Local Evaluation of Morecambe Bay PACS Vanguard

Final Report

September 2018

Executive Summary

- Health and Social Care Evaluations (HASCE) at the University of Cumbria was commissioned by Bay Health and Care Partners, through NHS England Vanguard funding, to evaluate new models of care in Morecambe Bay. The local evaluation focused on understanding the context of the programme, the changes it has brought about, and which components of the care model really make a difference. The evaluation began in October 2016 and was completed in September 2018.

- This report summarises the findings of the second stage of evaluation, which focused on the Morecambe Bay Respiratory Network (MBRN). In addition to the data presented in the Stage 2 Early Findings Report, this report is informed by data from interviews with patients, further staff interviews and an economic analysis of resource use.

- The evaluation demonstrates that the MBRN has so far been a successful new model of care, with the potential to become a self-funding initiative which reduces secondary care activity, improves self-care amongst patients and enhances the learning and upskilling of staff.

- The model has developed ways of overcoming a number of problems and tensions identified with the implementation of NCMs, which were documented in HASCE's 12 Month Report focusing on the BCT Vanguard programme: in particular, its model of leadership and its emphasis on communication.

- From the data that is available for this evaluation, the running cost of the MBRN has been calculated as amounting to approximately £1.9m pounds year, or £160k per month.

- Possible tariff reductions in secondary care from reduced NEL admissions and NEL bed-days as well as reduced outpatient clinic capacity amount to over £2.6m per year, or £221k per month. This would arrive at a net savings to the health system of approximately £745k per year, or £60k per month.

- In summary, all indications point to the MBRN being a cost-effective step change in delivering respiratory services in the Morecambe Bay area.

- The report recommends that the model is continued to be supported by Bay Health and Care Partners. The economic evaluation has also shown that in order to deliver the savings to the health economy that are certainly possible through an effective MBRN, it has to be fully implemented, including its community services.

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1 Introduction

1.1 The New Care Model Evaluation

In 2015, 50 vanguard sites were selected to develop new models of care. The new care models (NCMs) were a key component of the strategy set out in the *Five Year Forward View*[1] to prevent widening gaps in health and wellbeing, care quality, and funding and efficiency. Morecambe Bay's Better Care Together (BCT) programme, a partnership set up in 2012 to review health services, was selected as one of these vanguards. As an integrated Primary and Acute System (PACS) vanguard, it aimed to:

- Improve primary and acute medicine; and
- Develop preventative community-based services.

Evaluation is a key component of all NCMs, and in addition to a national evaluation, which is measuring performance against a core metric set, each vanguard was required to commission a local evaluator to identify why and how impacts are being created. Health and Social Care Evaluations (HASCE) at the University of Cumbria was commissioned by Bay Health and Care Partners to evaluate the BCT PACS vanguard.

The local evaluation focused on understanding the context of the programme, the changes it has brought about, and which components of the care model really make a difference. The evaluation began in October 2016 and was completed in September 2018.

The evaluation was split into two distinct stages:

- The first year of evaluation examined the Vanguard activities across Morecambe Bay. Findings from this stage of the evaluation were presented in the 12-month Evaluation Report in October 2017.
- Following discussion with the evaluation commissioners, the second year of evaluation focused on the Morecambe Bay Respiratory Network as an example of an NCM. The emerging findings from this stage of evaluation were presented in the Stage 2 Early Findings Report in April 2018.

1.2 Better Care Together and the Vanguard

The BCT programme brought together 12 partners (now 10, following the merger of two Clinical Commissioning Groups and recent transfer of CPFT staff into UHMB in April 2018) to tackle the

[1] NHS England (2014). NHS Five Year Forward View. https://www.england.nhs.uk/publication/nhs-five-year-forward-view/

challenges facing the provision of health care in Morecambe Bay. These challenges included an ageing population, increased demand on resources, finance and issues with care quality and safety. BCT identified a population based approach as key to improving care and promoting wellbeing[2] and achieving the *Five Year Forward* Triple Aim:

- improving population health;
- improving the individual experience of care; and
- reducing per capita health and care spend.

In 2015, BCT was allocated £4.59 million to develop the PACS new model of care. The PACS model is based on GP registered population and aims to bring together health and care providers to improve physical, mental, social health and wellbeing. Its scope includes primary, community, mental health, social and acute care.[3] Key features of the BCT vanguard approach included:

- the establishment of 12 Integrated Care Communities (ICCs) (now 11 as Garstang has realigned with FWCCG) that bring together local health and care organisations. The ICCs are based on GP practice populations and, through integrating services, aim to enable the provision of more care out of hospitals and self-management;
- the use of technology, such as telehealth, to increase the accessibility of care amongst more isolated groups and communities;
- increasing GP access to hospital specialists through the Advice and Guidance system;
- work with local communities through initiatives with children and outreach work at public events; and
- using a workstream approach to develop new models in areas such as ophthalmology, Women's and Children's services and prescribing.

1.3 Two Stages of Evaluation

The first year of the evaluation collected qualitative data on activities across the vanguard to explore the emerging changes and their associated outcomes. The evaluation raised several questions regarding the size, scope and identity of the new models of care being implemented, and recommended more detailed and localised measures to be used to capture the changes that were occurring. Following the evaluator's interim report on 18/04/2017, evaluators and commissioners discussed the need for the independent evaluation to focus on specific activities in more comprehensive detail.

This led to the identification and recommendation of three specific areas which would inform both the tail-end of the first twelve-month project, and the continuation of the evaluation project across 2017-18. These were the development of Integrated Care Communities (ICCs) in Barrow

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[2] *The Better Care Together Strategy for the Future for health and care services in Morecambe Bay*. (2015) https://www.uhmb.nhs.uk/files/bct-publications/Better-Care-Together-Plan.pdf p.6

[3] https://www.england.nhs.uk/wp-content/uploads/2016/09/pacs-framework.pdf

Town, Bay and East; and the evaluation of a specific intervention within each of these: from the Respiratory pathway (Barrow Town), Paediatrics pathway (Bay) and Frailty pathway (East).

However, following the wider re-focusing of Bay Health and Care Partners' activities, it was agreed at the BCT Research and Evaluation Group that concentrating evaluation resources on the new model of respiratory care developed by the Morecambe Bay Respiratory Network (MBRN), which impacted across a greater number of ICCs, would provide opportunities for learning.

1.4 The Morecambe Bay Respiratory Network

It is important to note that, while the MBRN received partial funding through the Vanguard programme, it was not part of the Better Care Together programme design; but shared in its aims the principles of an NCM. As described in the case for change document presented to the Morecambe Bay Accountable Care System's Delivery Group in August 2017[4], the MBRN sought to deliver a new model of care "*to proactively and consistently manage respiratory disease to a high standard across Morecambe Bay.*" The key goals of the new model are:[5]

- flexible network model allowing each ICC to develop their own way of working;
- all patients will be diagnosed accurately to establish the nature of their respiratory condition;
- patients with respiratory conditions should have all their routine care provided and managed within ICCs – the aim is to reduce outpatient attendances by 50-100% by the end of 2018;
- all patients will have a personal care plan that is understood and owned by the patient/carer;
- all patients will have an annual review as a minimum (whole person Multi-Disciplinary Team (MDT) based review);
- high quality care will be provided by an extended MDT in each ICC, combining the appropriate expertise from both secondary and primary care;
- patients with exacerbations should also be managed within ICCs in the vast majority of cases – aim to reduce non-elective attendances by other 50% by the end of 2018; and
- the opportunity for UHMB to develop additional specialist clinics to repatriate care for difficult asthma currently being seen out of area.

At the centre of the model's design was the development of a community clinic and hospital at home service.[6] The clinics were to bring consultants and specialist nurses out of the hospital and into the community to work with ICC staff. It was expected that this way of working would

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[4] MBRN (2017). Morecambe Bay ACS Case for Change in Respiratory Services, p.1.

[5] MBRN (2017). Morecambe Bay ACS Case for Change in Respiratory Services, p.1

[6] This description of the MBRN relates to the design presented in the Case for Change documents. Section 2 provides details of which components have been implemented to date.

enable secondary care staff to support and mentor ICC staff. Multi-disciplinary team (MDT) discussions were to be built into the clinics, with patients being discussed rather than referred to an outpatient clinic. As shown in Figure 1 below, the improvements to respiratory care required investment in three separate components.

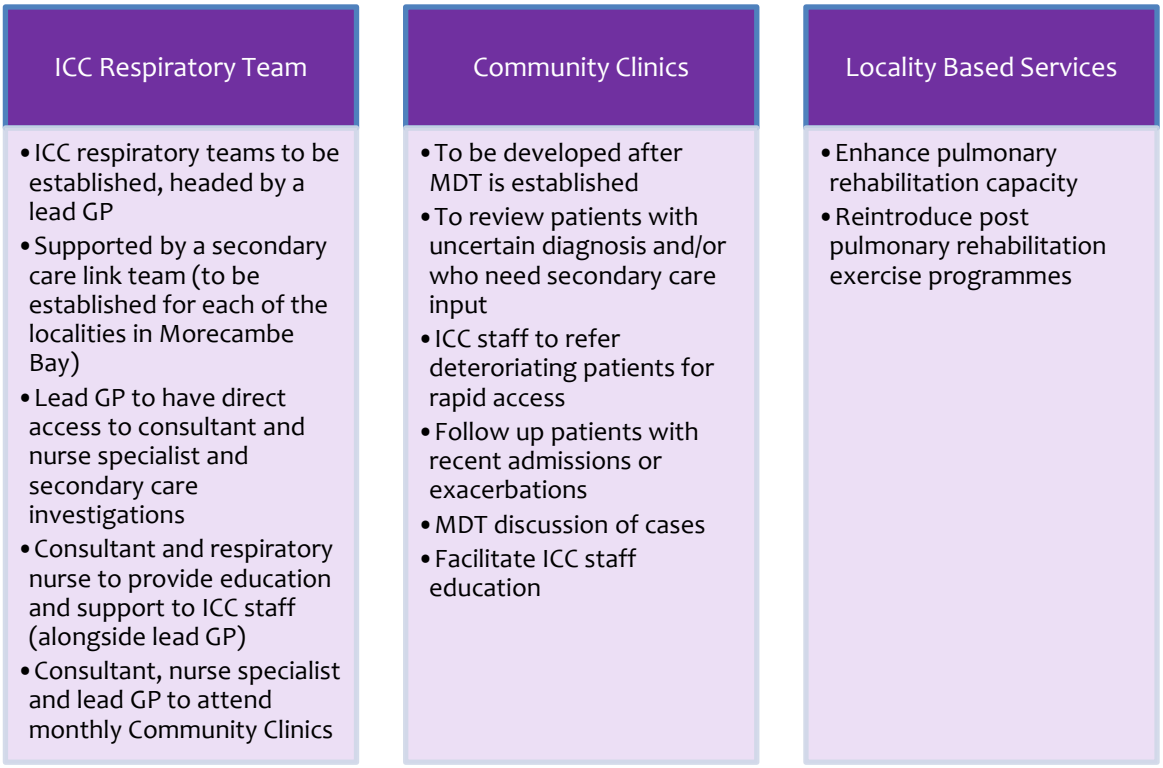


Figure 1: Key Elements of the MBRN Respiratory Model[7]

The implementation of the model was planned in three bundles of activity; in the first, the model would be implemented by GP and community services in five ICCs (Barrow Town, Queen Square, Lancaster, Morecambe Bay and Carnforth); the second bundle would see the model being rolled out in GPs and community services in the remaining six ICCs (Kendal, East, Alfred Barrow, Millom , Ulverston, Dalton and Askam, and Grange & Lakes); and then specialist respiratory and acute bed capacity would be reduced in the third activity bundle.

The evaluation was therefore planned to follow the roll-out, using the initial months of data collection to examine the work in the first bundle, which had commenced in October 2017, and then to compare these to activities in the second bundle as a comparator group. However, the roll-out to the second bundle was delayed beyond both its anticipated schedule, and the course of the commissioned evaluation time. This placed limits on the evaluation's data collection activities.

[7] Source: Adapted from MBRN (2017). Morecambe Bay ACS. Case for Change in Respiratory Services

1.5 About this Report

During the two years of evaluation work, HASCE has gathered the views of over 150 participants in interviews and surveys. In addition, the evaluators have run nine workshops and events with stakeholders and participants. These include discussion workshops on the main themes of the NCM, dissemination and feedback events regarding the evaluation findings, and evaluation training and skills workshops to support ongoing improvement across Morecambe Bay health economy.

This final report summarises the findings of the second stage of evaluation, and links these to the findings presented in the first stage. In addition to the data presented in the Stage 2 Early Findings Report, this report is informed by data from interviews with patients, further staff interviews and an economic analysis of resource use.

This serves both to continue and develop the evaluation approach detailed in HASCE's 12 month evaluation report, and inform discussions on the future investment in the new respiratory care model and its wider roll out. In doing so, the report follows the spirit of the vanguard approach: regular sharing of evaluation findings to inform and strengthen delivery.

2 The Evaluation Approach

2.1 New Models of Care and Evaluation: an Ongoing Discussion

Evaluating new models of care is a complex activity, and debates around the best methods for doing so continue to evolve. At the heart of these debates is the need to balance localised accounts of change with higher-level performance outcomes, with methodological rigour and critical appraisal applied throughout.

The 12 Month Report summarised the main issues for evaluation that programmes as ambitious as BCT raised. It also provided a comprehensive account of the methodologies HASCE used to address these.[8]

Like all local evaluations of NCMs, HASCE's approach is designed to address the question set developed by the national NCM team. These questions require an assessment of the context, changes, outcomes and active ingredients of the NCM. To do this, a realist methodology has been adopted.[9] This approach aims to capture 'what works, for who, and why', in nuanced detail, over and above blunter outcome-focused studies. It does this by identifying the context, mechanisms and outcomes associated with programmes of change. The basic premise of this methodology is that outcomes are brought about by the steps taken by those delivering a programme (known as mechanisms), which take place in particular contexts.

In addition to its attention on the contextual details that affect the success of interventions (or otherwise), a key advantage of this method is how it accounts for how the delivery of an NCM often depended on a number of overlapping and interconnecting processes taking place. Models for change can suffer setbacks at various stages in their implementation, and it is important to identify the 'active ingredients' which support new models of care, some of which may not be immediately apparent. To demonstrate this, the 12 month evaluation report presented an expanded version of the realist method.[10]

The application of this methodology raised a number of questions over the design and implementation of the vanguard activities. In contrast, the MBRN benefitted from a clear strategic pathway which provided a set of testable hypotheses. However, due to the model being only partially implemented, and the delays in this implementation, it was not possible to fully integrate the MBRN programme hypotheses with the previous

[8] HASCE (2017). Local Evaluation of Morecambe Bay PACS Vanguard. 12 Month Report. Chapter 2

[9] See Pawson & Tilley, *Realistic Evaluation*. London: SAGE (1997).

