

**Road Testing Programme Budgeting and Marginal Analysis (PBMA) in
three English Regions: Hull (Diabetes), Newcastle (CAHMS), Norfolk
(Mental Health)**

**Linda Kemp, Ric Fordham
HESP, University of East Anglia, Norwich
Ally Robson, Angela Bate, Cam Donaldson
IHS, Newcastle University
Sue Baughan, Brian Ferguson
Yorkshire and Humber Public Health Observatory
Peter Brambleby
North Yorkshire and York PCT**

Contents	
1. Introduction	3
2. Methodology	4
2.1 The model	4
2.2 Aim and Scope	4
2.3 Determining the programme budget	5
2.4 Form a Marginal Analysis Advisory Panel and Stakeholder Group	5
2.5 Determining locally relevant decision making criteria	6
2.5.1 Identification of criteria	6
2.5.2 Weighting of criteria	6
2.6 Identifying options for change	6
2.7 Assessing and weighting the benefit of options for service change	7
2.7.1 Business cases	7
2.7.2 Scoring the marginal benefit of business case proposals	7
2.7.3 Prioritisation	7
2.8 Sensitivity analysis	8
2.9 Validity checks with stakeholders	8
2.10 Evaluation of project objectives	8
3. Results	9
3.1 Determine the aim and scope of the exercise	9
3.2 Compile a programme budget	9
3.3 Form a Marginal Analysis Advisory Panel and Stakeholder groups	9
3.4 Determining locally relevant decision making criteria	10
3.4.1 Identification of criteria	10
3.4.2 Weighting of criteria	10
3.5 Options for service change	10
3.6 Evaluating options for service change	10
3.6.1 Developing business cases	10
3.6.2 Scoring business cases	11
3.6.3 Shifting resources	11
3.6.4 Sensitivity analysis	11
3.6.5 Validity checks	12
3.7 Evaluation of project objectives	13
3.7.1 Acceptability	13
3.7.2 Is it possible to populate the 5 key questions with data?	13
3.7.3 Does this approach make a difference to patterns of service?	15
3.7.4 Do the participants value.....?	15
3.7.5 Is it possible to make PBMA a feature of local commissioning decisions?	16
4. Conclusions and Recommendations	17
4.1 Conclusions	17
4.2 Recommendations	17
Appendix 1 – Criteria for decisions about service change	20

1. Introduction

The NHS has enjoyed an unprecedented period of growth with real increases in spending of 7.4% since 2002. However in October 2007, the Comprehensive Spending Review returned the NHS to more modest spending increases of 4% per year. Innovation and improvement are still possible but require redeployment of existing funds – disinvestment and re-investment at the margins. One framework for appraising options for doing things differently is programme budgeting and marginal analysis (PBMA), a tool rooted in economic theory and with a substantial evidence base. For the past 4 years, all PCTs in England have collected programme budget data in 23 categories, based on ICD10 coding. PBMA is identified as a subcategory in two of the competencies for World Class Commissioning and features in the Efficiency Appendix to the Operating Framework. PCTs are required to;

"Use programme budgeting information to review the relationship of expenditure to outcomes in their highest spending commissioning categories (typically Mental Health, CVD and Cancer) and identify opportunities for improved value for money."

Against this background the NHS Institute for Innovation and Improvement funded a study; 'Road Testing Programme Budgeting and Marginal Analysis (PBMA) in three English regions'. This aimed to test the model of PBMA at the micro level as proposed by Ruta *et al*, (BMJ, 2005)¹ in three different programmes of care and in three different geographical localities. Pilot sites were identified in three Regions, Hull (Diabetes), Newcastle (Child and Adolescent Mental Health Services) and Norfolk (Mental Health). The model posed five key questions:

- 1) What resources are available?
- 2) On which services are NHS resources spent (hospital, community, GP prescribing, non-NHS partner agencies)?
- 3) Which services are candidates for more resources, and what is the added cost and added benefit of each? ("Wish list")
- 4) Can any services be provided as effectively with fewer resources, or minimally effective services curtailed, and if they were discontinued, what savings would arise and what benefits would be foregone? ("Hit list")
- 5) Is it possible to invest in some items on the wish list by disinvesting in some from the hit list? ("Implementation list")

The key objectives of the pilot were to assess:

- 1) Acceptability –
 - 1.1.1 Do people attend the advisory panels and engage in discussion?
 - 1.1.2 Do the participants value cross-fertilisation of ideas:- perspectives from other geographical areas, input from different disciplines, patient viewpoint and a health economist as a facilitator?

¹ Ruta D, Mitton C, Bate A, Donaldson C. Programme budgeting and marginal analysis: bridging the divide between doctors and managers. BMJ 2005;330:1501-3

- 2) Data availability – is it possible to populate the 5 key questions in the model with data on inputs, outputs and outcomes?
- 3) Practical value – does this approach make a difference to patterns of service, starting within the financial year 2007/08, and continued into 2008/09.
- 4) Generalisability – is it likely to be possible to make PBMA a regular feature of local commissioning decisions (sustainable, proportionate and affordable) in time for the 2008/09 financial cycle when significant resource growth to the NHS in England will cease and PBMA will be one of the principle tools for service development?

Peter Brambleby, who at the start of the project was the Director of Public Health at Norwich PCT, secured the grant from the NHS Institute and co-ordinated the project. During the project, PCTs were reconfigured and Peter moved to North Yorkshire and York PCT, but continued to be closely involved.

Each pilot site has produced a full separate report. The aim of this summary is to give an overview of the method, results and recommendations for all three pilot sites and to summarise the conclusions and recommendations of all three pilot sites.

