Engagement Report

Topic details

Title of policy or policy statement:	Proton Beam Therapy for breast cancer (all ages)
Programme of Care:	Cancer
Clinical Reference Group:	Radiotherapy
URN:	1787

1. Summary

This report summarises the feedback NHS England received from engagement during the development of this policy proposition, and how this feedback has been considered.

One respondent (independent provider) was opposed to the policy position. All other respondents were in favour.

The one respondent not in favour suggested patients should be treated with PBT. Two other respondents also suggested that sub-groups of patients with breast cancer could be treated with PBT.

The policy working group view is that for all of these patients, there is a lack of evidence supporting the use of PBT in the treatment of patients with breast cancer and that these aspects are best tested in the context of a randomised controlled trial, which is under development.

No changes have been made to the policy as a result of the feedback received.

2. Background

This policy proposition is for the use of Proton Beam Therapy (PBT for the treatment of Breast cancer. The commissioning recommendation is that PBT is not routinely commissioned for the treatment of Breast cancer. This policy proposition has been developed by a Policy Working Group made up of 3 Consultant Clinical Oncologists (including NHS England National Clinical Lead PBT), 2 public/patient representatives and 1 NHS England/Public Health England Public Health Advisor.

3. Engagement

NHS England has a duty under Section 13Q of the NHS Act 2006 (as amended) to ‘make arrangements’ to involve the public in commissioning. Full guidance is available in the Statement of Arrangements and Guidance on Patient and Public Participation in Commissioning. In addition, NHS England has a legal duty to promote equality under the Equality Act (2010) and reduce health inequalities under the Health and Social Care Act (2012).

The policy proposition was sent for stakeholder testing for 2 weeks from 28th July to 11th August 2020. The comments have then been shared with the Policy Working Group to enable full consideration of feedback and to support a decision on whether any changes to the proposition might be recommended.

Respondents were asked the following questions:

- Do you support the proposition for PBT for Breast cancer will not be routinely commissioning based on the evidence review and within the criteria set out in this document?
- Do you believe that there is any additional information that we should have considered in the evidence review? If so, please give brief details.
- Do you believe that there are any potential positive and/or negative impacts on patient care as a result of making this treatment option available? If so, please give details.
- Do you have any further comments on the proposition? If Yes, please describe below, in no more than 500 words, any further comments on the proposed changes to the document as part of this initial 'sense check'.
- Do you support the Equality and Health Inequalities Impact Assessment?
- Please declare any conflict of interests relating to this document or service area.

A 13Q assessment has been completed following stakeholder testing. (delete the not applicable paragraphs)

The Programme of Care decided that as the proposition is for not routinely commissioning it was subject to further public consultation. This decision has been assured by the Patient Public Voice Advisory Group.

Consequently, the policy proposition was published and sign-posted on NHS England's website and was open to consultation feedback for a period of 30 days from [date] to [date]. Consultation comments have then been shared with the Policy Working Group to enable full consideration of feedback and to support a decision on whether any changes to the proposition might be recommended.

Respondents were asked the following consultation questions:

- RC: Do you support the proposition for PBT for Breast Cancer to be available through routine commissioning based on the evidence review and within the criteria set out in this document?
- NRC: Do you support the proposition that PBT for Breast Cancer will not be routinely commissioned based on the evidence review and the criteria set out in this document?
- Do you believe that there is any additional information that we should have considered in the evidence review?
- The impact assessment has been completed to identify the impact of moving from current pathways of care to the one(s) proposed in the draft policy proposition taking into account the anticipated patient numbers, treatment, cost of the treatment and capacity within providers, Do you think that the impact assessment fairly reflects the likely patient numbers, treatment, cost of treatment and the capacity within providers? If not, what do you think is inaccurate?

- The patient pathway describes the patient's journey through the health system to receive current treatment for this condition. Do you think that the policy proposition accurately describes the current patient pathway that patients experience? If not, what is different?
- Please provide any comments that you may have about the potential positive and negative impacts on equality and health inequalities which might arise as a result of the proposed policy that have been described?
- Are there any changes or additions you think need to be made to this document, and why?
- Did you comment on the stakeholder testing for this policy proposition?