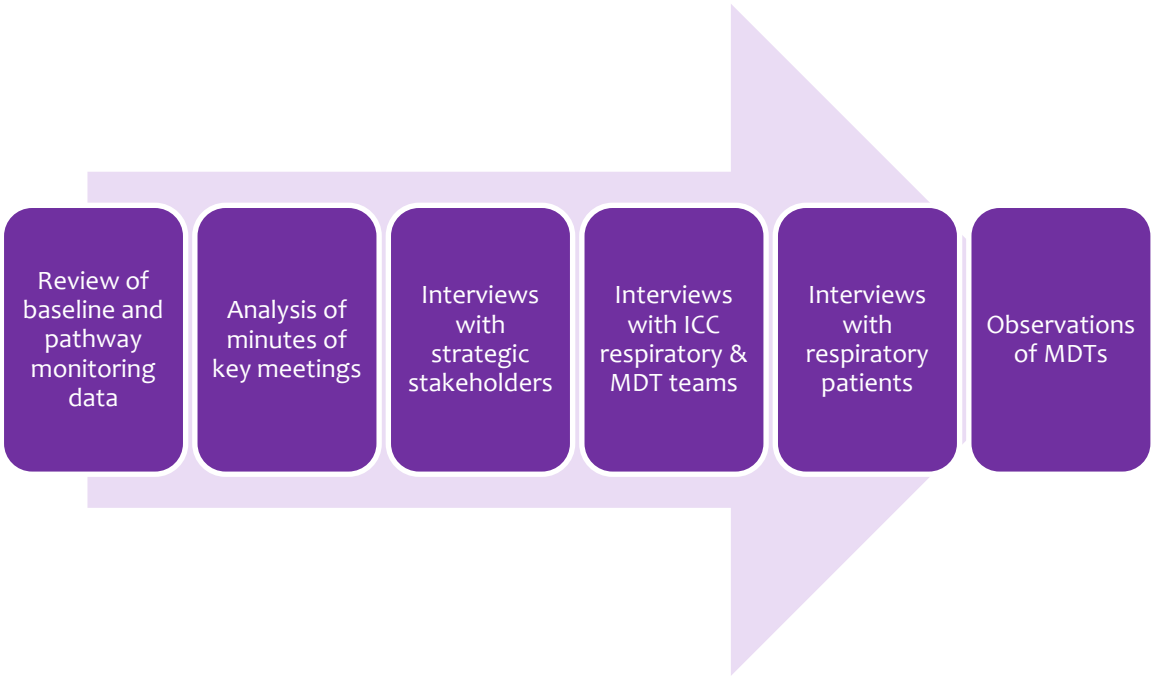
[10] See HASCE (2017). Local Evaluation of Morecambe Bay PACS Vanguard. 12 Month Report, Chapter 4

2.2 Stage 2 Data Collection and Analysis

The evaluation methodology included the following aspects:

- Qualitative data collection and analysis;
- An economic impact assessment; and
- Triangulation with quantitative data provided by the Informatics, Information and Innovation (I^3) team at University Hospitals of Morecambe Bay Trust (UHMBT).

The data collection strategy for the second stage of evaluation was initially based on the planned roll-out of the MBRN across Morecambe Bay, and consisted of the following:



Further details on how these data collection activities were conducted are detailed in the table below:

Data Collection Activity	Evaluation Activity
Review of baseline and pathway monitoring data Key respiratory data metrics and indicators are being collated into a new respiratory dashboard by the Informatics, Information and Innovation team at University Hospitals Morecambe Bay Trust. The dashboard will present the data required to assess the new care model against its key performance indicators (KPIs).	At the time of writing this report, the KPIs are still in development and the latest working version of the dashboard has not been released to the evaluation team. Outcome metrics were drawn from separate data provided by I^3 and from MBRN reports.

Data Collection Activity	Evaluation Activity
Analysis of minutes Records of who attended meetings, discussion points and agreed actions provide a potentially valuable source of data on how the new respiratory model has been developed and delivered across primary, community and secondary services. Meetings that were potentially relevant to the evaluation include the Bay-wide Respiratory Leadership Group and ICC meetings.	Analysis of minutes for ICC meetings in Barrow Town and Queen Square were received for the months of October, November and December 2017. There were few references to the respiratory care model in these minutes and they therefore provide little insight into the development and delivery of the new model.
Interviews with staff (strategic stakeholders, ICC respiratory teams and MDT teams) Interviews with those involved in the development, leadership and delivery of the respiratory pathway. The purpose of these in-depth qualitative interviews was to explore the process of developing and delivering the new respiratory pathway and perceptions of its impact. The topics explored in the interviews are shown in Appendix 1.	37 staff members identified by the MBRN as being involved in the delivery of the new model of care have been invited to participate in an interview (the first invitation was issued in January 2018). 21 interviews with staff have been completed between January and September 2018. The interviews have ranged between 15 and 70 minutes in duration. Clinicians have reported shorter interview times reflecting limited availability during the busy winter period. With the permission of participants, interviews were audio-recorded and then transcribed. Eight people declined the invitation to take part in an interview. Reasons given for non-participation include lack of knowledge or involvement in the MBRN, lack of time or change in job role.
Interviews with patients In-depth qualitative interviews enable the exploration of experiences of care and the perceived impact of the changes brought about by the new pathway on satisfaction, self-management, and health and wellbeing.	14 patients registered at a GP practice in either Queen Square or Lancaster ICC were interviewed. Two interviews were conducted face-to-face and the remainder by telephone. The average interview duration was 23 minutes (the shortest interview was 10 minutes and the longest 40 minutes).

Data Collection Activity	Evaluation Activity
Observation of MDTs Based on emerging interview findings indicating that the MDTs play an important part in reducing outpatient appointments and in the management of respiratory care more generally, observation of MDTs enabled exploration of what features are key in enabling/disabling the new care model.	Three MDTs were observed: two in North Lancs and one in Barrow.

Table 1 Data Collection Activities

Following data collection, interviews were anonymised, transcribed and analysed for key themes. Themes were organised into contexts, mechanisms and outcomes, and from this the key findings were highlighted. These are presented in Chapter 3.

As with the first stage of the evaluation, data collection was not without its challenges. The primary challenge was the delay in rolling out the MBRN model, which prevented comparative accounts from different ICCs being compiled. Within the Bundle 1 practices, several key stakeholders chose not to engage with the evaluation (see Table 1 above). The respiratory dashboard was not available at the time of writing the report, which limited the depth of triangulation of qualitative and quantitative data available to the evaluation. The report will highlight those findings which may have been affected by the data challenges where appropriate, and the significances of data quality for the implementation of new models of care will be discussed further in Chapter 4.

3 Findings

This chapter summarises the findings from the second stage of the evaluation, which looked exclusively at the Morecambe Bay Respiratory Network. Because the anticipated roll-out of the MBRN has been delayed, much of the detailed findings in this chapter have already been presented in the 12-Month Report[11] and the Stage 2 Early Findings Report,[12] and are referenced, rather than replicated, here.

The chapter is structured around the original evaluation questions set out by the national New Care Models Team, although it should be noted that while the MBRN received vanguard funding, it was not designed as part of the Better Care Together programme. As a result, while the evaluation has framed the findings in the broader context of the new care models programme, it is a smaller and more autonomous development than the BCT-specific interventions.

3.1 What is the context in each vanguard into which new care models have been implemented?

The MBRN has been implemented within the context of a changing health landscape. The 12-Month Report identified five key areas of context into which the new care models were being implemented. The Stage 2 Early Findings reported that all of these contexts were also significant for the implementation of the MBRN, both in terms of:

a) the perception that this model, rather than alternative or previous initiatives, was necessary to address the respiratory needs of Morecambe Bay; and

b) the possible variations in the implementation of the model across different areas (i.e. between North Lancs and Barrow in Bundle 1, and between Bundle 1 and Bundle 2).

The five key contextual areas identified in the 12 Month Report were:

Geography and demographics	• The challenges associated with low population density with diverse, and sometimes isolated, communities were commonly cited by participants in their descriptions of the NCM. • An ageing population with complex and multiple needs was recognised as an increasing source of pressure on health and social care in all areas.

[11] HASCE (2017), Local Evaluation of Morecambe Bay PACS Vanguard: 12 Month Report

[12] HASCE (2018), Local Evaluation of Morecambe Bay PACS Vanguard: Stage 2 Early Findings Report

	• Participants drew direct links between social isolation and care needs; in the absence of regular social contact, there was an increased dependence on services. Furthermore, it was believed that needs may not be recognised until an acute care admission was required.
Skill supply	• The retention and recruitment of staff was commonly described as a factor affecting both the set up and delivery of the NCM. High staff turnover rates were reported across a wide range of roles, including commissioning, management and clinical. Furthermore, the geographical location, and the relative isolation of some communities, created recruitment difficulties. • Despite staff shortages, participants also identified under-utilised skills within the existing workforce, and the capacity for up-skilling staff through NCM activities.
Previous initiatives	• Morecambe Bay has been subject to a range of transformation programmes, and participants reported that this on-going cycle of change had often created cynicism or negativity amongst staff and other stakeholders.
Organisational cultures	• There was a strong feeling amongst participants that a departmentalised culture was prevalent across BCT partners and was a key disabler. For some, this related to the organisational structure of the NHS. The approach to commissioning was attributed with the creation of a fragmented service and even competition between primary and acute care providers. • Different procedures for data collection were also cited as a contextual barrier to collating consistent evidence for the success of a cross-organisational programme.
Availability of resources	• The NCM has been developed in a period of austerity, in which the NHS, social care and third sector partners have all faced significant financial pressures. University Hospitals of Morecambe Bay Trust (UHMBT) faces a significant deficit and consequently the need to demonstrate cost saving shaped the way programmes within the NCM were commissioned, implemented and evidenced.

Table 2 Key contextual themes from the first stage of evaluation

Using the data from staff and patients involved in the MBRN, we can see how these contexts are developed in the case of this new model of care.

3.1.1 Geography and demographics

- Quality and Outcomes Framework (QOF) recorded disease prevalence data for 2017 reports that there are 24,189 patients in the Morecambe Bay CCG area with asthma (prevalence 6.77%) and 7,818 with Chronic Obstructive Pulmonary Disease (COPD) (prevalence 2.2%). The prevalence for both these diseases is higher than that in England (5.91% and 1.85% respectively).[13] Some interviewees linked the prevalence of respiratory disease to the industrial heritage of some parts of Cumbria, while others also emphasised the links between deprivation and respiratory disease or the ageing population more generally. Previous industrial production across the area influences population health, with, for example, asbestos use and weaving being detrimental to respiratory health. As a result, industrial practices can produce unequal health outcomes for some populations in North Lancashire and South Cumbria.

- Patient interviews also highlighted the impact of wider social, economic and environmental factors that affected patients' ability to effectively manage their respiratory condition. For example, a few interviewees described the importance of a good "*back up team*" (INT069) of friends and family, particularly given the difficulty in travelling independently to medical appointments or interpreting test results. Patients without such "back up" reported feeling isolated, which in turn led to depression.

- The need for improved social support, amidst current limitations on its provision may contribute to poor adherence to clinicians' advice regarding smoking cessation and self-management. Healthcare is received and mediated by varying factors such as familial, sociocultural/economic settings and access to social capital and health literacy. Patients' health related decisions do not adhere to a biomedical model, nor do they necessarily follow a linear path, due to the often complex contexts of their lives.

- Access to specialist services was perceived to be difficult for the more isolated areas of Morecambe Bay. For example, one interviewee described how patients in Barrow were travelling to Preston and Manchester, which was particularly challenging for older or frail patients.

3.1.2 Skill supply

- Staff shortages continue to be an issue in some areas in both primary and secondary care. Interviewees reported that ICCs were experiencing GP shortages, which one interviewee attributed to a combination of practice mergers and retirement, and that there had been four vacant acute respiratory posts for over three years.

[13] Lancashire County Council (2017). *Morecambe Bay CCG Mini Summary Profile 2017/18.* http://www.lancashire.gov.uk/media/898216/morecambe-bay-mini-summary-profile-2017-18.pdf

- As with the wider BCT programme, the geography of South Cumbria was cited as one barrier for staff recruitment.

> *"Unless you live in Barrow it's quite difficult to get to. There's quite a high turnover of staff because of the travel and -- in Lancaster you can travel an hour over a lot larger area to be in Lancaster." (INT082)*

- Three interviewees commented on the lack of consultants in the Barrow area. The lack of consultants was reported to have led to the use of locums and registrars, which in turn had led to a rolling programme of outpatient appointments. As one interviewee described, Registrars were asking patients to come back for reviews at six monthly intervals:

> *"One of the key things that was coming out was that people were staying on the outpatients list for longer than they should, so when registrars are seeing them, we're just saying, 'Come back in six months.' So people were just staying on this rolling basis, which obviously blocks new users coming in. It blocks a lot of the clinics with people who really shouldn't be in an acute setting, they should be managed in the Primary Care setting." (INT082)*

- Other inefficiencies in the system included duplication between consultants and community respiratory teams, where, in at least one case, a patient had an appointment with both in two days.

- Participants reported that much of respiratory care had become nurse led in GP practices, with a subsequent de-skilling of GPs. Patient interviews also described how they had seen more of a Practice Nurse than a GP. They observed that their condition would be reviewed but little action taken as a result of this review.

> *"… they [Practice Nurses] do a review once a year. But again, I felt it was a little bit limited. They would say for example, your peak flow has gone down, your lung capacity has gone down, but they didn't really back it up with anything and they didn't really suggest anything to do about it." (INT074)*

- Interviewees described how the capacity of care teams to meet the needs across the Bay differed. For example, unlike in North Lancashire, there were no long-term condition matrons or oxygen services in South Cumbria. Another commented that locum staff had provided respiratory care at the Furness General Hospital for some time, which was perceived to have created communication difficulties with secondary care.

3.1.3 Previous initiatives

- Overall, most of the 14 patients interviewed were positive about their experiences of care before introduction of the MBRN. When asked to describe their care, they most often

referred to their GP surgery. However, there was also evidence that patients had received disjointed care and patients described how they felt unsupported when they saw a different GP or consultant at each appointment.

- Some patients also reported dissatisfaction with specific interventions. While other factors such as poor housing, air pollution and allergies were also reported to affect patients' respiratory condition, the most commonly cited was smoking behaviour. Patients recognised the link between smoking and respiratory disease, but one in particular was frustrated by repeated smoking cessation advice. Another described how the stressors in their life had led to several failed attempts to stop smoking, and that this had not necessarily been taken into account in clinic.

- A new model of care was first presented to the BCT vanguard for consideration in 2015 (prior to the formation of the MBRN). Experiences of this earlier model were often used as a point of reference by interviewees and frequent comparisons were made between the approaches to developing the two models. The capacity to learn from the failings of the previous model were key to many of the MBRN's initial successes.

- The two fundamental points of difference were the perceived focus on secondary care in the earlier model, at the expense of primary and community services; and the lack of funding secured by the 2015 iteration which stifled progress and led to no significant changes.

- A respiratory pilot project was also implemented in Barrow as part of earlier vanguard activity, which has since been implemented in Barrow Town ICC and rolled out to Alfred Barrow ICC.[14] The project referred patients presenting at Furness General Hospital to a respiratory nurse practitioner and then subsequent care was provided by a community team.[15] Patients were given a self-care plan, help with medicine management and, if suitable, were enrolled in a pulmonary rehabilitation programme.