2. Methodology

2.1 The model

The three pilot sites worked to a 7 step process derived from the 5 step model proposed by Ruta *et al*:

- 1) Determine aim and scope of exercise
- 2) Engage advisory and stakeholder groups
- 3) Determine the current programme budget
- 4) Identify options for service change (growth and resource release)
- 5) Identify and value benefits and costs of options
- 6) Evaluate options and make recommendations for change
- 7) Validity checks with other stakeholders and make final decisions

Each pilot site followed the methodology as closely as possible. To ensure consistency a steering group oversaw the project. The project had two representatives from each pilot site on the group and it was chaired by Peter Brambleby. Lead researchers participated in monthly teleconferences to check progress and ensure that all projects were following a consistent methodology as far as possible. However differences in the clinical area chosen and local circumstances occasionally meant that the methodology had to be adapted.

2.2 Aim and scope

Each pilot started with the assumption that the budget for the purposes of the pilot was fixed or neutral. This meant that for any additional investment within the programme budget area, a corresponding resource

releasing disinvestment would need to be identified. The pilots in Hull and Newcastle proceeded on this basis. However Older People's Mental Health Services in Norfolk had undergone disinvestment of £2 million in 2007/08. Mental Health Services were the largest contributor to the PCT's financial turnaround plan with a further budget cut of around 8% in 2008/09. This meant that substantial disinvestments needed to be identified to satisfy the planned budget cuts before any investments could be considered.

Each pilot defined the scope of the programme budget coverage. Norfolk acknowledged that mental health services were provided by a number of agencies but restricted the PBMA to the financial contribution provided by the NHS. At the start of the pilot in Hull, there was an Integrated Service Improvement Programme (ISIP) looking at diabetes. The PBMA pilot was initially seen as part of the ISIP and so it was decided that the scope should mirror that chosen by the ISIP. This limited the pilot to diabetes care commissioned by Hull Teaching PCT. In Newcastle, the pilot included Local Authority as well as NHS expenditure and focussed on CAMHS commissioned for the population of Newcastle for the first 3 tiers of care. This did not include day units, highly specialised out-patient teams and in-patient units.

2.3 Determining the programme budget

There was a difference in approach between pilot sites in the amount of time spent determining the programme budget. Norfolk took the approach that as Mental Health was a substantive programme budget category (Category five) and the data was adequate for the purpose, specific additional expenditure and activity data would only be requested when needed as part of the marginal analysis.

Hull and Newcastle spent some time determining the programme budget. Diabetes is a subcategory of programme budget category 4 (Endocrine, Nutritional and Metabolic problems) and this formed the basis of the financial element of the programme budget. Work was done in Hull to break-down and better understand the information provided on the programme budget return. In addition data was collected on activity and on outcomes using the Department of Health's Commissioning Framework for Diabetes. Although CAMHS is a subcategory of the Mental Health budget, Newcastle did not use this information directly. Expenditure was analysed across the NHS and the Local Authority to match up with the services included in the scope of the pilot.

2.4 Form a Marginal Analysis Advisory Panel and Stakeholder Groups

All three sites formed a Marginal Analysis Advisory Panel which oversaw the pilot from start to finish. Each project accessed various stakeholder groups during the course of the pilot.

2.5 Determining locally relevant decision making criteria

2.5.1 Identification of criteria

Each site used the Marginal Analysis Advisory Panel to identify criteria to aid decision making about investment/disinvestment decisions. Other Stakeholder groups were involved in the process of determining criteria. The criteria provided a common frame of reference for group decision making and promoted transparency in the decision making process. Criteria from previous PBMA exercises were used by all 3 sites as a basis for generating ideas and discussion.

2.5.2 Weighting of criteria

In order to determine the relative importance of the different criteria, all the pilot sites weighted the criteria. All sites used the points allocation method which requires individuals to allocate a fixed number of points across criteria and sub-criteria. This method of weighting criteria was chosen as it is easy to understand, quick to carry out and forces individuals to think about trade-offs between criteria and strength of preference. Newcastle and Norfolk weighted criteria and sub-criteria. In Hull only the main criteria were weighted. All three pilots used different groups to weight the criteria and calculated average group weights and the total average weights so that the difference between group priorities could be clearly seen.

2.6 Identifying options for service change

The pilots identified two main approaches to generating options to service change from the literature on programme budgeting. First a systematic approach that represents the flow of patients through the health care system for the relevant programme of care and identifies the decision points at which alternative service options may be available. The second approach uses the programme budget and the national and local expectations about the programme of care to identify areas where service changes are likely to have the most impact. All three pilots adopted the second approach.

In Hull the programme budget included information about outcomes as well as financial information. The advisory panel generated a list of priority areas for service change from the financial and outcome information included in the programme budget. As a validity check they compared this list with the results of two external audits carried out by the Healthcare Commission and the National Support Team for Inequalities. In Newcastle options for service change were determined by frontline staff in CAMHS provision. The advisory panel advocated that options for service change should attempt to fulfil the commissioning aims for CAMHS. Local and National relevant strategy documents were also used to guide potential service changes. In Norfolk, the advisory panel was similarly guided by local and national priorities including identifying areas of unmet need. Hull and Norwich used the advisory panel to generate options for service change guided by the priority areas identified. In Newcastle a separate workshop for front-line staff generated options for change. In Hull additional ideas were generated by a patient group and through the ISIP. Having generated a long list of potential options, ideas were shortlisted and written up using a business case process.

All three pilots encouraged ideas for disinvestment as well as investment. Norfolk had the most explicit approach to disinvestment specifying that for each idea which required investment a corresponding disinvestment had to be identified. This is perhaps unsurprising given that mental health services in Norfolk were facing the additional challenge of an 8% cut in their budget in 2008/9.

