series, any differential effects are unlikely to be demonstrated. The largest case series evaluated patients who were unable to reposition so again was unlikely to show any difference. From the Waterlow scores from this study it is reasonable to assume that the reason for differential effects from the two cohorts is likely to be due to the confounding factors rather than clinical effectiveness of Parafricta Bootees and Undergarments.	The main development of Parafricta is the material having less *stiction*, friction and shear than standard materials such as bed linen and cotton. ~~However, the evidence suggests that only a small proportion of pressure ulcers are due to this (7.5% to 13.9%) so it in small case series, any differential effects are unlikely to be demonstrated.~~ The largest case series evaluated patients who were unable to reposition so *might be thought* unlikely to show any difference. *However, Table 2 of Appendix 5 in the Sponsor's submission shows that the patients studied had almost exclusively only grade 1 or grade 2 ulcers, which Lahmann (2011a, 2011b) correlate with friction and shear, not lack of mobility.* ~~From the Waterlow scores from this study it is reasonable to assume that the reason for differential effects from the two cohorts is likely to be due to the confounding factors rather than clinical effectiveness of Parafricta Bootees and Undergarments.~~	Clarification that Parafricta has lower friction *and* stiction coefficients and stiction; and stiction is a very important differentiating factor as outlined in the Scope. The statement concerning the proportion of pressure ulcers due to friction and shear is incorrect. The 7.5% and 13.9% are the percentages of the total cohort populations that have friction and shear problems. Lahmann (2011a and 2011b), which are the source of these figures, report that the patients with friction and shear problems have up to 6 times the average prevalence of PUs in hospitals and up to 4 times the prevalence of PUs in long term care. Table 2 of Appendix 5 in the Sponsor's submission shows	See response to issue 3 & 5.

		that the patients studied had almost exclusively only grade 1 or grade 2 ulcers, which correlate with friction and shear, not lack of mobility (Lahmann 2011a, 2011b). This contradicts the assumption that the selection of patients that could not reposition unaided would mean that any PUs occurring would be caused by pressure, not friction and shear. The conclusion concerning differential effects between the two cohorts is unjustified because the Waterlow scores of the two cohorts are statistically identical, as discussed above.	
13 Description of factual inaccuracy	**Description of proposed amendment**	**Justification for amendment**	**EAC response**

4.4 Overview of methodologies of all included economic studies			
Para 2 No adjustments to median lengths of stay were made, ignoring the fact that lengths of stay could have been confounded by patients' background characteristics, such as the Waterlow score.	No adjustments to median lengths of stay were made, ignoring the fact that lengths of stay could have been confounded by patients' background characteristics, ~~such as the Waterlow score~~.	Waterlow scores of the two cohorts were statistically identical (Ref: Table 1 of Appendix 5 of original Sponsor submission)	The bi-variate analysis of Smith (2010) data by the EAC indicated that the risk profile based on waterlow score (15-19/20-24/24+) was not different between the Parafricta and no-Parafricta group (p-value= 0.22). The evidence is "indicative" only because it is based on just the bivariate relationship. However, for the purpose of the economic model, it is important to consider the main outcome (length of stay) and whether the group's risk profile would have had any impact on the mean length of stay, allowing for other potential confounders. To achieve this, a log-transformed length of stay was regressed against use of parafricta (y/n), gender (m/f) and waterlow score (15+/20+). Patients risk profile (20+) was found to be associated with increased length of

			stay, controlling for gender, hospital ward and use of parafricta. Extra details of EAC regression are included in Appendix 4.
14 Description of factual inaccuracy	**Description of proposed amendment**	**Justification for amendment**	**EAC response**
4.7.4.2 Community model			
Para 2 (The community model constitutes a steady-state comparison of costs with and without the use of Parafricta. It uses data from the hospital model to estimate point prevalence for pressure ulcers in the community with and without the use of Parafricta)Results are calculated assuming that without	(The community model constitutes a steady-state comparison of costs with and without the use of Parafricta. It uses data from the hospital model to estimate point prevalence for pressure ulcers in the community with and without the use of Parafricta.)Results are calculated assuming that without Parafricta, for every patient in the community with a pressure ulcer, there will be between *one and three* other at-risk patients without a pressure ulcer. ~~The source of this assumption is unknown.~~ *This assumption is consistent with published audits of prevalence. (J Stevens, F Murphy and R Smith, Nursing & Residential Care, vol. 2, pp. 174-185 (2000). NICE: Cost Impact*	Correctness and completeness.	The EAC thanks the sponsor for supplying references to justify the assumption made with regards the at-risk to prevalence ratio used in the community model. The text has been amended to note this new information, which was not provided in the original submission.