3.1.4 Organisational cultures

- Participants echoed some of the negative themes around organisational silos, the competing priorities between primary and secondary care, and the variations of in perceptions of how care should be provided.

[14] Better Care Together (undated). *Case Study: Respiratory Care in Barrow-in-Furness: PDSA Cycle.* http://www.bettercaretogether.co.uk/uploads/files/Respiratory%20Case%20Study%20-%20June%202017%20BCT%201.0.pdf

[15] These ICCs have since been merged.

- Conversely, a strong theme emerged from the data around the importance of existing networks and collaborations for building a new model of care.

- Some participants cited the lack of communication meant that there was some duplication in care and a lack of understanding amongst patients:

> *"We need to improve communication. Like I say, we work in silos. So, we might see a patient in clinic, a week later they might go to the same appointment in GP land, with the practice nurse, and we've already done it." (INT090)*

- This resonated with some patient's experiences as well, several of whom commented on delays in care, issues with continuity of care, and falling between the gaps of referrals.

> *"I wish I'd stayed with the same Doctor and I knew what I was doing. Then they refer you to another one and then you go in about six months for different tests again, for him to get his own results. You feel like you're doing everything over and over." (INT075)*

- Some patients also highlighted the inconsistency of treatment received, and the perceived lack of a joined-up pathway for care. This had, in one case, introduced disillusionment with the care pathways.

> *"It was brilliant at the beginning, but I became disillusioned. They were constantly changing my appointments and I never saw the same person twice. I felt as if one would tell you one thing and one would tell you another. It was a case of, we'll see you in three months. But the three months appointment was then changed to another three months. I just felt as if I wasn't really getting any support that way." (INT074)*

- Staff commonly described inefficiencies or variations in standards of care when explaining why a new model for respiratory care was needed. The quality of diagnoses, the rationale for referring patients to secondary care and the timeliness of discharge were all identified as factors affecting care quality.

3.1.5 Availability of resources

- Participants commented on the high prevalence of respiratory disease across Morecambe Bay and felt that secondary, primary and community care services lacked the capacity to respond to the demands associated with this, which in turn affected the quality of care provided. For example, one interviewee described how long waiting lists affected care quality:

> *"Certainly, in the outpatients we have a large waiting list of patients who are past their indicative review date. They should have been seen in three months and it is*

six, or nine months later and they're coming in. Which causes problems in giving the best care." (INT081)

- Related to this, timely discharge was perceived to be prevented by a lack of capacity in primary and community care services, as well as the annual pressures created by increased demand in winter.

- In both Barrow and North Lancs a number of community initiatives exist to support respiratory patients. For example, patients in with chronic respiratory problems in Barrow are able to access support with symptom control, terminal care, transitional care and respite care at the local hospice. But participants involved in these programmes felt that while these were of benefit to a lot of respiratory patients, resources limited its reach, and waiting lists were long.

- The distribution of resources provided a key context for the historical delivery of respiratory care across Morecambe Bay. The use of the QOF as a means of funding provision was identified by some participants as leading to a less nuanced and in-depth approach to respiratory diagnosis:

  "GPs have become disenfranchised from providing respiratory care, probably because of the QOF in 2004, which said there's only a couple of things you need to do for respiratory. GPs made sure those things were done in their practices, and they get their QOF money and they tick a box, and because of that it all got shoved to Practice Nurses." (INT091)

- The need for funding decisions to be made regarding the future development of the MBRN, and in particular the roll-out from Bundle 1 to Bundle 2 became an increasingly significant context for the model of care. This links to findings in the 12 Month Report regarding the need for transparency of decision-making at strategic levels.

- It was clear that, as with the stage 1 evaluation, the fundamental resource being used in initial setting up of the network was that of good will and enthusiasm for the programme. This linked to existing networks and good communication that existed prior to the establishment of the network, and throughout its existence.

3.2 What key changes have been made and who is being affected by them? How have these changes been implemented? Which components of the care model are really making a difference?

The MBRN's model of care was presented to the BCT Delivery Group in June 2017 and the roll out of the first phase (bundle 1) was approved by the Delivery Group in August 2017. The vanguard

investment in this phase of the roll out was £311K.[16] In October/November 2017, two MDTs became operational and GP leads were appointed in each of the bundle 1 ICCs.

The Stage 2 Emerging Findings Report detailed the changes which had taken place during the implementation of the MBRN model, which are summarised here:

Establishment Multi-Disciplinary Teams (MDTs)	• A new MDT has been set up in both the North Lancs. and Barrow localities. The MDT brings together ICC respiratory teams, consultants, specialist nurses physiotherapists and other staff to discuss patient cases.
Establishment of ICC Respiratory Clinics	• North Lancs ICCs have set up new respiratory clinics in their practices.[17] • The Barrow practices have so far been less successful in establishing clinics, due to their smaller size and resources.[18]
Appointment of GP Leads	• GP leads have been appointed in each of the Bundle 1 ICCs. GP leads have been given access to a secondary care link team, the MDT, CT imaging and are able to request other pulmonary function tests. • A Lead Clinician pack has been developed which includes pathways for diagnosis, exacerbations and management of specific disease. • A full day's training with a respiratory consultant was also offered to GP leads.
Establishment of Wider ICC Respiratory Team	• The GP lead has been expected to establish a wider respiratory team within the ICC, involving Practice Nurses, District Nurses and Community Staff Nurses.
Community Respiratory Teams	• While community teams have been involved in the MBRN, participants have reported no additional funding has been made available, with significant impact on the capacity for higher-need patients to be maintained within the community.

[16] MBRN (2018). *Bay Health & Care Partners: Respiratory Case for Change Proposal*

[17] The *Respiratory Case for Change Proposal* cites all ICCs across Morecambe, Lancaster and Carnforth as having established respiratory clinics. It should be noted that this evaluation was only able to access qualitative data from Queen's Square and Lancaster ICCs (see above, Section 2.3).

[18] MBRN (2018). *Bay Health & Care Partners: Respiratory Case for Change Proposal*, p.4

	• Community staff have expressed enthusiasm for the model, but frustration at the lack of increase in funding, and the subsequent impact on their time. • Plans to increase capacity for rapid response and pulmonary rehab, and to develop a hospital at home service, which would include oxygen therapy, IV antibiotics or nebulised therapy, are proposed but not yet considered at the time of writing this report.

Figure 2 Key Changes Introduced by the MBRN

Due to delays with the roll-out of Bundle 2, it has been reported by participants that *"nothing has dramatically changed on the ground" (SS-17-PR-H-21082018)* since the Stage 2 Early Findings Report, where a more detailed exposition of the changes implemented by the MBRN model can be found. The following section of this report summarises the key mechanisms of change, identifies any differences across sites, and presents patient perceptions of change to their care.

3.2.1 Model Design and Leadership

- The 12 Month Report highlighted that leadership was a key active ingredient in the delivery of a new model of care. However, it also pointed to a noticeable gap between localised initiatives, based on an ethos of collective leadership, and strategic direction, based on more of a top-down approach. The result of this was that successful local initiatives struggled to translate into wider and more significant changes to the health economy.

- It is clear from participant contributions that the MBRN leadership model has offered an alternative model of leadership, which has helped to move this model of care beyond the impasse found in many of the other vanguard initiatives.

- The process of change was led by a small group who were passionate about improving the quality of care. The group operated relatively autonomously from formal BCT processes (compared to previous change initiatives) and instead engaged with those involved in respiratory care. This resulted in a clear and evidence-based design structure, following an ethos of integrated care provision.

- Key to this approach is an understanding of the expertise held by different specialities and roles across secondary, primary and community care services, and that better care is dependent on joining that expertise up. Interviews with other staff involved in the bundle 1 roll out suggested that the process was one of iterative development, based on dialogue and valuing contributions from all areas.

> *"It made you feel valuable, that we mattered as a [*name] service, that they valued our input. That gives you a warm, fuzzy feeling to start with. It makes you feel valued."* (INT080)

- Alongside this, observations of MDTs suggested GP teams appear open and willing to learn from the MDT process, asking what one attendee described as "learning questions", and presenting a case for "learning purposes". Within one MDT discussion, the consultant appeared open about the difficulty in interpreting some test results and scans, reinforcing the ethos of a learning culture.

- The available evidence indicates that the MBRN has succeeded in engaging respiratory staff from the hospital, the ICCs and community services in the bundle 1 roll out. This is of particular note given the negative contexts surrounding attempts to re-model care, described in Section 3.1.3 above.

- Conversely, the risk of such a model is that it depends heavily on the character of those driving the change. This may have implications for the wider roll-out of the model. Variables to consider are discussed below in Section 3.5.

- Participants also voiced some concerns about the speed at which the model was implemented, due to the availability of funding.

- Some patients with a respiratory condition have been referred to the lead GP in their practice. This has led to a review of their diagnosis, medication and/or a discussion of their case at the MDT. Patient interview data indicates that patients are reassured by their referral to a GP with expertise on respiratory and that they have increased confidence in their ability to treat their condition. Some patients reported feeling that their concerns were finally "*being listened to*."

> "*I think that as soon as somebody seems to be on your side and here to help you, then you feel that you are not alone. But when somebody basically gives you the impression that they don't care one way or the other, it doesn't really do a right lot for your confidence, does it?" (INT074)*

3.2.2 Improved Ways of Working

- Participants cited improved communication, facilitated by the MDTs, as a key improvement in their ways of working.

- As part of the MBRN's development over its first 12 months, EMiS templates have been developed for respiratory care. It should be noted that poor data quality has been a recurring disabling theme for change across both stages of the NCM evaluation. While only recently introduced, this template should address a number of these issues,

including contextual problems with the amount of data the QOF requires (see above, 3.1.5), as well as standardising coding across GP practices.

- The formation of ICC respiratory teams and the MDTs have been critical components in bringing together expertise from primary, secondary and community care to deliver a more joined up and time efficient approach to respiratory care. In doing so, it has broken down barriers to joined up working:

> *"Bringing people together as a network, which was always one of our key aims. Prior to this, a lot of those people in the room didn't know each other." (INT095)*

- The interview data suggests that the MDT discussions are removing the barriers to communication that previously existed between primary, secondary and some community care services. Although MDTs have 'core' members, they appear to be open to anyone who has knowledge of the patients being discussed.

- Based on observation data collected from three MDTs (see Section 2.3), it was noted that much of the discussions in the MDT are highly medicalised and focus upon diagnosis and medication. However, there was also some discussion of the social, economic or cultural factors that affect the management of disease. In particular, the more intimate knowledge of the patient held by the ICC team presenting a case provides information that can be used by the consultant to inform the diagnosis or treatment plan. For example: known allergens in the house (e.g. pets), smoking behaviour, extent of their breathlessness (e.g. how do they present at appointments), and so on.

- In two of the observed MDTs, it was acknowledged that the discussions were highly medical and complex. The chair suggested that his reflected the early stages of the MDT, where much of the focus was on diagnosing patients. It was expected that more management discussions would develop over time. It was also proposed that GPs, and other interested parties, meet for one hour before the official start of the MDT to discuss diagnosis.

- Observation data collected from three MDTs suggest that there are some differences in operation between North Lancs and Barrow. This was reinforced in interview data with participants who attended both. One difference was available technology in the meeting location: in North Lancs MDTs, CT scans can be displayed on a large screen, allowing the consultant to explain what is on a scan and how it should be interpreted, therefore facilitating learning more easily than a similar activity in the Barrow MDT, which lacked a larger screen on that particular day.

- Another key difference is the presence of admin support:

> *"So the difference there is that the clinicians in Lancashire have got somebody behind the scenes, following through on all the actions. When the clinician says, 'Can you refer this patient to so and so', in Lancashire, that is done by the admin person*

or it is facilitated. Whereas in Barrow, somebody has got to remember to do it when they go back to their desk." (INT095)

3.2.3 Use, Type and Availability of Resources

- A number of components of the care model that are making a difference involve well-targeted, locally relevant and accessible activities that encourage patients/citizens to socialise with their peers and/or engage with self-care, whilst gaining appropriately targeted help and support from various healthcare professionals. For example, an Airways Café in Carnforth was cited as a good example of a low-cost, high-effect activity:

  "… the quality of life for those patients has really gone up, since that café. Feelings of well-being, less exacerbations. It had a double strand. One was information and social interaction, but we also saw them in clinic at the same time and did their observations." (INT084)

- A key enabler for the MBRN was seen as clinician or managerial buy-in into the new model. Where managers were supportive of the new model, clinicians reported being able to adapt their working day to accommodate the additional workload. In contrast, a few interviewees observed that there was a lack of managerial buy-in in some bundle 1 ICCs. Given that funding was present in all of these ICCs, this suggests that "buy-in" refers to a commitment to the ethos of the model, as well as financial capacity. However, lack of qualitative data from these ICCs prevents firmer findings being presented.

- A more disabling aspect of the changes was raised in the qualitative data through suggestions that the involvement of GPs in the new respiratory teams places increased pressure on practices, especially where there are GP shortages. Likewise, releasing consultant time from secondary care presented difficulties. The CCG were referenced as being particularly supportive of making adjustments to working hours, but the challenges remained:

  "One of the main challenges is finding time really, because everyone who is working in the system is pretty much working full time anyway, so how do you mobilise time to bridge where other systems start effectively to give you your time back? Initially, everyone had to take more time -- for example, the Multi-Disciplinary Team meeting runs on […] my half-day, essentially, I don't work that day, so coming on that day to be able to do it." (INT083)

  *"Without the investment from Vanguard, you're a little bit hamstrung into providing – it's how much extra our teams can provide, without the backfill. If we don't backfill [*consultant], for example, it leaves me with a ward that is uncovered, which means that I can't put him in the community and then test the actual outcome of our theory. […] Because as soon as you switch on a pilot, there will be*

a lag time from reducing some of that demand coming through the hospital, and we need to dual run for a period of time until that critical mass is achieved." (INT093)

- Participants also expressed frustration that funding decisions had been delayed, and that the community "leg" of the model was yet to be fully implemented.

- However, because the number of GP referrals has reduced following the formation of the ICC respiratory teams and MDTs, participants have reported that secondary care now has more capacity to manage complex asthma and COPD cases who were previously transferred to either Manchester or Preston. This directly addresses some of the contextual disablers for improving respiratory care discussed above in Section 3.1.1.

3.3 What is causing the outcomes demonstrated in particular elements of the programme, systems, patients or staff? What expected or unexpected impact is the new care model having on patient outcomes and experience, the health of the local population and the way in which resources are used in the local health system?

The Stage 2 Early Findings report identified and detailed six outcomes of the model after the first six months of its implementation. These were:

- Improved Diagnosis;
- Improved Care management;
- Reducing secondary care activity (reducing outpatient appointments and reducing non-elective attendances;
- Increased Productivity;
- Improved Staff experience; and
- Improved Patient experience.[19]

This section uses patient and staff interviews to develop these initial findings further, in four areas: Reductions in Referrals and Secondary Care Activity; Upskilling Staff; Improved Disease Management and Diagnosis; and Increased Confidence.