2.7 Assessing and weighting the benefit of options for service change

2.7.1 Business Cases

All three pilots used a business case methodology to capture the details of the options for service change. Newcastle and Norfolk used one form explicitly designed to assess how the proposed service changes met their criteria and sub criteria. In Hull the PCT had a well established Benefits Realisation Proforma which was used to record the costs and savings associated with any service change. This was used in addition to a form designed to assess how the proposed service change met the criteria and sub-criteria.

2.7.2 Scoring the marginal benefit of business case proposals

All three pilots devoted an advisory panel session to scoring business cases proposals. The Newcastle pilot held an away day. Hull scored business cases using the main criteria only whilst the other two pilots used sub-criteria as well. In Newcastle and Norfolk advisory panel members scored each business case individually before coming to a group consensus; Newcastle by group discussion and Norfolk by averaging the individual scores. In Hull the business case process took longer than was expected and so were not available in advance of the meeting so members scored the cases as a group. The scoring process was conducted on the basis of the marginal benefit of the service change. Each pilot took used different scaling methods. Hull assigned a score (out of 5) for the additional benefit against each criterion over and above that currently being provided. Newcastle took a similar approach but defined what each point on the scale meant for each criterion. Norfolk used a ten point scale where 5 was the same as the current service, less than 5 worse and more than 5 better. The weighted benefit score was taken as a proxy for the marginal benefit of each business case.

2.7.3 Prioritisation

All three pilots ranked business cases in order to determine the priority order in which they should be funded or from which resources should be released.

The Newcastle pilot calculated the ratio of the weighted benefit score to the yearly cost which equated to the additional benefit lost/gained to the additional money saved/spent. This provided a cost-effectiveness rank order of business cases. This information was presented for each business case to the advisory panel along with additional information such as the number of beneficiaries. Individual panel members reviewed this rank order and submitted their individual preference. These individual preferences were averaged across the group and the average became the

priority order in which business cases would be funded or from which resources should be released.

The Norfolk pilot calculated the cost per beneficiary per marginal benefit point and used this to obtain a rank order of all the cases. In addition cases were ranked by weighted benefit score and cost alone.

In Hull the business cases were all presented with no cost implications.

As all the options for service change had a positive marginal benefit they should all be implemented. However there is a time cost to implementing changes and so the advisory panel ranked the cases in order of weighted benefit.

2.8 Sensitivity Analysis

The robustness of the results in all three pilots was tested by varying the criteria weights and assessing the impact on the rank order of projects.

Newcastle had four sets of criteria weights from the groups they had consulted; the advisory panel, a stakeholder group, frontline staff and a cross-section of young people and service users. Norfolk used three sets of weights; service users, a clinical/managerial group and the average of the two and Hull used two sets of criteria weights; a user group and the advisory panel. If the ranking does not change or there is minimal variance this indicates that the results are robust. If changing the criteria weights has a large impact on the rank order of projects the question then becomes whose weights should be used.

2.9 Validity checks with stakeholders

The final results of the PBMA process were tested in a number of ways by the pilots. In Norfolk a half day workshop was held for stakeholders to evaluate the pilot, check the validity of results and to discuss how to implement the changes. In Hull the advisory panel were asked to reflect whether they felt that the prioritised options for service change accorded with their view of what would make the biggest difference in the priority areas identified. In addition a stakeholder network was asked to validate the recommendations and assess whether the options could be implemented. The Newcastle pilot developed the most formal process for validating the recommendations of the PBMA pilot. The business cases and their ranked order and the reasons for the order were presented to a stakeholder group and a group of young people and users. They were asked to rank the business cases themselves and justify the order, particularly where it differed from the advisory panel's recommendation. In addition business case authors received information on ranking of cases and the reasons for it and they were invited to give feedback. The advisory panel considered the feedback from key groups and from business case authors and used it to reassess their original ranking.

2.10 Evaluation of project objectives

The lead researchers agreed on a set of questions derived from the project's aim and objectives that would be used to evaluate the pilot. The sites used a combination of analysing the minutes of meetings, questionnaires to participants in the pilots, focus groups and 1:1 interviews to get feedback on the set of questions.

3. Results

3.1 Determine the aim and scope of the exercise

All 3 pilots agreed the aim and scope of their pilot at the first meeting of the advisory panel. In addition the steps involved in the process and the likely timescale involved were also agreed. The Newcastle pilot adopted a formal project management approach and devised a process map. The pilots varied in the number of meetings of the advisory panel which were held and the length of time the process took (Hull four meetings over eight months, Norfolk four meetings over six months and Newcastle nine meetings over twelve months). Newcastle used an existing group as its advisory panel and so the focus of the group was not solely on PBMA. In addition towards the end of the pilot a number of meetings were cancelled which delayed completion of the pilot.

3.2 Compile a Programme Budget

Newcastle and Hull devoted time during the pilot to compiling the programme budget. Newcastle faced challenges as a disinvestment exercise running at the same time as the pilot caused providers to be suspicious and cautious about sharing information. In addition the contract between the PCT and the secondary mental health provider was being renegotiated during the pilot and this meant that they were also reluctant to share financial information. The financial information in the Service Level Agreement between the PCT and its providers was used where information was not available. Some of this information covered more services than CAMHS and so was taken as indicative. Hull used the nationally submitted programme budget information as the basis of its programme budget. Work was done to understand the financial information within the budget and this resulted in significant improvements to the accuracy of the budget. The amount spent on the Quality and Outcomes Framework for diabetes was used as a proxy for the amount spent on primary care.