4. Engagement Results

7 responses were received. 3 were from individuals, 1 from NCRI, 1 from an independent provider, 1 from professional organisation and 1 from a charity/patient organisation.

6 responses were in agreement with the policy proposition position and 1 was opposed.

A specific telephone conference was held with Breast Cancer Now as advised by the public/patient reps on the PWG. The purpose of the meeting was to inform Breast Cancer Now of the policy, NHS England intentions re conduction trials in this area and provide an update on the trial developments. The policy and updates were received favourably and the policy proposition was supported.

Breast Cancer Now was also asked to advise if any other groups should be contacted and advised that other groups were more active in other areas including prevention and screening and they were the main group focussed on policy and research.

Breast Cancer Now have submitted a stakeholder response.

5. How has feedback been considered?

Responses to engagement have been reviewed by the Policy Working Group and the (insert PoC) PoC. The following themes were raised during engagement:

Keys themes in feedback	NHS England Response
Relevant Evidence	
1 respondent recommended that NHS England should consider the evidence for treating subgroups of patients requiring adjuvant radiotherapy for breast cancer (in line with Dutch health authorities). (See appendix 1 below for full details)	Dosimetry studies cannot be included in NHS England PBT policy evidence reviews. Whilst it is acknowledged that dosimetry studies show the ability of PBT to reduce dose to the heart compared to standard PBT, the extent to which PBT can reduce an individual patient's cardiac risk remains to be determined as does the acute and medium-term toxicity of PBT compared to standard RT.

	NHS England is of the view these aspects are best tested in the context of a randomised controlled trial. Note: two evidence reviews have been carried out for this policy as the policy working group had concerns regarding the completeness of the first review.
No other respondents commented on the evidence reviews.	
Impact Assessment	
No comment was made.	Note: There is no impact (financial or activity) on the treatment of patients with breast cancer as this is a not routinely commissioned policy.
Current Patient Pathway	
3 respondents commented that there were groups of patients for which PBT could used in the treatment of breast cancer. 2 respondents were supportive of the policy position, whilst 1 respondent was not.	NHS England is of the view (and as acknowledged by the respondent) that there is a lack of evidence as to the extent to which PBT can be used with these patients and that these aspects are best tested in the context of a randomised controlled trial. Note: The current patient pathway for the treatment of patients with breast cancer remains unchanged as this is a not routinely commissioned policy.
Potential impact on equality and health inequalities	
1 respondent highlighted patients with previous cardiac history (who also may not be able to maintain a DiBH breath hold) and/or requiring IMC irradiation may be being disadvantaged by the policy. The respondent acknowledged the numbers for this will be very small and there is a lack of evidence to support the use of PBT in this area but this may negatively impact these patients.	NHS England is of the view (and as acknowledged by the respondent) that there is a lack of evidence as to the extent to which PBT can be used with these patients and that these aspects are best tested in the context of a randomised controlled trial.
Changes/addition to policy	
1 respondent commented on the phrasing used within the policy and that the proposed clinical trial is not clear in the documentation.	The wording of the policy has not been amended to comply with NHS England process and guidance

The responses should answer all the themes reported in section 4 and cover the outcome of reviews of any additional evidence highlighted during engagement

6. Has anything been changed in the policy proposition as a result of the stakeholder testing and consultation?

The following change(s) based on the engagement responses has (have) been made to the policy proposition:

7. Are there any remaining concerns outstanding following the consultation that have not been resolved in the final policy proposition?