3.3.1 Reduction in Referrals and Secondary Care Activity

- The formation of the MDTs allow the ICC respiratory teams to discuss cases in the MDT meetings rather than make a new referral to an outpatient clinic. This results in a

[19] See HASCE (2018), Local Evaluation of Morecambe Bay PACS Vanguard: Stage 2 Early Findings Report, Section 3.5

reduction in new referrals to secondary care. The quantitative data to support this is listed below, in Section 3.4.4.

- As with the 12 Month Report, there is always a need to treat higher-level outcome figures with some caveats. In this case, the following points need to be considered:

    - The MBRN was implemented over a short space of time, and observations of the MDTs in North Lancs noted that delivery was an on-going and iterative process. As such, a longer view is needed to assess its true effect on patient outcomes.

    - At the beginning of the model's implementation, there was no code for patients using the MDT. As a result, it has not been possible to compare patient pathways over a significant amount of time to compare outcomes. The 12 Month Report recommended that changes introduced by NCMs needs to be assessed from a patient level *as well as* a general level: that is to say, following specific cohorts of patients who have been through the MDT route, and comparing these to patients who have not. This has not been possible in the time of this report writing, however.

    - The primary need for this is due to the number of extant variables that affect referral rates in respiratory, such as winter crises.

    - It should also be noted that while reducing referral rates is an objective of the MBRN, reviews of diagnosis may not necessarily always lead to moving patients away from hospital, at least in the short term.

- A number of patient interviewees welcomed the changes as they reduced the number of hospital visits, which was perceived to be beneficial for both patients and the economy. However, others, who were generally satisfied with standards of care prior to the implementation of the new model, felt that the quality of care and their experience of it had remained the same.

- In the absence of an investment in community services, it is unclear how much scope there is for the MBRN's model of respiratory care to address the social, economic and environmental stressors that affect how patients respond to and manage their condition. As the following quote from one participant illustrates, support may be required with housing and financial issues before a patient is able to effectively self-manage their condition.

    > *"Since I had (a separate health problem) and the bad do with the COPD, I've come out of work. I've had no help. I haven't had a penny of help in two years. […] I was just getting there and then the roof broke, so I've had a new roof put on and then it's square one. I'll probably be dead before I've got enough to get central heating. But there should be something, there should be someone to be able to come out and help you like that." (INT073)*

- This points to the variety of factors which affect the ways in which change is implemented, and that may not be immediately visible in higher-level outcome figures.

3.3.2 Upskilling Staff

- Staff interviewees reported learning from the MDTs, in particular through the transfer of knowledge from the consultant to primary care practitioners. Although there are some differences in the way that the Barrow and North Lancs MDT operate, participants reported that both facilitated learning.

- It is worth noting that evidence of this outcome is provided by interviewees' perceptions only, as there was no formal before and after measurement of knowledge and skills. It also needs to be remembered that leads from some practices did not engage with the evaluation, so the reach of upskilling is not currently evidenced. However, other measures do point to increased skills in managing respiratory cases. In particular:

    - the speed at which patient cases are dealt with during MDTs;
    - the time devoted to explanations of clinical decision-making within MDTs; and
    - patients reporting of satisfaction that their condition has been dealt with appropriately.

- Following the referral to the lead GP, patients felt that their health concerns were being increasingly listened to and recognised. For example, one interviewee, who felt that their concerns had been previously dismissed, was reassured by the lead GPs confirmation that "*something was going on*" with their chest and that there was a need for further investigation. Similarly, another interviewee described how their referral to the lead GP had led to investigation:

> *"I've been talking about this in my throat for nearly two years and [*lead GP for respiratory] picked up on it and said well, we'll try it. […] Well, the previous care was all right, but he's a specialist, whereas the doctors I've been seeing down at [*GP Practice], they're not specialists in that field. So, it's antibiotics, antibiotics. He's come with a different angle and he's made things better. (INT077)*

3.3.3 Improved Disease Management and Diagnosis

Clinical Management

- The increased communication between primary, community and secondary care services facilitated by the MDTs was described as creating opportunities for staff to collectively learn, plan and provide patient care. Most interviewees expected the increased communication between clinicians and the upskilling of staff to improve the accuracy and quality of diagnosis.

- This was supported by interviews with patients, who described how the lead GP had arranged for diagnostic tests, reviewed medications or referred them to pulmonary rehabilitation.

> *"When I went in to see him, he could see on the record that I'd had asthma. He did listening to the chest and all the rest of it and he recognised that it was pretty bad asthma, as well. He said, "Look, we need to run you through quite a lot of tests just to establish how bad your asthma is." And if there's anything else, an underlying cause." (INT078)*

> *"Since I got put on to [*lead GP for respiratory] I've got a blood test, x-rays. Last few weeks I had a CT scan and I'm down for the breathing… course. That's a 24 week wait, but I'm down on it. That's in a matter of a couple of weeks, so I can't complain, I think it's all right, yes." (INT071)*

- Medication reviews led to a change in the prescriptions of some patients and some felt that their condition had already began to improve as a result. Others reported the benefits of having their diagnosis reviewed and possibly changed.

> *"I had a particularly bad winter last winter and it was them that -- I saw [*GP lead for respiratory] and I had my medication reviewed and received a different inhaler which helped enormously." (INT076)*

> *"According to my wife I'm not snoring as much. So, it does seem to have helped, which is real boon…" (INT077)*

Self-Management

- Understanding of diagnosis and treatment is needed to enable patients to manage their condition more effectively. There was some evidence that patients were being given information by GP surgeries to support self-management. For example, one patient reported that they had received a long letter from the lead respiratory GP in their practice that explained her treatment and the next steps and another described how they had benefited from advice on breathing techniques.

> *"As long as I'm given enough information from the doctor or the Practice Nurse about the symptom and how it can affect and what I can do, I am much happier that way." (INT066)*

- Pulmonary rehabilitation provides a more comprehensive programme of support to those that are breathless and helps patients to better manage their condition and their symptoms. Although several patients had been referred to pulmonary rehabilitation, they reported waiting lists of up to 24 weeks. Although one interviewee who had completed pulmonary rehabilitation was indifferent to its value (they felt that it had not provided

any new information), others found the course helpful and described how it had provided the techniques needed to manage exacerbations. Another interviewee with severe symptoms described how they used the breathing techniques developed through both pulmonary rehabilitation and a programme run at the local hospice to stay as well as they can:

> *Even when I'm ill, I'll still try and do a little bit, even if it's only a little bit of the exercise on each one. They did actually give me the motivation. Then going up to the hospice, that made it even better again.* (INT072)

- Patient responses indicated that the success of the model involved a careful balancing of providing patients with a sense of control over their breathlessness, managing potential anxiety, and providing meaningful information during contact time. Patients frequently noted the frustration, prior to the MBRN model, of being subjected to testing without full explanation or not receiving follow-ups to test results, which provided a barrier to improving their self-care.

- Meaningful information is based on patient-centred approaches, as not all patients understand the information given to them. Test results in particular appear difficult for some to interpret and a lack of understanding of their implications can create anxiety:

> *There's lots of diagrams and charts and tables on the computer, but I'm hopeless with things like that. I just know how it feels. (INT068)*

3.3.4 Increased Confidence

In Patients

- Patient interviews reported being reassured by the perceived specialist knowledge held by the lead GP for respiratory in their practice. Increased trust and confidence in a GP or Practice Nurse's ability to manage care also emerged as being an important outcome. While many reported that they had always trusted their knowledge, the more specialised knowledge held by the lead GP appears to be increasing the confidence of some patients:

> *"He certainly gave me confidence that he knew what he was talking about."(INT068)*

- This, in turn, increased the patient's capacity for self-care:

> *"I'm a little more confident now than I was, than I have been." (INT068)*

- Trust in clinicians providing care, and a sense that there was continuity, were valued factors in the way care was being provided. In addition to increased confidence in the

care being provided by their GP surgery, one interviewee also felt that the management of their care was providing the doctor-patient continuity that had been previously absent:

> *Much better than anything that I was being offered at the hospital. I mean, you go to the hospital and you know exactly what's going to happen. You go and get weighed, you go on the breathing machine, you go into see either the registrar or one of their other people. They all tell you something different and scribble something down and sometimes don't even make eye contact with you. Then they say, "We'll see you in three months." At least somebody knows my name, they know who I am and they are talking to me. (INT074)*

- Some interviewees reported that they now request the GP lead by name when making an appointment at their practice. For one patient, this meant a longer journey to the surgery at which an appointment for the GP lead was available:

> *"That's a difference. Not to be able to nip for five minutes down the road. I had to walk for 40 minutes instead. It's because I insisted on seeing him… He certainly gave me confidence that he knew what he was talking about." (INT068)*

In Staff

- Staff also appear to have more trust or confidence in the system following the establishment of the MBRN. Increased communication, clear care pathways and improved reporting contributed to a theme that one participant described as "*we've got your back.*" Both staff and patients having increased confidence that patients aren't falling between the gaps in primary and secondary care, with the MDTs being the main vehicle for integrating care across organisations.

- A key example of this was observed in an MDT meeting, where, in addition to ICC teams presenting patients, the consultant and physios also flagged cases of concern. This ensured multiple perspectives were brought to cases, to ensure more complex areas of diagnosis and/or treatment were not missed.

- One participant described how trust had been increased between clinicians and that consultants were now comfortable with patients being managed in the community:

> *"With clinicians, once you know somebody you can start to trust them, and once you trust them you can then work with them and refer to them. I think particularly for the consultants, letting go of a patient was difficult if they didn't know the GP or nurse in the practice. They wanted to hang onto them. Now they are much more amenable to letting go of the patient and referring them back to the practice." (INT095)*

- The MBRN has invested time and resources into upskilling staff and establishing channels of communication across disciplines and areas of working. This has led to staff feeling better supported and more confident in their roles:

> *"In a very short space of time, practices are now empowered and are confident to make their own decisions and assessments about patients that were previously sent into hospital."* (INT091)

3.4 What is the change in resource use and cost for the specific interventions that encompass the new care models programme locally? How are vanguards performing against their expectations and how can the care model be improved? What are the unintended costs and consequences (positive or negative) associated with the new models of care on the local health economy and beyond?

3.4.1 Methodology

This section of the report therefore focuses on the resources used and projected for the MBRN, which requires a separate methodology to the qualitative approach guiding the bulk of the evaluation work.

In this case, the question of change in resource use and cost follows the structure suggested in the document *Cost Evaluation of Interventions in the New Care Models Programme,*[20] which has been produced as a guideline by the Operational Research and Evaluation Unit at NHS England to explore the changes in resources use and costs resulting from the implementation of interventions within the New Care Models (NCM) programme. This methodology provides a clear path for cost evaluation at the level of a clearly defined intervention. This makes the task of clearly defining a comparator or counterfactual scenario easier, and therefore the cost comparisons more robust. In addition, the model is designed to provide a clearer indication of the transferability of particular interventions to other local areas.

The guideline document[21] identifies two areas as potentially challenging a detailed cost evaluation which are of particular relevance to this evaluation:

(1) ***Availability of robust outcomes data:***
Cost effectiveness analyses can only take place if data on the effectiveness of interventions is available, which can then be combined with data from a cost evaluation.

[20] Operational Research and Evaluation Unit, NHS England (2018). *Cost evaluation of Interventions in the New Care Models Programme*.

[21] *Ibid*.

- Whilst this cost evaluation is produced on the grounds of evidence-based quantitative data, a significant challenge has been obtaining real-time data on both costings and patient numbers related to the MBRN. The most recent report from the MBRN Steering Group to the CCG Executive from August 2018 clearly indicates that the level of quantitative data available for the cost evaluation of the MBRN is not as advanced as was predicted by this point in time. Because the MBRN data dashboard is not yet live, this evaluation is still based mostly on projected figures from earlier in the year rather than real-time data. This will also have some implications for the evaluation of potential cost savings through the implementation of the MBRN.

(2) ***Maturity of the interventions in question:***
Because the MBRN is very new and only partially implemented, this makes it extremely difficult to arrive at a robust cost evaluation, and consequently a cost effectiveness analysis.

- While outcomes data does exist on the level of acute baseline respiratory data and primary care baseline respiratory data for the MBRN, baseline respiratory data from community services are essentially non-existent, as these services are not yet set up. These services delivered by community teams, however, form the vital third pillar besides acute and primary care, on which the principle of the MBRN rests.

- In addition, as the evaluation has documented in previous reports, the implementation of a new model of care takes time: establishing participation and 'buy-in' from clinicians, and developing a model iteratively in order to best suit the local contexts, all need to be taken into consideration when viewing the quantitative figures used in this analysis.

With these caveats in place, the next section will detail the parameters contributing to the cost analysis of the MBRN.

Decision Problem

The methodological approach to investigating the resource use in any context depends on what decisions we expect this information to inform. This so-called 'decision problem' is split into two processes:

(1) *Identify, measure, and value the resources used in implementing the MBRN model in sufficient detail to allow other areas of the NHS to replicate the intervention if they decide to do so.*

(2) *Identify, measure, and value the change in resources used in implementing the MBRN model in sufficient detail to inform decisions regarding its cost-effectiveness.*

While process (1) can be seen as a stand-alone implementation analysis, in order to understand an intervention in all financial details, it is also a prerequisite step for process (2), which is concerned with change in resources and therefore requires establishing the costs associated with a counterfactual scenario. The counterfactual scenario, however, is also highly dependent on the availability of data pertaining to the period before the implementation of a new service.

As noted previously, the MBRN model was built around three "bundles":

1. 1st wave ICCs (Barrow Town, Queen Square, Lancaster, Morecambe and Carnforth ICCs)
2. 2nd wave ICCs (Kendal, East, Alfred Barrow, Millom & Duddon, Ulverston & Dalton and South Lakes)
3. Reduction in specialist respiratory capacity and acute bed capacity

The MBRN aims to manage patients with respiratory disease with two core changes to the current way of working: integrated community clinics (MDT with GPs, respiratory consultants, practice and specialist nurses) and Community Services (Hospital at Home, pulmonary rehab etc.) to support earlier discharge and admission avoidance. Each Primary Care Network (PCN) will have a respiratory team led by a GP and linked respiratory physician and nurse specialist. The GP lead has overall responsibility for delivering the objectives, triaging referrals from ICC, educating practice staff, and attending the monthly community MDT clinic.

The main KPIs for this model were:

- Reduce Non-Elective admissions by 20% by the end of 2018.
- Reduce Out-Patient attendances by 50% by the end of 2018.
- Reduce Emergency Bed Days by 25% by the end of 2018.

As mentioned in Section 1.4, only one part of Bundle 1 is operative at present. To date, the main focus of the MBRN implementation has been in the General Practices that are aligned to the two MDT meetings. The involvement of lead GPs in all practices commenced in October with leadership provided by the MBRN lead clinicians to the two MDT areas:

- **Lancaster / Morecambe / Carnforth MDT:** Lancaster Medical Practice, Queen Square Medical Practice, Bay Medical Practice, Ash Trees Medical Practice

- **Barrow MDT**: Duke Street Medical Practice, Bridgegate Medical Practice, Burnett Edgar Medical Practice, Norwood Medical Practice

While integrated community clinics (MDTs and additional primary care clinics) are implemented, Community Services are not yet running. The scope of this evaluation therefore focuses on Bundle 1 activities, but includes projections about the costs of the Community Service provisions.