Hull also looked at the activity and outcomes associated with the spend on diabetes care. Activity data was only available for secondary care activity. Using the Department of Health's Commissioning Framework for Diabetes enabled a systematic analysis of outcomes across the care pathway in Hull and comparing these with national comparators identified priority areas for service change. In addition the financial element of the programme budget identified that prescribing was the largest spend area and was targeted by the advisory panel as a potential area for resource release.

3.3 Form a Marginal Analysis Advisory Panel and Stakeholder Groups

The challenge for all sites was to ensure that all stakeholders were represented on the marginal analysis advisory panel whilst keeping the group to a manageable size. Membership of panels varied between 10 and 13. All panels were multi-professional and multi-organisational. The Panels in Newcastle and Hull drew on pre-existing groups whilst the Panel in Norfolk was convened solely for the pilot. Primary and secondary

providers were invited in Norfolk but only secondary providers took part. Newcastle identified an existing stakeholder group as part of the pilot. Norfolk and Hull used a variety of methods to consult wider stakeholders during the pilot.

3.4 Determining locally relevant decision making criteria

3.4.1 Identification of criteria

All three pilots developed a set of criteria and sub-criteria. Advisory panels in Hull and Norfolk adapted a set of criteria which had been used in other PBMA exercises for their programme budget area. The criteria used in these two pilots is very similar. Although Newcastle started with criteria which had been used elsewhere as the basis of discussion, the criteria that were developed were much more service specific than in the other two pilots. In addition Newcastle developed definitions for sub criteria.

3.4.2 Weighting of criteria

For all three sites there were differences in the way that different groups weighted the criteria. In Norfolk clinicians and managers gave similar weightings to the criteria as the advisory panel. Service users were more extreme with quality of service attracting the biggest weight (88%). In Hull there was a similar pattern with service users rating quality of service as the most important criteria, whilst for the advisory panel this was the least important criteria. In Newcastle the most striking difference was that frontline staff attributed twice the weight to workforce than that attributed by other groups and this was their most important criteria. The stakeholder group rated workforce the least important criteria. Both Newcastle and Norfolk opted to use the average of all the group weights as their final weighting as this was the most inclusive option (rather than valuing different groups weights differently.) In Hull the advisory panel opted to keep the patient and advisory panel weights separate so that they could see the difference that the different weights made on prioritisation.

3.5 Options for service change

The pilots in Hull and Norfolk generated a long list of options for service change which was refined into a shorter list by the advisory panel. Norfolk identified 33 options for investment which were shortlisted to 11 and 18 options for disinvestment which were revised down to 9. In Hull 17 ideas were revised down to 5. In Hull ideas were generated by the patient group and the advisory panel and were revised down in an advisory panel workshop. In Norfolk ideas were also generated by the advisory panel. In Newcastle a workshop for frontline staff initially only generated 3 options for service change. Feedback indicated that more time and greater clarity on the vision for CAMHS was required. A further 4 options were submitted following this (see below).

3.6 Evaluating options for service change

3.6.1 Developing business cases

All three pilot sites found this a challenging part of the process. Capacity to complete business cases alongside the day job meant that fewer business cases were completed than was expected from the original ideas

generated. The fact that this was a pilot exercise may have affected the number of business cases which were generated.

In Norfolk 6 out of the 11 ideas for investment resulted in a business case and no ideas for disinvestment were written up. However the financial savings that would result were estimated for some of the ideas and in addition the current restructuring of day care services and proposed changes to older peoples mental health services are considering several of the disinvestment options.

In Newcastle the business case template was revised to make sections clearer after the initial trawl for ideas only resulted in 3 business cases being submitted. In addition the criteria for scoring were shared with those developing the cases and support was given to those who had already submitted the cases. Seven business cases were submitted and all required investment.

In Hull from the initial list of five, four business cases were submitted and all were presented as resource neutral. The disinvestment idea was not submitted, due to lack of capacity to estimate savings and write the case, but is being considered as an option within the PCT.

In Hull and Norfolk secondments were presented as resource neutral, ignoring the opportunity cost of removing the secondee from their current role.

3.6.2 Scoring business cases

Advisory panels had no problems scoring the benefits of the business cases against the criteria, although in Newcastle one of the business cases was not scored as it was submitted in a different format. In Norfolk the cost per beneficiary was used for the final priority ranking. In Newcastle this was also used but the priority ranking was changed by the advisory panel for a variety of reasons including the impact of the business case on the total geographic area and the need to look at some services on a wider basis leading to a reluctance to invest before this had been done. In Hull all the business cases were presented as resource neutral which meant that they could only be ranked on their benefit alone.

3.6.3 Shifting resources

The pilot in Norfolk identified sufficient disinvestment options to fund all the options for service change which required investment. In Hull the disinvestment idea is currently being estimated and the consequences considered. In Newcastle, no disinvestment options were identified.

3.6.4 Sensitivity Analysis

Changing criteria weights made little difference to the rank order of any of the projects. In Hull switching between patient and advisory panel weights made no difference to the rank order of projects. In Norfolk most difference occurred when service user weights were applied but this only changed the rank of one option from 4th to 2nd. In Newcastle cost-benefit ratios were relatively consistent across all groups with the lowest priority options consistent in virtually all cases and the ranking of the top 3 options switching when difference groups criteria weights were applied.

3.6.5 Validity checks

In Newcastle the results from the advisory panel scoring were fed back to the stakeholder group, young people's group and the business case authors. The Stakeholder group was supportive of the ranking but the young people changed the priority order. The advisory panel used its final meeting to reassess the priority order and changed the final ranking accordingly.