Parafricta, for every patient in the community with a pressure ulcer, there will be two other at-risk patients without a pressure ulcer. The source of this assumption is unknown.	*Report Clinical Guideline 29 Pressure Ulcer Management September 2005)*		
15 Description of factual inaccuracy	**Description of proposed amendment**	**Justification for amendment**	**EAC response**
4.7.5.1 Hospital model			
Para 4 There was a slight discrepancy between the number of patients in group 1 without a pressure ulcer on admission and who subsequently developed one. The Sponsor reported it to be 46 but the actual number was 48 but the discrepancy did not make much difference.	There was a slight discrepancy between the number of patients in group 1 without a pressure ulcer on admission and who subsequently developed one. The Sponsor ~~reported it to be 46 but the actual number was 48~~ used the published figure of 46 although other data provided by Smith gave 48, but the discrepancy did not make much difference.	Clarity and correctness	The EAC agrees that it is right to refer to the source of the data here rather than the sponsors use - this has been amended using suggested text.
16 Description of factual inaccuracy	**Description of proposed amendment**	**Justification for amendment**	**EAC response**

4.7.8.2 Community model (deterministic sensitivity analysis)			
Table 12, middle row, 1st col. Number of Garments	~~Number of Garments~~ At-Risk/Prevalence Ratio	Correction	Error on part of EAC, amended.
17 Description of factual inaccuracy	**Description of proposed amendment**	**Justification for amendment**	**EAC response**
4.7.8.4 Community model (probabilistic sensitivity analysis)			
Table 1 Probabilistic parameters, CI and distribution – community model		Insertion of missing information	Missing information rectified.

Variable	Mean	99.9% CI	Distribution
Cost of Parafricta	£80	40 - 120	Normal
Cost of nurse intervention	1.86 * £61 = £113.46	90.77-136.15	Normal
Ratio of at-risk to prevalence	3	2-4	Normal

18 Description of factual	**Description of proposed amendment**	**Justification for**	**EAC response**

inaccuracy		amendment	
6. Conclusions			
The main development of Parafricta is the material having less friction and shear than standard materials such as bed linen and cotton. However, the evidence suggests that only a small proportion of pressure ulcers are due to this (7.5% to 13.9%) so it in small case series, any differential effects are unlikely to be demonstrated. The largest case series evaluated patients who were unable to reposition so again was unlikely to show any difference. From the Waterlow scores from this study it is reasonable to assume that the reason for differential effects from the two cohorts is likely to be due to the confounding factors rather than clinical effectiveness of Parafricta Bootees and Undergarments.	The main development of Parafricta is the material having less *stiction*, friction and shear than standard materials such as bed linen and cotton. ~~However, the evidence suggests that only a small proportion of pressure ulcers are due to this (7.5% to 13.9%) so it in small case series, any differential effects are unlikely to be demonstrated.~~ The largest case series evaluated patients who were unable to reposition so *might be thought* unlikely to show any difference. *However, Table 2 of Appendix 5 in the Sponsor's submission shows that the patients studied had almost exclusively only grade 1 or grade 2 ulcers, which Lahmann (2011a, 2011b) correlate with friction and shear, not lack of mobility.* ~~From the Waterlow scores from this study it is reasonable to assume that the reason for differential effects from the two cohorts is likely to be due to the confounding factors rather than clinical effectiveness of Parafricta Bootees and Undergarments.~~	Clarification that Parafricta has lower friction *and* stiction coefficients and stiction; and stiction is a very important differentiating factor as outlined in the Scope. The statement concerning the proportion of pressure ulcers due to friction and shear is incorrect. The 7.5% and 13.9% are the percentages of the total cohort populations that have friction and shear problems. Lahmann (2011a and 2011b), which are the source of these figures, report that the patients with friction and shear problems have up to 6 times the average prevalence of PUs in hospitals and up to 4 times the prevalence of PUs in long term care. Table 2 of Appendix 5 in the Sponsor's submission shows	No factual inaccuracy, therefore no change to report. See response to issue 3 & 5.