Perspective

The perspective of a study refers to the scope of the cost evaluation and in turn which costs (and benefits) are accounted for. In the case of the MBRN costs and benefits that are relevant to NHS decision making are deemed to be the first priority for this economic evaluation. Broader effects on the health economy, including benefits to patients (for example, reduced journeys to hospital) are not covered in this area of the analysis.

Time Horizon

The time horizon refers to the time period over which the change in costs and benefits is investigated. The time horizon for this study is October 2017, when Bundle 1 started to be formally implemented, until present (September 2018).

3.4.2 Identification, Measurement and Valuation of MBRN interventions

The following questions[22] have been used as guidelines to establishing the elements that contribute to the costs of delivering the MBRN:

a) Was there a significant stage of implementation of the service, prior to it being (fully) established? If so, what did this involve?

The set-up cost for Bundle 1 was calculated at £7k. This included training for GPs and nurses.

b) What are the key steps in the process of delivering this service (e.g. who is involved, preparation for MDT, MDT meeting, post MDT actions)?

This can be broken down into MDTs, Other Primary Care Elements, and Secondary Care. A breakdown of involvement in the delivery is detailed here:

MDTs

Participants

While participation at an MDT may vary, the attendance list an observed North Lancashire MDT meeting provides an indicator of typical participants:

- Lead GP for Queen Square (also MBRN lead)
- Lead GP for Lancaster Medical Practice
- Lead GP for Bay Medical Practice
- Lead GP for Carnforth
- A practice nurse from Lancaster Medical Practice
- A practice nurse from Bay Medical Practice
- A pharmacist from Lancaster Medical Practice
- RLI respiratory consultants
- Respiratory Advanced Nurse Practitioner
- Physiotherapist

[22] *Ibid.*

- Specialist respiratory link (head of pulmonary rehab)
- Senior project manager for MBRN

Patient Identification
Since March 2018, the North Lancs MDT has dedicated admin support. The admin support officer circulates an agenda to MDT members in advance of the meeting and invites them to add the NHS numbers for the patients to be reviewed. From observations in the MDT meetings, we know that the large majority of patients are presented by GPs, with a smaller number being presented by practice nurses. Additionally, the respiratory consultant also occasionally raises queries about patients they have recently seen in a clinic or who have an appointment at a future clinic. Occasionally, the physiotherapist may also present a patient. Updated pathways for the different respiratory conditions under the remit of the MBRN clearly indicate when a patient should be presented to the MDT.

The MDTs in Barrow currently do not have dedicated admin support. This will have a knock-on effect on clinicians time, as administrative tasks completed during the North Lancs meetings will need to be completed after the Barrow meetings.

Preparation for MDT meeting
The admin support arranges room bookings. As described above, they circulate the agenda in advance and invite MDT members to add patients to be reviewed.

MDT meeting
The meetings take place once a month and two hours are allocated to each one. There are plans for an additional 'optional' hour to be included in the future to allow for more technical discussion of diagnoses. The admin support takes minutes at these meetings.

Post MDT meeting action
Where a patient has been discussed at an MDT, this is now recorded on their Lorenzo record (as of June). Other actions would depend on the agreed treatment/diagnosis plan for each patient. For example, further tests, a referral to physio or pulmonary rehabilitation, presentation at x-ray meetings, smoking cessation advice, different medication or a referral to a consultant's clinic.

Other Primary Care Elements

GP lead and additional respiratory clinics
A GP lead has been established in each of the 5 bundle 1 ICCs, these are Barrow, Carnforth, the Bay, Queen Square and Lancaster. Each of these ICCs were expected to set up new respiratory clinics, but the evaluation has not collected evidence on this.

Those involved in each ICC respiratory team will differ across the bundle 1 areas. For example, in Lancaster it includes a lead GP, two practice nurses and a pharmacist. A partner was also involved

in the initial set up but does not attend their new clinics or the MDT. We do not have a similar depth of data for the other bundle 1 ICCs.

Role Changes
The majority of roles have not changed but the formation of the MDT and ICC clinics has led to their inclusion in these new activities. The roles of the two people leading the new model's delivery have changed though and they now receive additional vanguard funding to reflect their involvement in it.

Training
GP leads received a full day's training with a respiratory consultant. Nurses attended also attended a day's training.

Additional work or taken from other activities
This varies within the different practices and ICCs. For example, there are two respiratory clinics in Lancaster. One is run by a GP and nurse, and the other by a pharmacist and nurse. The nurses' time is backfilled (the practice pay other practice nurses to work additional hours to cover the respiratory nurses' time in the clinic). However, there is no backfill for the GP. The physiotherapist and specialist respiratory link's time is additional. The MBRN pay them to attend the MDT on their day off.

Secondary Care Elements

Contributions from secondary care come in the form of MDT participation of respiratory consultants and nurse practitioners. At the same time, however, the biggest benefits of the MBRN are expected to be a significant reduction in UHMB respiratory outpatient as well as inpatient activity.

3.4.3 Funding Calculations

In August 2017, the Better Care Together Delivery Group approved the proposal to commence Bundle 1 as a pilot to the end of 2017/18 to be funded from non-recurrent vanguard monies. The investment ask was £311k[23].

Cost of providing Bundle 1 in 2017-18	
GP population payment	£221k
Clinical Leadership & MDT	£23k
Community team/nurses	£35k

[23] BHCP (2016). Morecambe Bay Respiratory Network – ROI progress update.

Set up	£7k
Community equipment	£25k
TOTAL	£311k

Table 3: Investment requirement for Bundle 1

The GP population payment in the original service specification was based on an estimate of £3 per registered patient paid from November 2018, irrespective of disease prevalence. This yielded the following cost calculation for Bundle 1 ICCs:

ICC	List Size	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	2017-18
Barrow Town	33,698	£8,425	£8,425	£8,425	£8,425	£8,425	£42,123
Carnforth	15,058	£3,765	£3,765	£3,765	£3,765	£3,765	£18,823
Morecambe	60,863	£15,216	£15,216	£15,216	£15,216	£15,216	£76,079
Lancaster City	52,942	£13,236	£13,236	£13,236	£13,236	£13,236	£66,178
Queen Square	14,045	£3,511	£3,511	£3,511	£3,511	£3,511	£17,556
TOTAL	176,606	£44,152	£44,152	£44,152	£44,152	£44,152	£220,758
Implementation coverage of Bundle 1 (based on total patient population of 342,530)		51.56%	51.56%	51.56%	51.56%	51.56%	

Table 4: GP population payment calculation

Costs of clinical leadership and MDT and community services were estimates. As more detailed information about the requirements for these is now available, a more comprehensive cost calculation is presented in the next section.

Project development support from Morecambe Bay CCG, UHMB, Cumbria Partnership Foundation Trust (CPFT) & BTH were not included in these calculations. Moreover, from the same document we know that £180k of non-recurrent enablement funding was not included in the original MBRN proposal considered by the Delivery Group, as this was being funded through the non-recurrent support to General Practices bid to NHS England. This essential funding, however, has been lost and will require replacing.

From the interviews conducted for this evaluation, participants were asked about how much time they spent on the respiratory care before and after the MBRN was introduced. This information was not provided as an objective measure, but rather to reflect the immediately to-hand

knowledge of time spent on the network. It has become clear that information on which positions are funded from which source is incomplete, as the following table shows:

Position	Time Spent on Respiratory Care after MBRN model introduced	Time Spent on Respiratory Care before MBRN model introduced	Difference in time spent on respiratory care	How time is spent (e.g. MDTs, ICC clinics)	How time spent on MBRN model is funded
GP and Clinical Lead, Respiratory	7.5 per week[24]			Planning, MDTs, meetings, and leading on the project	Vanguard until April 2018
Nurse Practitioner	2 hours per week plus 1 extra unpaid hour (this is additional to their 'normal' role. They attend the MDT on their day off after the model offered to pay for their additional hours).			MDTs and prep for them.	Not sure
Practice Nurse	6.5 to 7.5 per week	Hard to say	Hard to say	MDTs, Clinics, and admin.	Not sure
Respiratory Consultant, UHMBT	2 sessions per month	No increase/decrease	No increase/decrease	Assisting the network, MDTs	Not Vanguard funded
Physio and Respiratory Link	2 hours per month				Vanguard
Specialist Respiratory Link	2 to 2.5 days per week amongst staff at the Practice		Increased time spent on respiratory		Federation
Divisional General Manager Medicine	2 hours per week in her management role		No change	Providing operational support	Part of day job so funded by UHMB
Project Manager	Half a day per week			Supporting the project	100% vanguard funded

Table 5: Workload and funding information from interviews

[24] N.B. only 3.5 hours of these hours spent on MBRN are funded. It is expected that once the network is better established and has been running for a while, 3.5 hours are realistic. This also depends, however, on community services being fully operational.

Due to the incompleteness of data and the disparity in working models (e.g. whether time is additional to workload or backfilled, which varies from practice to practice) it is extremely difficult to calculate actual resource use and the proportion of funding from vanguard monies. As can be seen from the table, precise information on change in working time/activities before and after the MBRN implementation is lacking for all positions.

It is therefore deemed impossible to base this evaluation on a counterfactual scenario.

The next sections, therefore, attempt to arrive at more detailed costing calculations, which will focus the investigation on the evaluation of resource use and the cost of delivery of the MBRN. Early indications of impact on healthcare utilisation will also be taken into consideration, which will provide insights towards a cost/benefits analysis.

Cost Calculation: General Practice

At present, funding allocated to General Practice is based on an allocation of £3 per patient on the practice register list, irrespective of disease prevalence. This initial £3 per registered patient investment is intended to be replaced eventually by a more accurate cost of service value derived from actual workloads and the individual practice prevalence of respiratory disease. As the MBRN service specification is being continually developed, individual elements have been identified. Estimates of actual workloads have been established from service specification data and interviews and costs were calculated using PSSRU[25] data, as shown in the following table:

Component	Time and Value Estimates	Cost	Notes
GP Sessional Time	3.5 hours at £120.30[26] for 42 weeks[27] for every 15,000 patients on the practice list	£17,684 (per 15,000 list patients)	Clinician time to lead the ICC team, see new referrals, support other staff and attend MDTs
GP CPD	8 hours at £120.30	£962 (per 15,000 list patients)	Day release for a GP to attend one MBRN update course a year

[25] Curtis, L. & Burns, A. (2017) *Unit Costs of Health and Social Care 2017*. Personal Social Services Research Unit (PSSRU). University of Kent, Canterbury

[26] PSSRU 2017 unit cost per hour of GP activity (£127), taking into account the scaled Market Force Factor for use in reference costs for UHMB Trust of 0.9471.

[27] Average GP working time is calculated in the PSSRU 2017 report as 41.4h/week, 42 weeks per year.

Component	Time and Value Estimates	Cost	Notes
Nurse time[28]	3 hours at £41.70[29] for 42 weeks[30] plus opportunity costs for every 15,000 patients on practice list	£9,633 (per 15,000 list patients)	Nurse time is evidenced from interviews. Opportunity cost is calculated as partial backfill of half of Nurse time.
Nurse CPD	8 hours at £41.70	£334 (per 15,000 list patients)	Allowance for nurses to attend MBRN update sessions and encourage practices to release nurses for training
Administration	15 hours admin time plus on costs and leave allowance minus £10/hour per 15k patients on list	£11,714 (per 15,000 list patients)	Extra administration is required as part of increased diagnosing, MDT organisation and post MDT action
Equipment	Equivalent to a new Spirometer each year (£1,500) per 15k patients on practice list	£1500 (per 15,000 list patients)	In addition to QoF monies an allowance for equipment to ensure up-to-date and well calibrated equipment
Diagnosis	1 hour for Band 6 Nurse at £41.70 times new codes in 2017		Based on 2017 new diagnoses, fund an hour of Band 6 Nurse time for extra diagnostic appointments
Disease Monitoring	20 mins Band 6 Nurse (£41.70 / 3 = £13.90). 50% COPD and Asthma patients (in addition to QOF) and 100% BE and ILD patients		Funding for 20 minute reviews for ILD and Bronchiectasis patients (not provided under QoF), also an allowance for extra reviews of Asthma and COPD patients, particularly complex and deteriorating patients
ICC Respiratory Team Resources	£2 per patient on each of the 4 respiratory disease registers		Funding for wider ICC projects/patient resources. CPD for community staff attached to ICC
Locality Resources	20 pence per patient on practice list		ICC funding to contribute towards locality MDT and community clinics (venue/admin/co-ordination)

Table 6: Cost calculator for General Practice

Based on these costings, the GP population payment calculation for Bundle 1 practices is as follows:

[28] This is based on the information of additional nurse time from the table above

[29] PSSRU 2017 unit cost per hour of Band 6 Nurse activity (£44), taking into account the scaled Market Force Factor for use in reference costs for UHMB Trust of 0.9471

[30] Average Nurse working time is calculated in the PSSRU 2017 report as 37.5h/week, 42 weeks per year.

ICC	Queen Square	Bay	LMP	Carnforth	Barrow Town	Totals
List Size	14270	61068	55750	15007	33743	179,838
COPD	342	1735	1025	333	862	4,297
Adult Asthma	998	4152	3239	1200	2401	11,990
Bronchiectasis	71	255	154	93	107	680
ILD	18	88	45	34	44	229
New Codes	82	335	315	92	136	960
GP Sessional Time	£16,823.47	£72,825.63	£66,483.73	£17,896.35	£40,239.65	£214,268.83
GP CPD	£915.56	£2,800.99	£2,557.07	£688.32	£1,547.68	£8,509.62
Nurse Time	£7,497.74	£32,086.35	£29,292.17	£7,884.98	£17,729.25	£94,490.48
Nursing CPD	£317.36	£1,358.15	£1,239.88	£333.76	£750.44	£3,999.60
Administration	£11,143.92	£47,690.44	£43,537.41	£11,719.57	£26,351.26	£140,442.59
Equipment	£1,427.00	£6,106.80	£5,575.00	£1,500.70	£3,374.30	£17,983.80
Diagnosis	£3,419.40	£13,969.50	£13,135.50	£3,836.40	£5,671.20	£40,032.00
Disease Monitoring	£5,324.10	£22,723.05	£15,771.30	£6,440.95	£12,051.05	£62,310.45
ICC Resp Team Resources	£2,858.00	£12,460.00	£8,926.00	£3,320.00	£6,828.00	£34,392.00
Locality Resources	£285.40	£1,221.36	£1,115.00	£300.14	£674.86	£3,596.76
Total Yearly Funding	£49,726.56	£199,560.91	£177,592.05	£50,301.02	£107,714.83	£584,895.37
per patient	£3.48	£3.27	£3.19	£3.35	£3.19	£3.25

Table 7: GP population payment calculation

This calculation indicates that the current assessment of £3 per registered patient should be revised and increased to £3.25. If we assume this revised figure of £3.25 as GP population payment for the purpose of a projection of the cost of delivery of the MBRN, this translates to a yearly cost for Bundle 1 practices of £573,970.