In Hull the results of the pilot were presented to the diabetes network who agreed with the rank order of projects but felt that although two of the projects could achieve a small benefit with no additional funding there was a case for additional investment. The diabetes network undertook to consider the implementation of all of the projects. The advisory panel felt that its recommendations were likely to be implemented not least because of Director involvement with the panel. There was however uncertainty over whether the disinvestment option would result in savings which could be reinvested into diabetes. Savings would result in the cost of primary care prescribing from a change in prescribing protocol in secondary care. Debate is ongoing about whether savings can be released and if so how much should be reinvested in the options for service change.

In Norfolk reflection from the advisory panel at its final session raised a number of points about the validity and acceptability of the final results:

1) Selection of business cases

It was felt that the selection of business cases could have differed if primary care had greater involvement. In addition it was felt that as members of the panel had volunteered to submit business cases the 'easier' options for service changer were taken forward.

2) Costing

The costs did not include potential downstream cost savings (for example earlier intervention leading to fewer hospital admissions in future). Including the savings could have changed the rank order of projects. High cost, low volume services have a high cost per patient and so are likely to rank low down on the list of priorities. This raised the issue whether these services should be treated differently within the PBMA process.

3) Disinvestment

One of the disinvestment options had resulted from prescribing rates for antidepressants in Norfolk being higher than the national average. The advisory panel questioned whether there was a legitimate reason for this, e.g. GPs detecting and treating cases that would otherwise go undetected and whether it was reasonable to assume that costs can or should be reduced to the national average?

4) Reallocation of resources

For 2007/08 only 30% of freed resources were available to Norfolk PCT for reinvestment with the remaining 70% available to practices/consortia to fund services for the benefit of patient locally. So any resources freed from primary care resources could not be invested in central services.

5) Overlap of services

As the PBMA exercise had only focussed on NHS costs, if the proposals for expanding services overlapped with social service provision this could lead to an inefficient outcome.

3.7 Evaluation of Project Objectives

3.7.1 Acceptability – do people attend the advisory panels and engage in discussion?

Attendance was mixed across the 3 pilot sites. In Norfolk (4 meetings) attendance started off high but fell off by the 3rd and 4th meetings. A GP withdrew from the group, the chair changed jobs and there was a change of PCT commissioner. An initial enthusiasm for switch to evening meetings did not lead to greater attendance. In Newcastle (9 meetings) a core group attended well with a small number in attendance a handful of times. In Hull (6 meetings) there was good attendance throughout with an average attendance of 10 out of 13.

Engagement in discussion was generally good. In Norfolk some individuals did not feel comfortable openly discussing commissioning decisions with such a range of other perspectives present. The Hull group also acknowledged the potential tension between primary and secondary care and commissioner and provider. There was open discussion, initiated by secondary care about the commitment of the PCT to the process. They were reassured by the attendance of two PCT directors at the final meeting of the advisory panel.

In Hull the group felt that because there was a long history of close working between primary and secondary care in diabetes, interactions were easier. They felt that there would have been more difficulty carrying out PBMA in an area where relationships were not as good. Nevertheless the group felt that the process had resulted in good engagement:

'The atmosphere and interactions within the group were freer than any I have experienced in 20 years' Consultant Diabetologist.

3.7.2 Is it possible to populate the 5 key questions with data on inputs, outputs and outcomes (2005/06 initially and then 2007/08 if data available)?

1) What are the total resources available?

All three pilot sites identified a total amount in the programme budget. Norfolk and Hull used the information routinely collected in the annual programme budget return. Newcastle constructed the budget from financial data from NHS and Local Authority sources. All three sites initially assumed resource neutrality but during the pilot in Newcastle resources freed up from a service review being carried out outside the PBMA process and this was available to the services undertaking the PBMA.

2) On which services are they spent?

The routine programme budget data is broken down into secondary care, prescribing, community services and ambulance service. Hull identified the amount assigned to GP practices via the QOF for diabetes as an indicative amount for primary care. More work was done to ensure that all specialist diabetic services were accurately included and to improve the way that the community services expenditure had been estimated. Activity information

was only available for inpatient care broken down by HRG. Outcome data was included using a national framework and national comparators. During the pilot the accuracy of the programme budget improved and in the evaluation meeting public health and finance reported that providing the additional information had not been difficult or particularly time consuming. In Newcastle there were a number of challenges in obtaining accurate and detailed information. For reasons external to the pilot, the acute trust were reluctant to share their financial information. There were questions throughout the pilot around the robustness of the programme budgeting information but there was a consensus that this was a limiting factor, not just with the PBMA, but with all service redesign processes.

3) What services are candidates for receiving more or new resources (and what are the potential costs and potential benefits of putting resources into such growth areas)?

All three pilot sites identified candidates for more resources and were able to estimate costs and benefits using a standard business case format. In all three pilots, potential benefits were largely based on expert opinion and not quantified explicitly in terms of identifiable improvements to specific outcomes. In Newcastle authors of business cases were asked, where they could, to back up their estimates of potential benefits with evidence of effectiveness (which could be trial evidence or case studies from other areas).

In Newcastle the intention was for candidates for more resources to be identified by frontline staff. However lack of clarity over the future aims of CAMHS made it initially difficult for staff to identify areas for investment. This was resolved by issuing a clear joint statement about the aims for commissioning a future CAMHS. Because of the problems of putting together a programme budget, this was not used to identify areas for investment. In Hull business cases were presented as cost neutral. Later analysis suggested that this was not the case for all options for service change. In Newcastle the business case template was updated in between the first and second call for ideas as it had originally been seen as too complicated. There were also issues about comparing costs from the voluntary sector and the NHS and cost information had to be resubmitted.