		that the patients studied had almost exclusively only grade 1 or grade 2 ulcers, which correlate with friction and shear, not lack of mobility (Lahmann 2011a, 2011b). This contradicts the assumption that the selection of patients that could not reposition unaided would mean that any PUs occurring would be caused by pressure, not friction and shear The conclusion concerning differential effects between the two cohorts is unjustified because the Waterlow scores of the two cohorts are statistically identical, as discussed above.	
19 Description of factual inaccuracy	**Description of proposed amendment**	**Justification for amendment**	**EAC response**
Appendix 3: Reanalysis of Smith data	**Appendix 4: Reanalysis of Smith data**	Wrong number	Corrected
20 Description of factual	**Description of proposed amendment**	**Justification for amendment**	**EAC response**

inaccuracy			
2.3.1 Population Where there are historical controls, it is unclear how similar these are to the patients using Parafricta.	Where there are historical controls, it is unclear how similar these are to the patients using Parafricta, *although in the main study (Smith 2010) the Waterlow scores and pressure ulcer gradings of both groups were statistically identical.*	See Sponsor's submission Appendix 5, Tables 1 and 2.	There was no information on case-mix. Other illnesses could affect length of stay. No factual inaccuracy, therefore no change to report.
21 Description of factual inaccuracy	**Description of proposed amendment**	**Justification for amendment**	**EAC response**
2.4 Description of the technology Parafricta is a patented silk-type material…	Parafricta is a patented, *smooth woven* material…	Parafricta is woven and smooth but is not a "silk-type" material	Text amended.
22 Description of factual inaccuracy	**Description of proposed amendment**	**Justification for amendment**	**EAC response**

Please add more if required.

Response to introductory note from Sponsor:

Issue	
Issue A- interpretation of Lahmann papers	This is a difference in interpretation and there are no factual inaccuracies in the EAC report. See responses above- issue 5.
Issue B- comparability of cohort in Smith et al	See response to issue 3.
Issue C- Length of stay and economic implications	See above response to issue 3. Bed day cost: The value given in the QIPP reference for excess bed days is £233, very similar to that estimated by the EAC. We agree there is uncertainty in this value and hence we have presented sensitivity analysis using a higher cost. The EAC does not agree with the Sponsor considering the cost for pressure ulcer to be higher as discussed in section 4.7.6.1 of the EAC report, but agrees that the modelling still suggest cost-savings.
Issue D- Hampton et al study	See response to issue 9.
Issue E- Economic model	The regression modelling used to estimate effect size has been included in greater detail in Appendix 4, including goodness of fit data. The EAC had also noted that a coding error had been carried from the Smith (2010) data, which had given Waterlow scores as 14-19 and 15-19. The original regression had treated these as different groupings. The EAC assumes that this is actually supposed to be the same category of Waterlow score.. The regression and economic model was rerun in light of this. The EAC does not know which specific length of stay the sponsor refers to when they say “”it is unclear

	why the median is 2 times the mean value…", however the median value will be smaller than the mean if the data is negatively skewed and greater than the mean if positively skewed. This is likely to happen in small samples, as is the case here. On the large difference between raw values and predicted values in Table 20: The wider gap suggests that the raw mean LOS estimates are subject to greater uncertainty. We acknowledge that the EAC regression model explains very little variation ((4%) in LOS and therefore it may not be as good predictive model as the one if we had information on several other confounders. However, this model removes some of the baseline differences and hence the reduction in the magnitude of LOS from the raw estimates. To clarify: the savings in the community model are not presented per at-risk patient. See response to issue 4.
Issue F - Comparators	No factual inaccuracy in EAC report.