If this projection is carried forward to all practices in Morecambe Bay when rollout is accomplished and implementation reaches 100%, this arrives at a yearly cost of £1,113,223.

Cost Calculations: Community Services

Community Services around the MBRN have not been implemented at all, so there is no actual data on resource use. The following table is a costing projection developed by the delivery group. It involves yearly staff requirements and additional costings to support one Community Service team for the MBRN.

Additional WTE's	Band	Description	FY cost (at mid-point)
0.30	8a	Advanced Practitioner	£16,975
1.00	7	Specialist Respiratory Physiotherapist	£45,671
0.90	6	Occupational Therapists	£34,259
0.50	7	Nurse	£22,836
1.00	6	Respiratory Physiotherapist	£38,065
1.10	6	Respiratory Nurse	£41,872
0.50	3	Therapy Assistant	£11,156
0.70	3	Secretary	£15,618
0.50	4	Smoking Cessation Advisor	£13,027
		Venue hire	£4,000
		PR equipment	£500
			£243,976

Table 8: Staffing and additional requirements for Community Service Team

For the MBRN to function effectively, the MBRN model includes three Community Service Teams, one for each MDT area operating across several ICCs: Barrow and Furness, South Lakes and Lancashire North. The projected yearly cost for the three Community Service Teams is therefore £ £731,929.

Cost Calculations: Secondary Care

The allocation of staff from secondary care is assessed as two respiratory consultants and two advanced respiratory nurses to attend the monthly MDT meetings in each of the three locations. MDT meetings are scheduled for two hours, added to which is one hour of travel time. Additionally, these allocations need to be covered at the hospital with equivalent staff. Based on PSSRU data and taking into account the MFF for UHMB, the costs associated with this is calculated at £602 per month each for the respiratory consultants and £307 each for the nurses, totalling £1,818 per month. This adds up to a yearly cost of £21,821 for each MDT location or £65,463 in total.

Summary of MBRN delivery costs

In summary, the cost of delivering the MBRN is calculated to be as follows:

MBRN Summary	Monthly	Yearly
General Practice	£92,769	£1,113,223
Community services	£60,994	£731,929
Hospital services	£5,455	£65,464
Total	£159,218	£1,910,615

Table 9: Projected yearly cost of delivery of MBRN

3.4.4 Impact assessment

The assessment of the impact of the MBRN on healthcare demand and costs is a critical component for decision makers. However, as the MBRN has only been implemented for a short time, and only partially implemented at that, assessing its impact is difficult. In the following sections, we will present the anticipated impact presented in the planning documents for the MBRN and then compare these to two sets of data that are available, one from the Delivery Group update in March, and then the latest available figures from the Delivery Group update in August.

Projected impact modelling

The implementation of the MBRN is anticipated to primarily impact on hospital inpatient and outpatient service demands. This is encapsulated in Bundle 3 of the MBRN service offering *reduction in UHMB specialist respiratory capacity including outpatient clinics and bed capacity.*

The three main KPIs for this model are:

- Reduce **Outpatient Attendances** by 50%, (excluding technician-led respiratory physiology), based on audit of clinic appointments and agreement between UHMB consultant and GP clinical leads

    - Reduce **Non-Elective admissions** by 20% for the clinical conditions / patient cohorts listed below, as demonstrated by a recent pilot of elements of the proposed model of care in Barrow:
        - COPD
        - Asthma
        - Bronchiectasis
        - IPF/ILD
        - Plus exacerbations of the above conditions presenting as pneumonia/LRTI

    - Reduce **Emergency Bed Days** by 50% (phased 25% by end 2018, 25% by end 2019) for the same conditions, based on the same pilot

The Maximum projected impact on capacity is:

- - 15 occupied beds
- - 9 clinic sessions per week

In these plans, a two month's delay was anticipated from the start of implementation to any impact. Furthermore, it is anticipated that once the MRBN is operational in each locality within Morecambe Bay the changes will be self-funding and indeed will generate savings for the whole health economy and facilitate the re-utilisation of resources in the community rather than in the hospital.

The original service specification[31] identified patient cohorts and opportunities for inpatient and outpatient activity.

Inpatient cohorts and opportunity

Admissions per year	In-scope	Out-of-scope
All respiratory spells	5,086	-
Emergency only	4,317	769
Target conditions	3,313	1,004
Target cohorts	1,661	1,652
Bundle 1 ICCs only	884	777

Table 10: Inpatient cohorts

Opportunities (either/or)	Admissions	Beddays
Baseline target cohorts	1,661	10,156
Extrapolation of PDSA	-332 (-20%)	-5,078 (-50%)
Zero readmissions: 180-day 90-day 30-day	 -782 -592 -338	 -5,143 -4,069 -2,114
! Please note that opportunities are not mutually exclusive		

Table 11: Inpatient patient opportunities

Opportunities to reduce NEL admissions and NEL bed days for the identified patient cohorts are based on:

- Aiming to achieve zero emergency readmissions for known patients (more than 1,000 of the 1,661 target admissions were admitted as an emergency within the previous year)
- Reductions demonstrated via Barrow Town PDSA during 2016/17 Q4

[31] BHCP (2017). Morecambe Bay Respiratory Network – Identification of patient target cohorts and quantification of potential benefits.

Per year across the Trust, this would equate to:

- Avoiding 1-2 acute admissions per day
- Releasing up to 14 occupied beds (based on assumption of 100% occupancy)

Bundle 1 ICCS account for roughly half of the total opportunity, which means:

- Up to 1 acute admission per day on average
- 1-2 occupied beds at FGH
- 5-6 occupied beds at RLI

This would translate to the following reductions in absolute numbers:

	NEL admissions (FYE assuming 100% implementation)	NEL Bed Days (FYE assuming 100% implementation)
Bundle 1	- 177	- 2,703
Bundle 2	- 155	- 2,375
Total	**- 332**	**- 5,078**

Table 12: Reduction in inpatient activity in absolute numbers

Outpatient cohorts and opportunity

Analysis of UHMB referrals, outpatient activity and waiting lists indicates recurrent annual respiratory demand of:

- 2,800 new patients
- 5,400 follow up appointments

This activity is currently seen in secondary care and includes consultant- and nurse-led clinics but excludes technician-led clinical physiology. Clinical coding suggests that the majority of this activity consists of: face-to-face consultations, simple airflow and gas exchange studies, oxygen assessment and monitoring, respiratory nurse and AHP education/support.

Attendances per year	New	Review
UHMB 2016/17 outturn	2,674	4,931
Plus unmet demand	2,787	5,389
Of which: Nurse-led Consultant-led	 401 2,386	 1,035 4,354

Table 13: Outpatient cohorts

Demand and capacity	New	Review
Demand (attendances)	2,787	5,389
20% reduction 50% reduction 80% reduction	-557 -1,394 -2,230	-1,078 -2,695 -4,311
Modelled consultant-led clinic hours required per week	55 based on 2016/17 outturn 60 including unmet demand 48 with 20% reduction 30 with 50% reduction 12 with 80% reduction	

Table 14: Outpatient opportunities

The modelled clinic session requirements in the table above (e.g. 60 hours = 15 half-day sessions per week) are based on the RCP-recommended allocation of 30 minutes per new patient and 15 minutes for FUPs, allowing for 10%DNA and 42 working weeks per year.

While it is accepted that the majority of this activity may not need to be seen in a hospital setting, there will need to be a balance between the volumes that could be re-provided out of hospital, the capacity available in primary care and community settings and the capacity required to maintain a hospital-based acute respiratory service.

At an agreed modelling assumption of 50% reduction for both first and follow up appointments, this would translate into the following reduction in absolute figures:

	First appointments (FYE assuming 100% implementation)	FUPs (FYE assuming 100% implementation)
Bundle 1	- 711	- 1313
Bundle 2	- 625	- 1153
Total	**- 1337**	**- 2,466**

Table 15: Potential reduction in outpatient activity

It has to be noted, however, that these figures are based on the implementation of the whole MBRN model, which at the point of planning included the implementation in April 2018 of Bundle 2 and the commencement of Community Services as the vital third pillar of the MBRN delivery plan. As neither of these have happened yet, realistically, a lower impact has to be expected.

Update March 2018

The first impact figures for the MBRN were available in March. Monitoring of KPIs is expected to be conducted via the MBRN dashboard once this is fully up and running. In the absence of the dashboard, in this evaluation, we have to rely on data from the delivery group, which is presented below. This is taken from the BHCP Delivery Group update document from March 2018. This data therefore refers to figures up to and including January 2018.

- A clinical review of the original target conditions as part of the roll out of Bundle 1 narrowed the patient cohorts that are being prioritised by the MBRN. Patients aged 19 years or over with COPD, asthma, bronchiectasis, and IPF/ILD have been included in the capacity modelling assumptions. Conditions such as pneumonia and lower respiratory tract infections are not within the initial scope of the MBRN but may be included at a later stage.

- It is worth noting that there are 1,500 patients waiting for a follow up appointment as part of the respiratory IRD backlog. Reducing this figure is critical if there is going to be capacity reduction as part of the new model and the trust is currently exploring options to deliver a step change in this number with i3 support. The bundle 1 practices have been issued with their current list of patients under active follow up and it may be possible to discharge some of the cohort to primary care without being seen in UHMB.

- We also need to be aware of the impact of the e-RS work stream on this area of our activity as it could further dilute this modelling assumption on current demand and capacity.

A comparison of GP referral activity for Bundle 1 and Bundle 2 practices was presented in the Delivery Group update document, which is reproduced here:

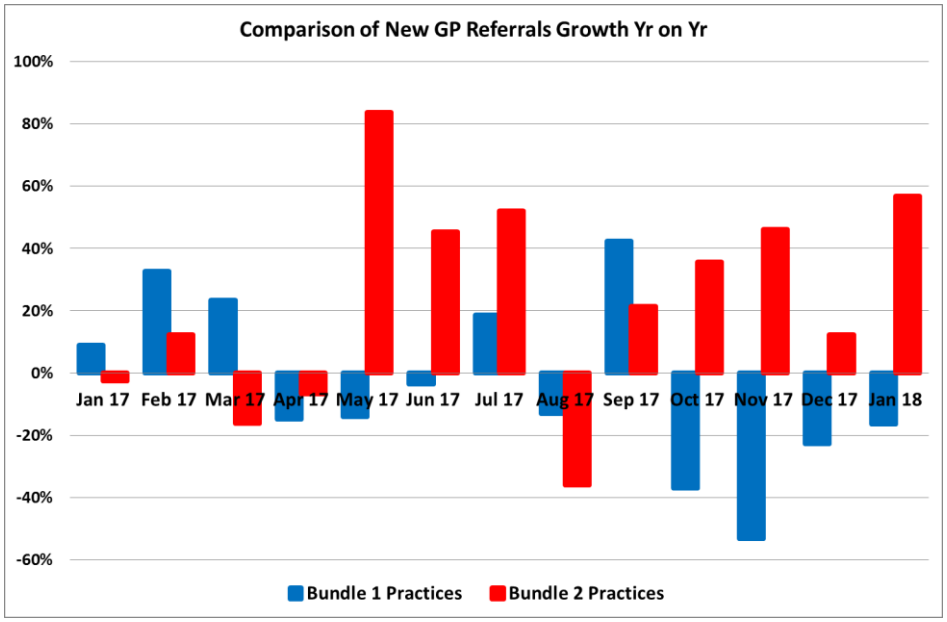


Figure 3 Comparison of New GP Referrals Growth Yr on Yr

As shown above, the reduction of new GP referrals to UHMB since October 2017 in the bundle 1 practices amounts to a 31% reduction on the previous year and compares well with the 37% increase in GP referrals seen over the same period in the bundle 2 practices and the 27% increase in referrals in the bundle 1 practices from January to September 2017. The absolute reduction in

GP referrals in the bundle 1 practices when compared to the bundle 2 practices is 162 referrals between October 2017 and January 2018 as shown in the next section.

Reductions in referral trend in Bundle 1 practices compared to Bundle 2 practices were also presented:

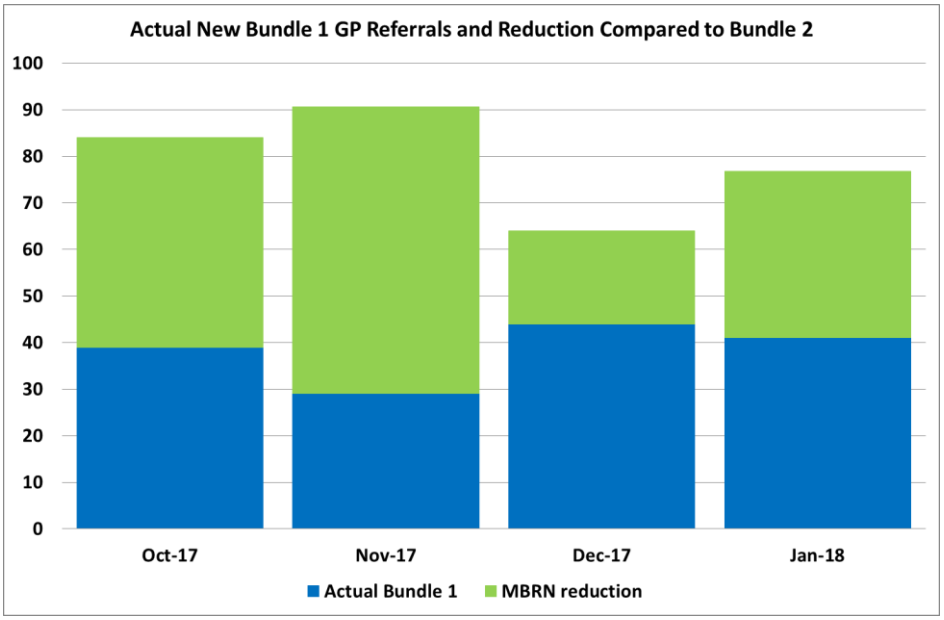


Figure 4 New Bundle 1 Referrals and Reduction Compared to Bundle 2

The charts on the following pages show that total respiratory outpatient activity on all three UHMB sites remains largely stable as the reduction in new GP referrals from the bundle 1 practices has allowed the department to reduce their backlog on follow up appointments and also provide increased access to for referrals from other consultants which make up 40% of all new respiratory referrals.