4) Can any existing services be provided as effectively, but with fewer resources, so releasing resources to fund items on the growth list?

Two business cases in Hull were based on proposals to alter a service model for provision of care, on the premise that services could achieve better outcomes for the same resources. A change in prescribing practice suggestion was not written up into a business case and debate is ongoing as to whether resources released from this change could be reinvested back into diabetes care. Three initial ideas in Norfolk were put forward (restructuring day-care services, reducing inappropriate prescribing and commissioning services from alternative providers) but none of these were written into business cases as they were too broad. More specific options have been included in proposed changes to older people's mental health services outwith the PBMA process.

5) If some growth areas still cannot be funded, are there any services which should receive fewer resources, or even be stopped, because greater benefit would be reached by funding the growth option as opposed to the existing service?

Norfolk identified 4 initial options for change that involved cutting back services or reducing funding but none of these were written into business cases. Hull identified one option for disinvestment which was not written up into a business case. Newcastle did not identify any disinvestment options as decisions on disinvestment had already taken place prior to the PBMA exercise and resources from these disinvested services were earmarked to fund services on the priority list. However political factors meant that this disinvested money was no longer available for CAMHS. In addition lead commissioners did not feel that key services and individuals were ready to use a process such as PBMA to identify disinvestments and reallocations of resources. The advisory panel in Newcastle felt that in order to build up trust in the process emphasis should be placed on resource neutral and resource investment proposals.

3.7.3 Does this approach make a difference to patterns of service?

Opinion was divided between the pilots as to whether they had made a difference to patterns of service. In Hull the pilot had the potential to make a difference to the specific areas of care where change had been recommended. However the PBMA would need to be more closely aligned to the PCT's pathway redesign work to make a difference to overall patterns of service. In Norfolk options for service change had been considered in isolation rather than as part of the total pathway and so it could not be ascertained whether they would difference to overall patterns. In Newcastle focus groups carried out with those who took part were evenly split on whether the pilot would make a difference to patterns of service, though the potential of the technique was recognised:

'This process has had its problems but it has the potential to do great things, if given the chance' Newcastle Stakeholder Group member

In addition the focus groups remarked on the improvement in trust between providers and the structured, explicit approach to the decision making process. Finding in Hull and Norfolk also echoed the need to connect to the wider commissioning strategy to make a real difference to patterns of service.

3.7.4 Do the participants value: cross fertilisation of ideas, perspectives from other geographical areas, input from different disciplines, patient viewpoint and a health economist as a facilitator?

The evaluation in Hull and Newcastle showed that participants had greatly valued the cross fertilisation of ideas and the input from different disciplines. Understanding had increased and relationships had strengthened as a result of the process on both sites.

'This process has helped the partnership develop and the Stakeholder Group develop' Newcastle Stakeholder Group member.

Evaluation from the pilot in Norfolk was more cautious. There was some reluctance from commissioners to involve providers and other partners in the process as these external partners were thought to have vexed interests. Perspectives from other geographical areas were limited in all three pilots to input on establishing criteria. This was a valuable start for all three pilots. Hull and Newcastle directly commented on the value of including the patient viewpoint in the process. Newcastle participants were extremely positive about the involvement of young people in the process and some participants thought that they could be used a lot more. Hull participants were surprised at the difference in criteria weights between the patient group and the advisory group and the pilot came up with recommendations for future patient involvement in the process.

Newcastle and Hull commented directly on the value of a facilitator. Both pilots felt that the facilitation role brought additional capacity to organise and run meetings and keep the process on track. In addition both sites valued the impartiality of an external facilitator. Neither site felt that it was essential to have health economics expertise, but this was seen as useful in the initial exercise.

3.7.5 Is it possible to make PBMA a regular feature of local commissioning discussions (sustainable, proportionate, affordable) in time for 2007/08 financial cycle when sustainable growth will cease?

In Newcastle 83% of participants who responded to an evaluation questionnaire felt that PBMA could be a regular feature of local commissioning. In Hull there was a similar enthusiasm and the PCT is currently considering how to make PBMA an integral part of their clinical pathway development. Hull and Norfolk identified strengths and challenges of the process which are collated and summarised here:

Strengths

- Multidisciplinary/multiprofessional input into the process
- Transparent, objective, systematic decision making process
- Focus is on gain for patients rather than on targets
- Perfect information is not required

Challenges

- Providing enough time to consider information and outcomes whilst meeting the local commissioning timescales
- Providing internal capacity to facilitate the PBMA process
- The process is not written down in toolkit form and needs translation from academic papers

In Newcastle the participants identified three requirements which were necessary in order for PBMA to be a regular feature of local commissioning. Participants:

- Are fully aware of the commitment they are signing up for
- Have the necessary support required to organise the process
- Are prepared to drive the process themselves

4. Conclusions and Recommendations

4.1 Conclusions

Overall this pilot found that:

- 1) People do attend advisory groups and engage in discussion with levels of attendance varying across the pilot sites.
- 2) It is possible to populate the 5 key questions with data on inputs, outputs and outcomes. Costing business cases and estimating benefit was more challenging as was identifying options for disinvestment in services.
- 3) PBMA has the potential to change patterns of service but it needs to be linked into the commissioning/service redesign process.
- 4) Participants do value different perspectives and viewpoints and this was a significant benefit in the Newcastle and Hull pilots
- 5) There is an enthusiasm to make PBMA part of the commissioning framework but an acknowledgement that in order to do this successfully there are requirements which need to be met.