Appendix 1: Stakeholder Engagement Feedback

Organisation Responding	Feedback Received	PWG response	Resulting Action
Individual	**Do you support the proposal that PBT for breast cancer will not be routinely commissioned based on the evidence review and the criteria set out in this document?** Yes **Do you believe that there is any additional information that we should have considered in the evidence review? If so, please give brief details including reference/publication details.** None **Do you believe that there are any potential positive and/or negative impacts on patient care as a result of not making this treatment option available? If so, please give details.** None **Do you have any further comments on the proposal?** No **Do you support the Equality and Health Inequalities Impact Assessment?** Yes **Please declare any conflict of interests relating to this document or service area.** None		No action required

Individual (Consultant Oncologist)	**Do you support the proposal that PBT for breast cancer will not be routinely commissioned based on the evidence review and the criteria set out in this document?** Yes **Do you believe that there is any additional information that we should have considered in the evidence review? If so, please give brief details including reference/publication details.** No **Do you believe that there are any potential positive and/or negative impacts on patient care as a result of not making this treatment option available? If so, please give details.** No **Do you have any further comments on the proposal?** Yes **If Yes, please describe below, in no more than 500 words, any further comments on the proposed changes to the document as part of this initial 'sense check'** AS MENTIONED IN THE DOCUMENT,THERE MAY BE A SMALL NUMBER OF WOMEN REQUIRING LEFT INTERNAL MAMMARY LYMPH NODE RT WITH PECTUS EXCAVATUM WHO MAY BENEFIT. IT WOULD BE USEFUL TO HAVE A MECHANISM WHICH ALLOWS PBT FOR THIS VERY SMALL POPULATION (RATHER THAN THE RATHER CUMBERSOME IFR ROUTE).	The authors agree that this is the population of patients who could potentially benefit from PBT albeit that there are currently no randomised data to support this. Research and/or registry	

	Do you support the Equality and Health Inequalities Impact Assessment? Yes **Please declare any conflict of interests relating to this document or service area.** I SIT ON THE NHSE PROTON PANEL (FOR PAEDS AND TYA) FOR WHICH I RECEIVE 1PA REMUNERATION. I HOLD AN HONORARY CONSULTANT CONTRACT AT THE CHRISTIE PBT CENTRE.	proposals are beyond the scope of this policy document but a proposal for a randomised controlled trial in this population is being submitted at stage II of the NIHR Efficiency and Mechanism Evaluation Programme.	
NCRI Clinical and Translational Radiotherapy Research Working Group (CTRad)	**Do you support the proposal that PBT for breast cancer will not be routinely commissioned based on the evidence review and the criteria set out in this document?** Yes **Do you believe that there is any additional information that we should have considered in the evidence review? If so, please give brief details including reference/publication details.**		No action required

	No **Do you believe that there are any potential positive and/or negative impacts on patient care as a result of not making this treatment option available? If so, please give details.** No **Do you have any further comments on the proposal?** Yes **If Yes, please describe below, in no more than 500 words, any further comments on the proposed changes to the document as part of this initial 'sense check'.** There is no place for breast PBT as SOC [*Standard of Care*] at the moment, but clinical trials are recommended. **Do you support the Equality and Health Inequalities Impact Assessment?** Yes	Research and/or registry proposals are beyond the scope of this policy document but a proposal for a randomised controlled trial in this population is being submitted at stage II of the NIHR Efficiency and Mechanism Evaluation Programme.	

	Please declare any conflict of interests relating to this document or service area. None		
Breast Cancer Now	**Do you support the proposal that PBT for breast cancer will not be routinely commissioned based on the evidence review and the criteria set out in this document?** Yes **Do you believe that there is any additional information that we should have considered in the evidence review? If so, please give brief details including reference/publication details.** No comment **Do you believe that there are any potential positive and/or negative impacts on patient care as a result of not making this treatment option available? If so, please give details.** No comment **Do you have any further comments on the proposal?** Yes **If Yes, please describe below, in no more than 500 words, any further comments on the proposed changes to the document as part of this initial 'sense check'.** Whilst we recognise that this policy follows a set format, the phrase 'a final decision on whether proton beam therapy (PBT) will be not for routine commissioning' is clunky and confusing – particularly for those unused to this sort of terminology, which could be an issue should the policy go out for public consultation.	Noted	No action required