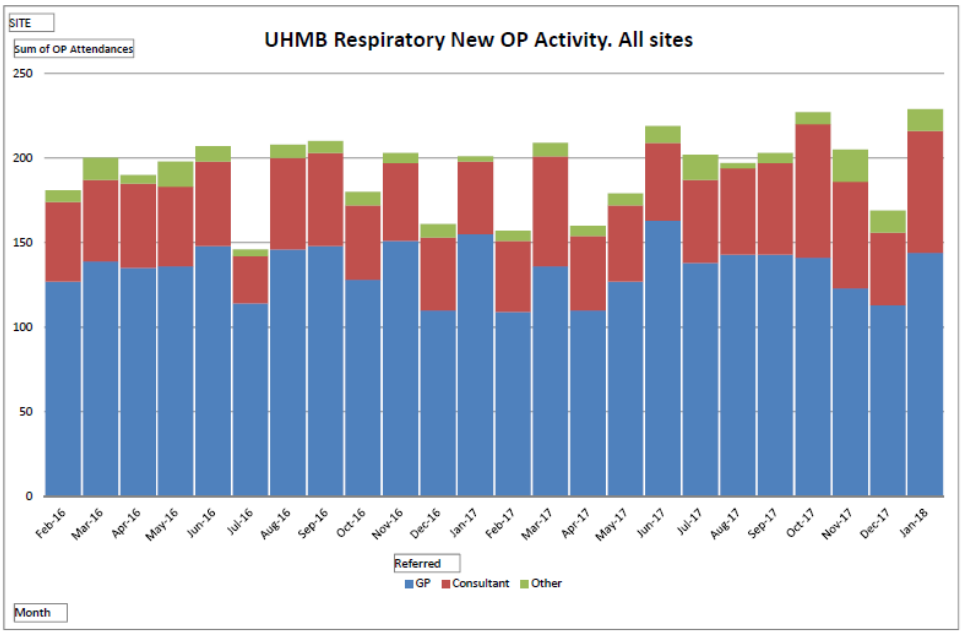


Figure 5 UHMB new outpatient activity trend – all sites

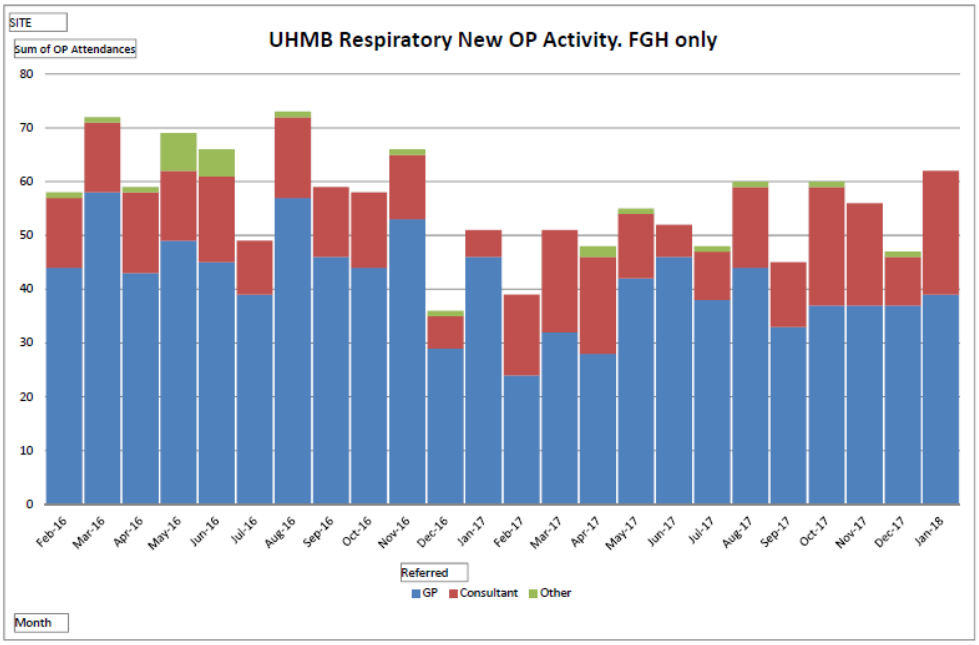


Figure 6 UHMB new outpatient activity trend – FGH

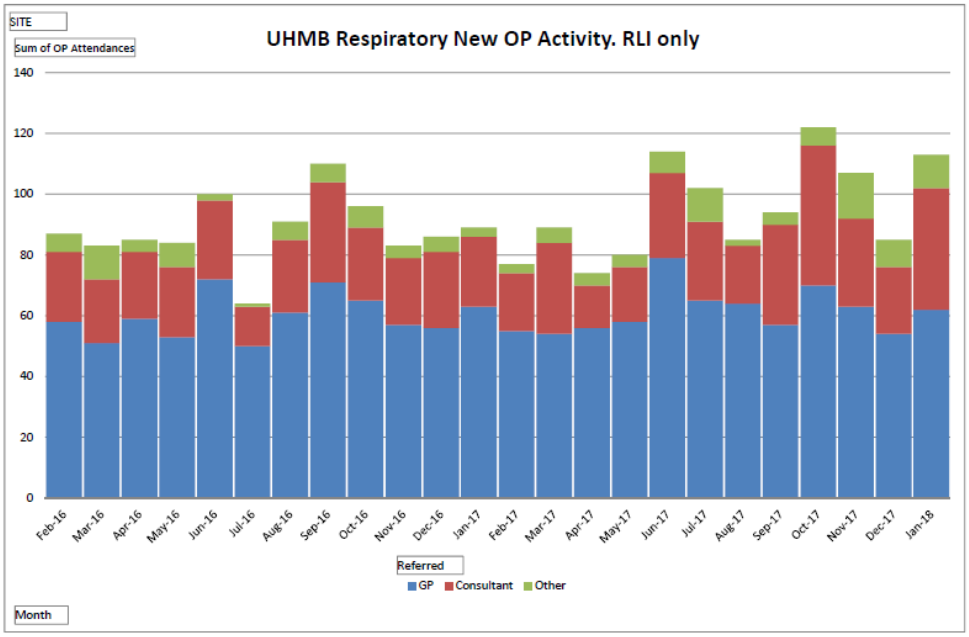


Figure 7 UHMB new outpatient activity trend – RLI

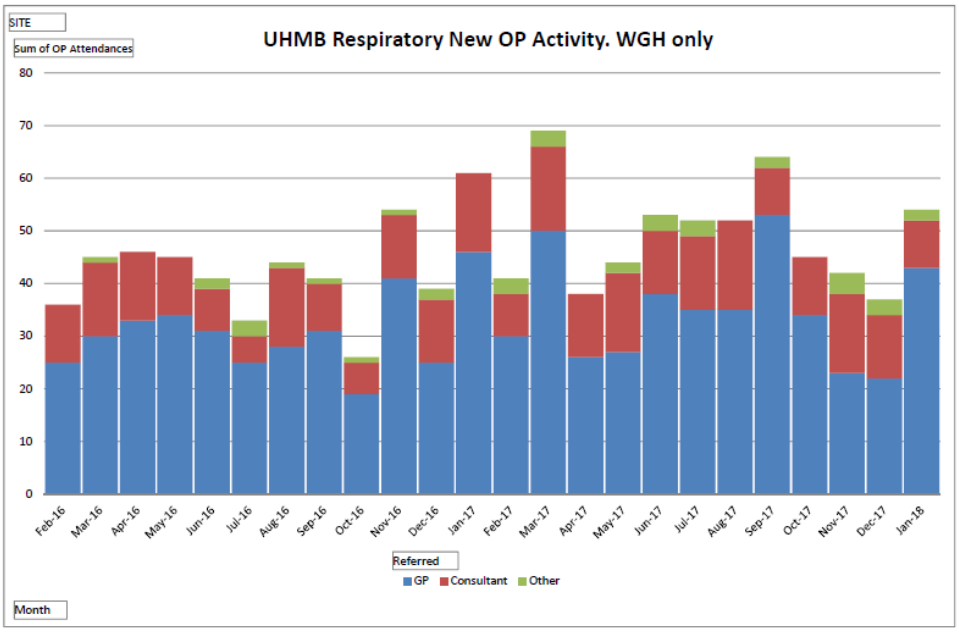


Figure 8 UHMB new outpatient activity trend – WGH

The initial evaluation of non-elective respiratory activity within UHMB during the bundle 1 implementation phase has concluded that there has been no reduction in activity. In fact, there has been a slight growth in respiratory activity above the general levels of acute activity growth over the winter.

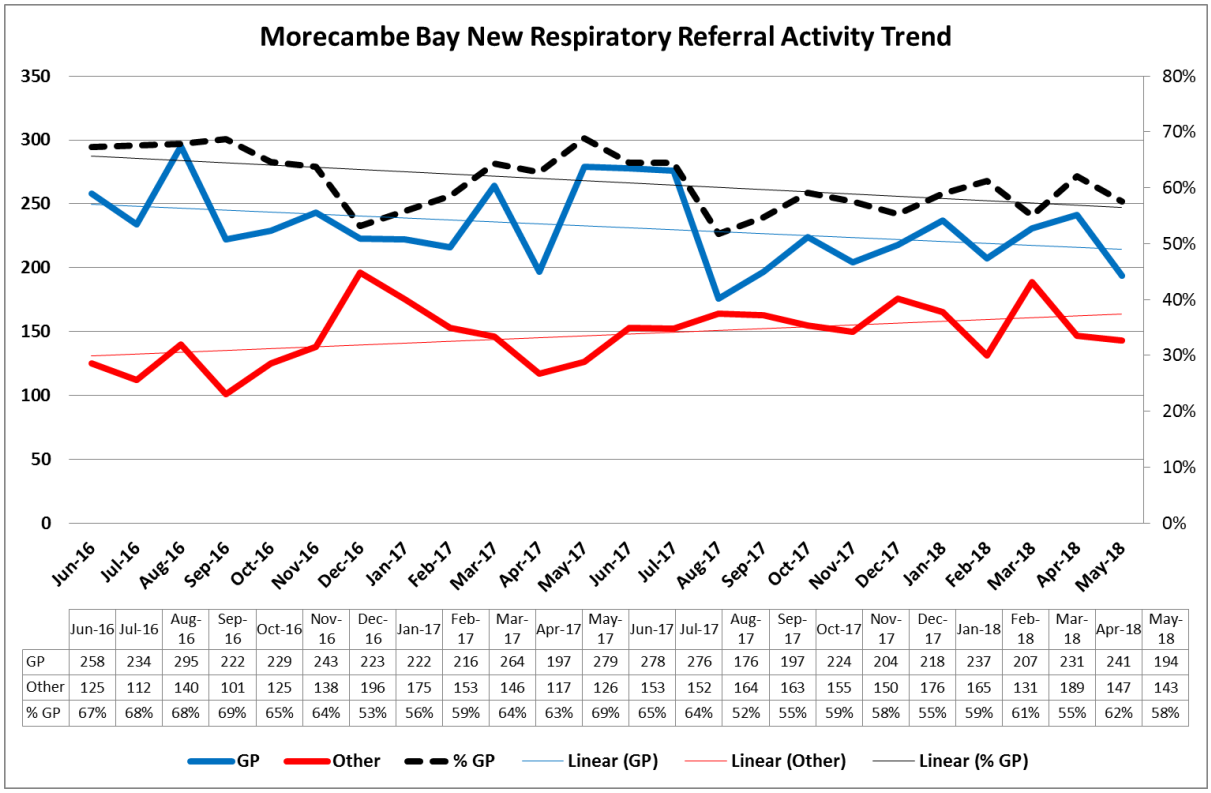
Given the impact of seasonal flu this year it is understandable that no reduction in non-elective activity has been seen. It should also be noted that no reduction in non-electivity was anticipated or planned for by the MBRN team as the key interventions in the community services needed to deliver such reductions have not been implemented in the bundle 1 roll out.

Update August 2018

Data for this update stems from MBRN Steering Group update to the CCG Executive in August 2018 and from the BCT MBRN Respiratory Presentation in June 2018.
First of all, this reports in the restrictions in the roll-out of the MBRN:

- Investment is limited and recruitment is an issue due to funding uncertainties, restricting implementation to Bundle 1 ICCs only
- Commenced in November 2017
- Integrated community clinics (MDTs)
- Community Services to support early discharge and prevent admission are not in place

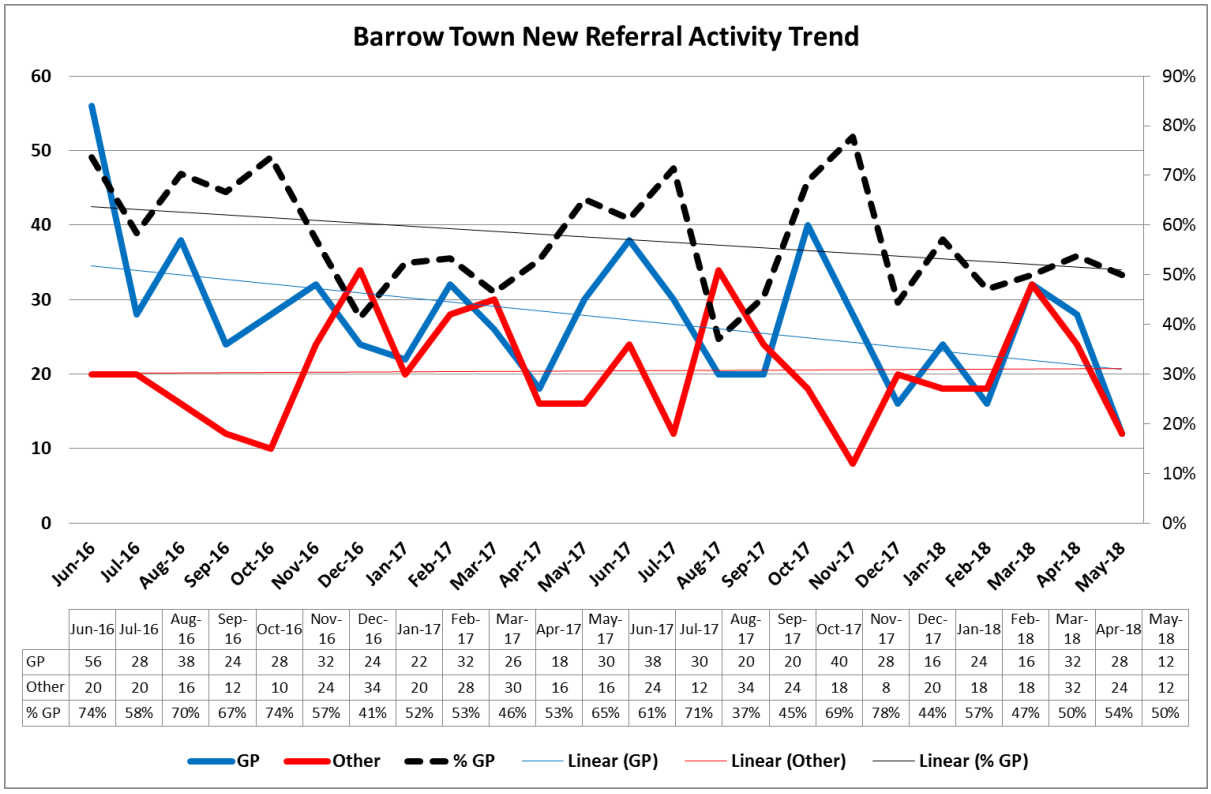
Despite these severe limitations in the implementation of the MBRN, impact measurements are showing an effect. GP referrals are reducing slightly overall:



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18
GP	258	234	295	222	229	243	223	222	216	264	197	279	278	276	176	197	224	204	218	237	207	231	241	194
Other	125	112	140	101	125	138	196	175	153	146	117	126	153	152	164	163	155	150	176	165	131	189	147	143
% GP	67%	68%	68%	69%	65%	64%	53%	56%	59%	64%	63%	69%	65%	64%	52%	55%	59%	58%	55%	59%	61%	55%	62%	58%