4.2 Recommendations

The recommendations from all three pilot sites are:

Aim and scope of exercise

- To be clear about current costs and outcomes it is important for the current care pathway, within the programme budget, to be clearly understood by the Marginal Analysis Advisory panel.
- To ensure that the options for change fit within the strategic context of the organisation, it is important to identify the objectives for care within the programme budget area and any future vision for the care pathway within that area.
- Identify a facilitator with sufficient expertise in the PBMA process. There is a need to increase the pool of such facilitators substantially, in recognition of PBMA's status as a World Class Commissioning competency. This extra capacity will be needed to scale up the technique to cover several programme budgets in every PCT.
- Designated project support to the PBMA exercise is crucial in maintaining momentum.
- Identifying a neutral facilitator may be crucial to ensuring that the exercise reaches a conclusion acceptable to all parties
- The facilitator needs the full support of the lead decision maker if they are to be successful in retrieving the relevant information required for PBMA

Engage Advisory and Stakeholder Groups

- Bringing together people from different professional and organisational backgrounds brings with it the potential for tension. The relationship between key groups needs to be workable for PBMA to be viable. Establishing ground rules for managing behaviour within the group may be helpful in managing any tensions that arise.
- The organisation needs to be committed to the process. The PBMA needs to report into the organisation's governance structure at sufficient a level to validate recommendations and authorise the transfer of resources. Reporting arrangements need to be established

at the outset of the exercise. Executive decision makers need to be closely linked to the Advisory Panel, even if they do not physically attend meetings.

- The process should be timed to feed into the PCT's commissioning intentions process (Local Delivery Plan, Annual Operating Procedure etc.)
- Although it is possible to carry out PBMA as a one-off this is not ideal and the exercise should be repeated regularly.
- The organisations involved in the process need to agree, in principle, the ground rules for redeploying any savings made at the outset of the exercise. For example can 100% of savings be redeployed within the Programme Budget? Are there any restrictions on transferring funds between levels of care, for example primary care to secondary care? These ground rules are essential to dispel suspicions of "cuts" and ensure full disclosure of ideas, especially for disinvestments. There has to be an incentive for participants to engage.
- The advisory and stakeholder groups need to represent all those who can significantly influence or be influenced by changes in the care pathway within the programme budget area. This will include significant commissioning groups, providers of care and patients.
- If advisory and stakeholder groups are convened especially for the exercise (rather than using or building on existing groups) time should be taken at the start of the process to enable participants to get to know each other and the process possibly through a workshop or similar.
- Where care is commissioned as part of a network, the PBMA should either encompass the whole network or the partners involved in the network should be aware of the process and it should be clear at the outset how any service change recommendations will be agreed across the network.
- Ensure the advisory panel members and other stakeholders understand and are signed up to the time commitment needed for the process. From the experience in this pilot a full PBMA takes between 6 and 9 months and is likely to require between 4 and 9 meetings of the panel. Other groups, for example patient groups and front-line staff could be involved in one-off workshops.
- Meeting regularly is invaluable and helps to build momentum and relationships. Meetings should be arranged well in advance and the dates made known to participants at the start of the process.

Determining the current Programme Budget

- Identifying the detail within the programme budget in terms of finance, activity and outcomes can be time-consuming. There is a balance to be struck between understanding the current situation in order to inform service change and becoming too involved in the detail of where every last penny is being spent. The facilitator should be charged with ensuring that work on the detail of the budget adds value in terms of identifying the most cost-efficient service changes, or significantly improving the accuracy of the programme budget for future years.

- There is a balance to be struck between identifying outcomes from indicators which can be measured and benchmarked from quantitative data and using the knowledge and expertise of the Advisory Panel in identifying outcomes which give cause for concern.
- Support needs to be available to any organisations involved in the PBMA who may have difficulty calculating costs and identifying output and outcome data accurately

Identify and value benefits and costs of the options for service change

- Consider adapting existing criteria, for example from other PBMA exercises or those used by local organisations
- All forms used in PBMA should be written in an accessible way so that staff, patients, users and carers have no difficulty understanding and using them.
- Build in time to ensure that the business case template used ensures that both the business planning requirements of the organisation are met and that the information required to determine how far the proposed service change meets the criteria is captured.
- Consider how much time and support is required for those leading on business cases to complete the template. Ensure that the workload is spread across members of the panel. Provide financial and administrative support if possible.
- Where criteria weights have been collected for separate groups, for example patients and professionals, consider presenting the weighted scores for each service change business case separately as this enables any differences in prioritisation to be explicitly discussed.

Evaluate the options and make recommendations for change

- Ensure that the costs of each service change are realistic and that, where appropriate, they include opportunity costs. For example redeploying staff differently 'costs' the benefit foregone of the activity they are currently working on.

Validity checks with other stakeholders and final recommendations

- Ensure that the group to which the Advisory Panel reports validates the recommendations.
- Ensure that it is clear which group is going to follow through the implementation of the recommendations. Ensure that monitoring the outcomes of any service change resulting from the PBMA, is part of the implementation process.
- Establish how the lessons from the PBMA can be spread through the organisation and wider.