	Again, whilst we recognise that NHS England has to produce a commissioning policy that states that a treatment will not be routinely commissioned in order to run a clinical trial, the fact that there will be a clinical trial for this treatment in the group of women that the limited available evidence suggests it may be beneficial for is not at all clear from the documentation. Although there is one sentence to this effect in the equality health impact assessment, there is nothing in the commissioning policy itself, and the reference in the covering email ('this is an area where research is ongoing…') is oblique to say the least. The fact that there will be a clinical trial for this treatment is good news and it is therefore difficult to understand why NHS England seem so reluctant to mention it.	Noted	
	On the clinical trial itself we understand that NHS England will provide support with accommodation, which is welcome, but does not provide assistance with travel expenses. We recognise that NHS England cannot set a precedent in this way but given that the treatment is only available in London and Manchester, access to the trial may therefore be limited by the means and resources of patients to travel to those locations.	Comments are noted, although are outside of the stakeholder engagement remit & have been passed onto the clinical trial leads	
	Do you support the Equality and Health Inequalities Impact Assessment? Yes		
	Please declare any conflict of interests relating to this document or service area. None		

Rutherford Health plc	**Do you support the proposal that PBT for breast cancer will not be routinely commissioned based on the evidence review and the criteria set out in this document?** No It is our view that if modelling predicts a 1% reduction in late cardiac events, then commissioners should consider funding. The Dutch government accepts funding if there is a 2% reduction. **Do you believe that there is any additional information that we should have considered in the evidence review? If so, please give brief details including reference/publication details.** ***Rutherford Health recommends that NHS England should consider the evidence for treating subgroups of patients requiring adjuvant radiotherapy for breast cancer (in line with the Dutch Health Authorities).*** ***NHS England should also consider subgroups with "difficult anatomy" such as patients with pectus excavatum in order to achieve avoidance of excessive irradiation of heart and lung.*** Most patients with early breast cancer requiring breast or chest wall radiotherapy (RT) can safely and effectively be treated with modern linear accelerator (LINAC) based tangential-field (X-Ray) techniques, using forward-planned intensity modulated radiotherapy (IMRT) to avoid 'hot-spots' and utilising deep inspiration breath-hold to reduce the risk of cardiac toxicity. However, a small proportion of patients treated by adjuvant breast or chest wall radiotherapy, mainly those who need additional radiotherapy to the lymph nodes of the internal mammary chain (IMC), may significantly benefit from proton therapy. These are patients where LINAC-based techniques would deliver	The Dutch PBT group have indeed adopted a models-based approach in which they select patients for PBT who would have a >2% risk of a major cardiac event from standard RT. A patient's risk is determined from the Darby tables (NEJM) in combination with the mean heart dose predicted from standard RT. Dosimetry studies cannot be included in NHSE PBT Policy Evidence reviews. Whilst the authors acknowledge that dosimetry studies show the ability of PBT to reduce dose to	No action required

	significant dose to their heart, even with the use of IMRT, breath-hold, and other techniques. Dose to the heart from radiotherapy treatments has been shown (Darby et al 2013, Correa et al 2007) to increase the risk of major coronary events such as myocardial infarction, coronary revascularization, and death from ischemic heart disease. Several recent studies, including (Ranger et al 2018), have shown that proton therapy can significantly reduce cardiac dose in the sub-set of breast patients who also have IMC treatment. For the same group of patients, (Settatree et al 2020) show that proton therapy will also reduce the risk of developing cancer in the contralateral breast following breast radiotherapy. Correctly determining the small group of patients where proton therapy would significantly reduce the risk of major coronary events, will clearly benefit those patients, and also will be cost-effective for healthcare providers in the long-term by avoiding the major costs of treatment for major coronary events. Darby et al 2013 have published papers and updates describing the increased risk of cardiac toxicity and severe and fatal cardiac events due to irradiation of the heart during radiotherapy for left-sided breast cancer. They have shown the risk is proportional to the 'mean heart dose'. They state: "Rates of major coronary events increased linearly with the mean dose to the heart by 7.4% per gray… with no apparent threshold. The increase started within the first 5 years after radiotherapy and continued into the third decade after radiotherapy."	the heart compared to standard PBT, the extent to which PBT can reduce an individual patient's cardiac risk remains to be determined as does the acute and medium term toxicity of PBT compared to standard RT. These aspects are best tested in the context of a randomised controlled trial. Data from a RCT would inform evaluations of cost-effectiveness and future commissioning policy. Research and/or registry proposals themselves are beyond the scope of this policy document but a proposal for a randomised controlled trial in this population is being submitted at stage II of the NIHR Efficiency and	