Appendix One
Criteria for decisions about service change

Hull PBMA pilot criteria on which to base decisions about service change (investment and disinvestment)

<p>Policy and Strategy</p>	<p>National Objectives – 12 standards of the NSF for diabetes. Related targets and standards e.g. PSA screening target and National Screening Committee standards Local Objectives – Local action plan for Healthcare Commission Review Impact on inequality</p>
<p>Feasibility and Practicality</p>	<p>Affordability Ease of implementation Acceptable to partner agencies Availability of staff Service user acceptance Able to implemented within agreed timescale</p>
<p>Effectiveness (Quality and Length of Life)</p>	<p>Number of patients who will benefit Evidence based Magnitude of individual benefit Physical Mental Social Life expectancy Likelihood of delivering anticipated benefit (what is the degree of risk?)</p>
<p>Quality of Service</p>	<p>Patient/carer experience Access/waiting times Equity/health inequality impact HR/Staff impact (e.g. skill mix) Quality of physical resources (buildings, equipment, hotel services) Sustainability or service</p>

Norfolk PBMA pilot criteria on which to base decisions about service change

<p>Effectiveness</p>	<p>Magnitude of benefit <i>What is the size of the health gain from this development?</i></p> <p>Duration of benefit <i>How long will the health gain be sustained for?</i></p> <p>Personal networks <i>Will the development help service users to form relationships? This could be through, employment, education, community groups or leisure pursuits?</i></p> <p>Population impact <i>Are there likely to be external (non health) benefits to the population such as improvements to public safety, reduced levels of crime and disruptive behaviour?</i></p> <p>Social capital <i>Does the development encourage community and social cohesion?</i></p>
<p>Quality of service</p>	<p>Patient/carer experience <i>How satisfied will the service users be? How is the development person centered? Does it offer a pleasant comfortable, caring environment in which patients are treated with respect?</i></p> <p>Safety <i>Is the development safe for both service users and staff?</i></p> <p>HR/staff impact <i>What is the quality of the working environment for staff? Will there be high morale and support and opportunities for career development?</i></p> <p>Access <i>How accessible will the new development be? Is it convenient to get to with long opening times and targets hard to reach groups? Will there be high out-of-pocket expenses to the individual?</i></p> <p>Waiting time <i>Will the development reduce waiting times? Will individuals be assessed and receive the intervention within an acceptable timeframe?</i></p> <p>Appropriate <i>Is the development fit for purpose? Is it culturally appropriate and are the physical resources of high quality and up-to-date?</i></p> <p>Recognized standards <i>How does the development meet recognized standards?</i></p>
<p>Feasibility</p>	<p>Affordable and sustainable <i>Are the set-up, training costs and running costs affordable and sustainable? Will significant investment be required in future years? Is there much risk involved? What is the likelihood of long term survival of the development?</i></p>

<p>Feasibility (continued)</p>	<p>Ease of implementation <i>Is the development easy to implement? Is there local ‘buy-in’?</i></p> <p>Acceptability to partner agencies <i>Is there any potential impact (positive and negative) on other NHS and non-NHS agencies? What is the evidence that they will support the development?</i></p> <p>Staff availability <i>Is trained, skilled staff available from the current workforce or will there be a need for recruitment and training?</i></p> <p>Service user acceptance <i>How acceptable is the proposal likely to be to the service user (what is the likely impact?)</i></p>
<p>Policy & strategy</p>	<p>Local objectives <i>How well does the development go towards meeting identified local priorities and targets?</i></p> <p>National objectives <i>How well does the development go towards meeting identified national priorities and targets?</i></p> <p>Legislation <i>Does it meet current legislation?</i></p> <p>Equity <i>Will implementation of this development reduce inequalities? (How?) For example, does it target specific underprivileged groups?</i></p> <p>Ecological impact <i>How will this development impact on the environment? Is it likely to cause ecological damage, stress or disturbance?</i></p>

Newcastle PBMA pilot criteria on which to base decisions about service change

<p>Better Outcomes</p>	<p>Contributes to CAMHS strategy action plan and Newcastle’s plan for children and young people <i>The service contributes to the outcomes for indentified by Newcastle PCT and the Local Authority</i></p> <p>Meeting outcomes for Every Child Matters* <i>The service contributes to achieving the outcomes outlined in the Every Child Matters document.</i></p> <p>Impact on current and future need across CAMH services <i>The service takes into account current and future need as well as the importance for preventative action.</i></p>
<p>Participation</p>	<p>User Centered <i>The service designed to fit round the user, rather than the user around the service.</i></p> <p>User Involvement <i>Users are involved in service development decisions.</i></p> <p>Feedback <i>Mechanisms are in place for users to feedback on their experience of the service.</i></p> <p>Community* Consultation <i>Their is evidence of wider community consultation in relation to the service</i></p>
<p>Working Together</p>	<p>CAMHS service delivery <i>This service contributes to the CAMHS service delivery plan and helps create a comprehensive CAMHS service</i></p> <p>Appropriate service partners <i>There been investigation and communication with appropriate service partners (including other providers and commissioners).</i></p> <p>Common Assessment Framework (CAF) <i>The service is signed up to and following the CAF information protocol.</i></p>
<p>Workforce</p>	<p>Recruitment <i>Recruitment issues are assessed and resolved appropriately.</i></p> <p>Knowledge and Expertise <i>There is relevant knowledge and skills already within the service and future needs have been planned for.</i></p> <p>Supervision and Support <i>The service has arrangements for staff supervision and support.</i></p>

Workforce (continued)	Newcastle's Children Service Workforce Strategy <i>The service is competent, confident and safe to work with children and young people. People aspire to be part of and want to remain in. It is a service where they can develop their skills and build satisfying and rewarding careers.</i>
Quality	Experience <i>A history of experience of running similar services by the group who have submitted the proposal.</i> Risk Management <i>Risks are identified and there are procedures in place to manage that risk.</i> Location of Service <i>Service is located in an appropriate location and there is evidence to show this.</i> Professional standards <i>The service follows professional standards and is assessed in some way against these.</i> Social Marketing <i>There is a worked through plan in place to help the service reach the targeted group</i>