	Note that this describes the increase in the relative risk of a major coronary event, and that the heart doses in the data were converted (depending on the dose per fraction and numbers of fractions) to be equivalent to delivering the treatment in 2Gy per fraction (EQD2Gy). Major coronary events in this publication included myocardial infarction, coronary revascularization, and death from ischemic heart disease. The supplementary appendix published by Darby et al 2013 provided data summaries as well as data on absolute risk of major coronary events depending on criteria such as patient age and cardiac risk factors. The Dutch health authorities will fund proton beam therapy if the reduction in cardiac dose achieved (compared to LINAC radiotherapy) is such that the absolute risk of an Acute Coronary Event (ACE, ie, a non-fatal or fatal MCE or unstable angina) is reduced by 2% or more taking into account other risk factors such as patient age and other cardiac risk factors (Mast et al, 2014). 1. Darby SC, Ewertz M, McGale P, et al. Risk of ischemic heart disease in women after RT for breast cancer. N Engl J Med 2013:368:987-98. 2. Correa CR, Litt H, Hwang W, et al. Coronary Artery Findings After Left-Sided Compared with Right-Sided Radiation Treatment for Early-Stage Breast Cancer. J Clin Oncol 2007:25:3031-3037. 3. Ranger A, Dunlop A, Hutchinson K, et al. A Dosimetric Comparison of Breast Radiotherapy Techniques to Treat Locoregional Lymph Nodes Including the Internal Mammary Chain. J Clin Oncol 2018:30:346-353.	Mechanism Evaluation Programme.	

	4. Settatree S, Brand D, Ranger A, et al. Estimating Contralateral Breast Cancer Risk from Photons versus Protons in Patients Undergoing Internal Mammary Nodal Breast Cancer Radiotherapy. J Clin Oncol 2020:32:342-345 5. Mast ME, Vredeveld EJ, Credoe HM, et al. Whole breast proton irradiation for maximal reduction of heart dose in breast cancer patients. Breast Cancer Res Treat 2014;148:33–39 **Do you believe that there are any potential positive and/or negative impacts on patient care as a result of not making this treatment option available? If so, please give details.** UK patients in these subgroups will not be receiving the same standard of care as those from The Netherlands. **Do you have any further comments on the proposal?** Yes **If Yes, please describe below, in no more than 500 words, any further comments on the proposed changes to the document as part of this initial 'sense check'.** In assessing potential benefits form proton therapy it is important to consider potential reduction in late effects. The predominant potential benefit is the reduction in late cardiac events. This should form the major focus of the evidence review. It should be pointed out that a North American trial, Radiotherapy Comparative Effectiveness (RadComp) is currently recruiting patients to answer this question: Radcomp is a large scale, multicentre pragmatic randomised clinical trial for patients with breast cancer who will be followed longitudinally	Inclusion of currently recruiting international RCTs is beyond the scope of this policy document but has been taken into account by the large	

	for cardiovascular morbidity and mortality, health-related quality of life and cancer control outcomes. A total of 1278 patients with non-metastatic breast cancer will be randomly allocated to receive either photon or proton therapy. The primary outcomes are major cardiovascular events, defined as myocardial infarction, coronary revascularisation, cardiovascular death or hospitalisation for unstable angina, heart failure, valvular disease, arrhythmia or pericardial disease. Secondary endpoints are urgent or unanticipated outpatient or emergency room visits for heart failure, arrhythmia, valvular disease or pericardial disease. The RadComp Clinical Events Centre will conduct centralised, blinded adjudication of primary outcome events. An impact on survival or tumour control would not be expected, which should be made clear. **Do you support the Equality and Health Inequalities Impact Assessment?** Yes **Please declare any conflict of interests relating to this document or service area.** Rutherford Health plc is an independent provider of cancer services.	multidisciplinary group working on the proposed PBT RCT in breast cancer.	
Individuals	**Do you support the proposal that PBT for breast cancer will not be routinely commissioned based on the evidence review and the criteria set out in this document?** Yes **Do you believe that there is any additional information that we should have considered in the evidence review? If so, please give brief details including reference/publication details.** NA		No action required

	Do you believe that there are any potential positive and/or negative impacts on patient care as a result of not making this treatment option available? If so, please give details. No. We believe this treatment option should be investigated as part of high quality clinical trials and will support this going forward **Do you have any further comments on the proposal?** No **Do you support the Equality and Health Inequalities Impact Assessment?** Yes **Please declare any conflict of interests relating to this document or service area.** None	Research and/or registry proposals are beyond the scope of this policy document but a proposal for a randomised controlled trial in this population is being submitted at stage II of the NIHR Efficiency and Mechanism Evaluation Programme.	
The Society & College of Radiographers	**Do you support the proposal that PBT for breast cancer will not be routinely commissioned based on the evidence review and the criteria set out in this document?** Yes		No action required

	Do you believe that there is any additional information that we should have considered in the evidence review? If so, please give brief details including reference/publication details. Not answered **Do you believe that there are any potential positive and/or negative impacts on patient care as a result of not making this treatment option available? If so, please give details.** Not answered **Do you have any further comments on the proposal?** Yes **If Yes, please describe below, in no more than 500 words, any further comments on the proposed changes to the document as part of this initial 'sense check'.** Page 4 of the policy proposition states that PBT may be helpful for IMC irradiation or in women with unusual chest wall shapes, however, there is no mention of the need to consider motion management. Although it is accepted that this is not the focus of this document but, as it would be an important element of safe delivery, we suggest a brief reference should be included. Whilst significant research has been undertaken looking at the clinical effects of PBT there are still significant uncertainties and considerations regarding the physics of PBT and physical properties. There are still uncertainties surrounding organ motion, changes in shape and the dose effect on air/tissue interfaces. My only query would be with regards to the possibility of identifying	Noted Research and/or registry proposals are beyond the scope of this policy document but a proposal for a randomised controlled trial in this population is being submitted at stage II of the NIHR	

	patients with previous cardiac history (who also may not be able to maintain a DiBH breath hold) and/or requiring IMC irradiation who may be being disadvantaged by the policy, I acknowledge the numbers for this will be very small and there is a lack of evidence to support the use of PBT in this area but this may negatively impact these patients. **Do you support the Equality and Health Inequalities Impact Assessment?** To highlight with regards to the possibility of identifying patients with previous cardiac history (who also may not be able to maintain a DiBH breath hold) and/or requiring IMC irradiation who may be being disadvantaged by the policy. It is acknowledged the numbers for this will be very small and there is a lack of evidence to support the use of PBT in this area but this may negatively impact these patients. **Please declare any conflict of interests relating to this document or service area.** None	Efficiency and Mechanism Evaluation Programme. Research and/or registry proposals are beyond the scope of this policy document but a proposal for a randomised controlled trial in this population is being submitted at stage II of the NIHR Efficiency and Mechanism Evaluation Programme.	

Appendix 2: Public Consultation Feedback

Insert URN and Policy Title
Number of respondents:

Organisation Responding	Feedback Received	PWG response	Resulting Action

Responses have been carefully considered and noted in line with the following categories:

- Level 1: Incorporated into draft document immediately to improve accuracy or clarity
- Level 2: Issue has already been considered by the CRG in its development and therefore draft document requires no further change
- Level 3: Could result in a more substantial change, requiring further consideration by the CRG in its work programme and as part of the next iteration of the document
- Level 4: Falls outside of the scope of the specification and NHS England's direct commissioning responsibility