Figure 9 New Respiratory Referral Activity Trends

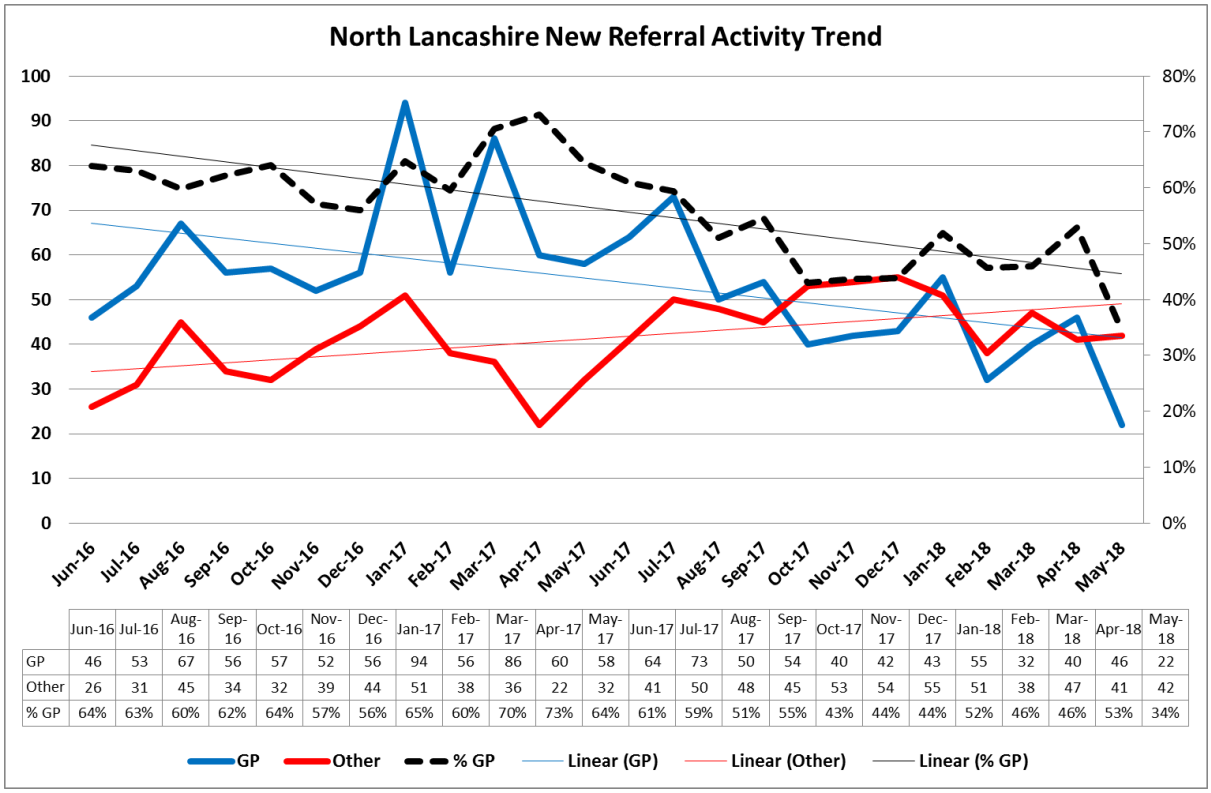
This reduction can be mainly attributed to reducing GP referrals in Bundle 1 ICCs. GP referrals in the Bundle 1 ICCs are showing a significant downward trend. The following two graphs show GP referrals for Barrow Town ICC (South Cumbria) and Lancashire North ICCs (all Bundle 1):



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18
GP	56	28	38	24	28	32	24	22	32	26	18	30	38	30	20	20	40	28	16	24	16	32	28	12
Other	20	20	16	12	10	24	34	20	28	30	16	16	24	12	34	24	18	8	20	18	18	32	24	12
% GP	74%	58%	70%	67%	74%	57%	41%	52%	53%	46%	53%	65%	61%	71%	37%	45%	69%	78%	44%	57%	47%	50%	54%	50%

Figure 10 New Referral Activity Trends: Barrow

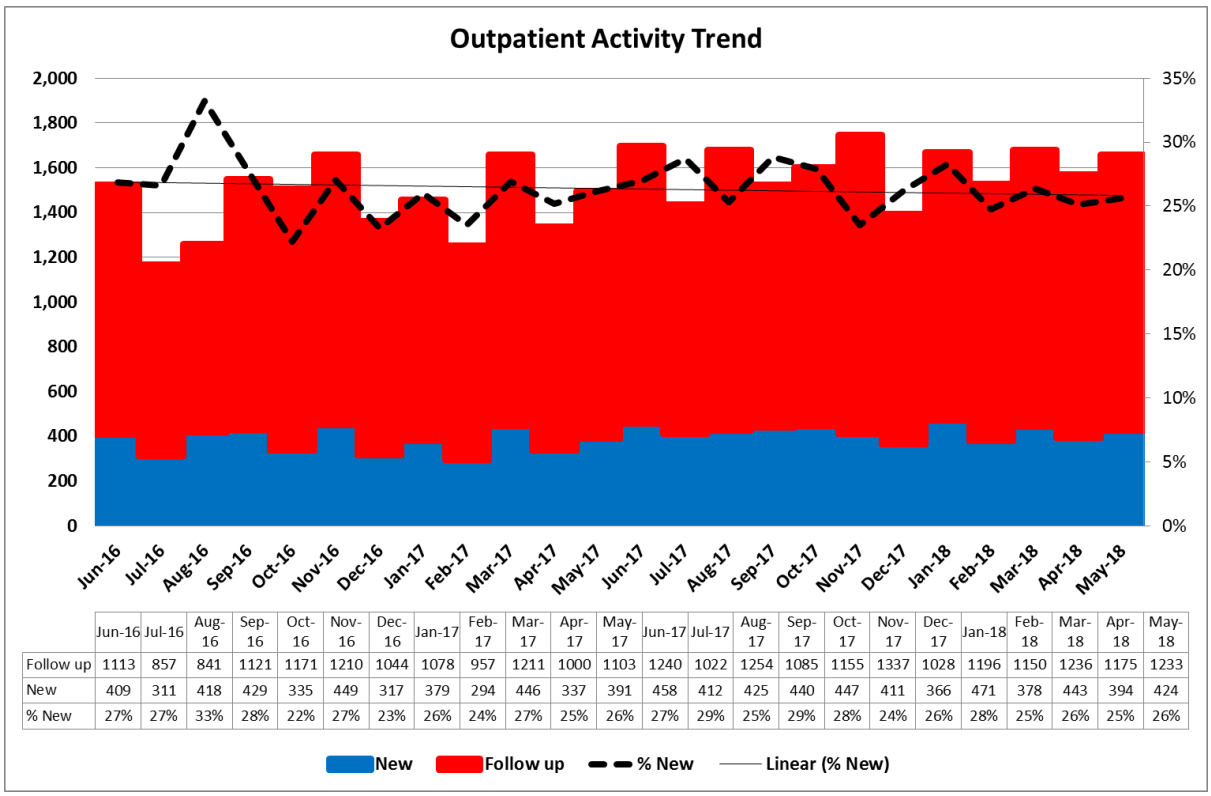
GP referrals are reducing even faster in the Lancashire North ICCs:



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18
GP	46	53	67	56	57	52	56	94	56	86	60	58	64	73	50	54	40	42	43	55	32	40	46	22
Other	26	31	45	34	32	39	44	51	38	36	22	32	41	50	48	45	53	54	55	51	38	47	41	42
% GP	64%	63%	60%	62%	64%	57%	56%	65%	60%	70%	73%	64%	61%	59%	51%	55%	43%	44%	44%	52%	46%	46%	53%	34%

Figure 11 New Referral Activity Trends - North Lancs

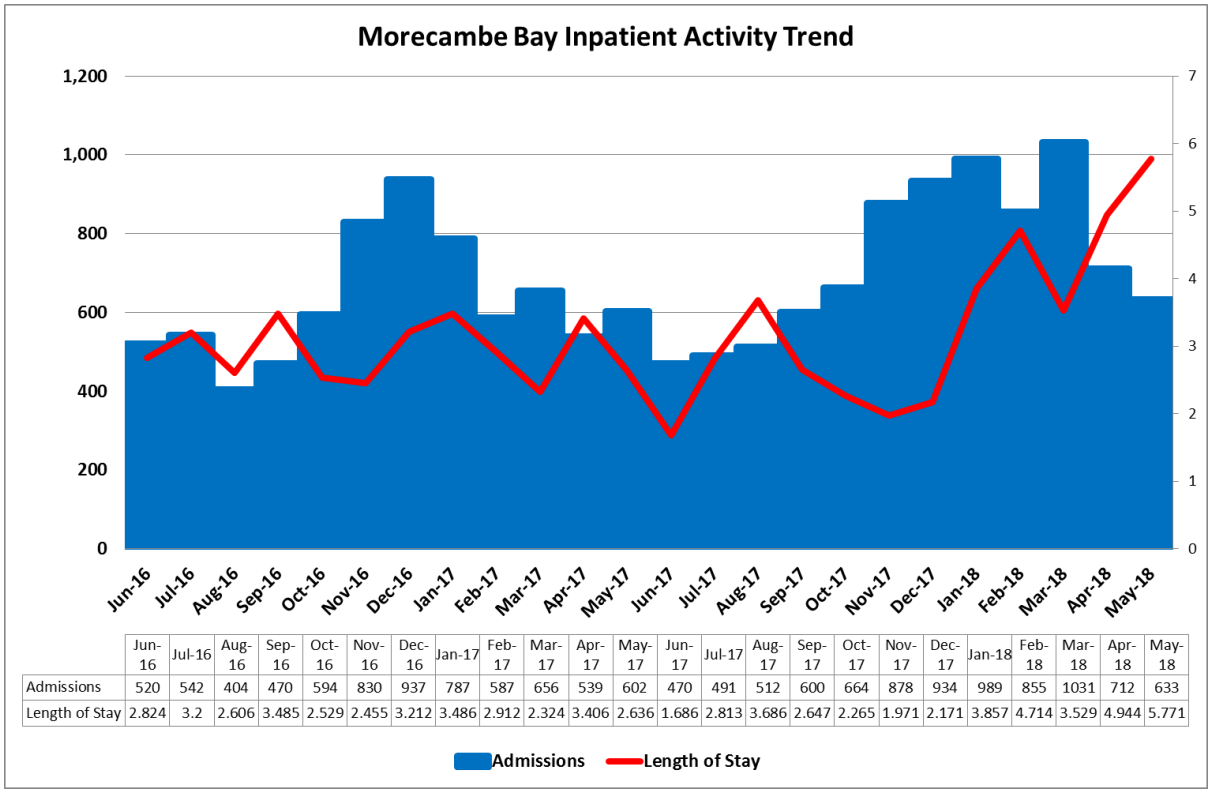
Total Outpatient activity remains static, as capacity reductions have not been implemented and any reduction in GP referrals have been absorbed into reducing unmet outpatient demand.



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18
Follow up	1113	857	841	1121	1171	1210	1044	1078	957	1211	1000	1103	1240	1022	1254	1085	1155	1337	1028	1196	1150	1236	1175	1233
New	409	311	418	429	335	449	317	379	294	446	337	391	458	412	425	440	447	411	366	471	378	443	394	424
% New	27%	27%	33%	28%	22%	27%	23%	26%	24%	27%	25%	26%	27%	29%	25%	29%	28%	24%	26%	28%	25%	26%	25%	26%

Figure 12 Outpatient Activity Trend

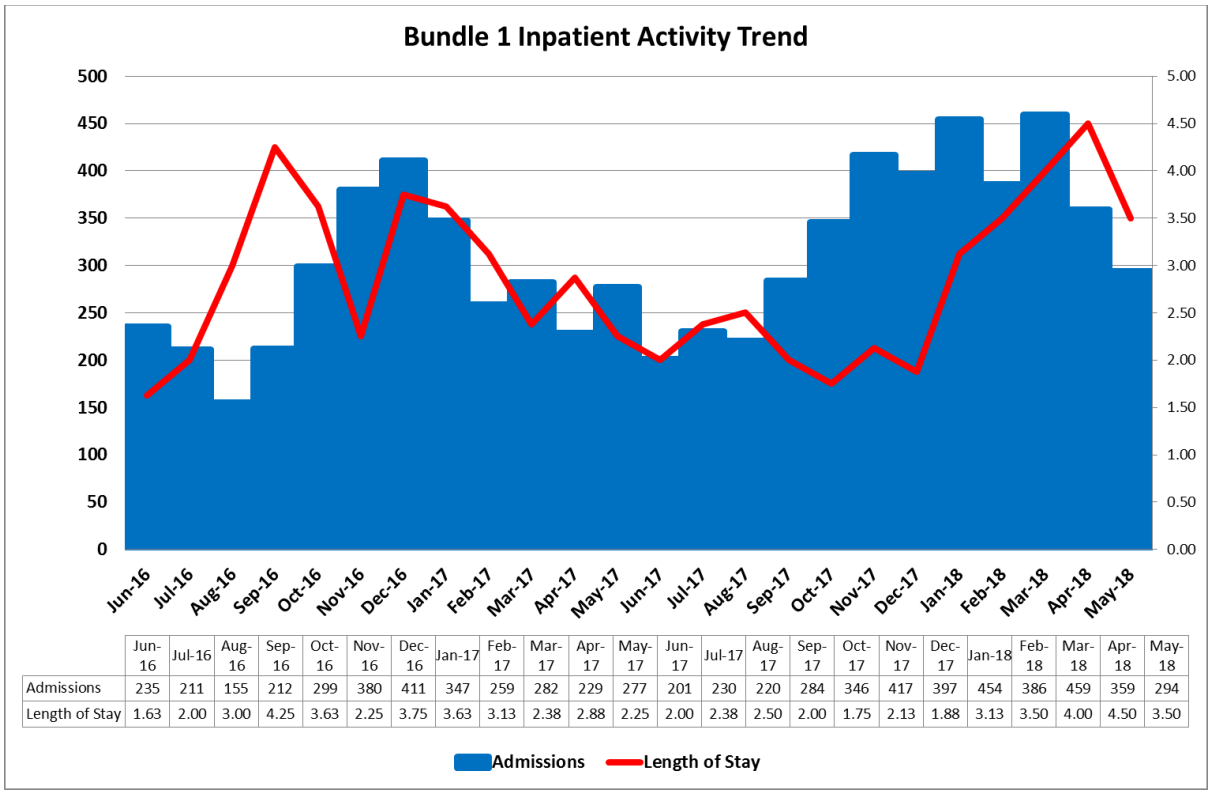
Across Morecambe Bay, last winter saw a significant increase in both admissions and length of stay:



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18
Admissions	520	542	404	470	594	830	937	787	587	656	539	602	470	491	512	600	664	878	934	989	855	1031	712	633
Length of Stay	2.824	3.2	2.606	3.485	2.529	2.455	3.212	3.486	2.912	2.324	3.406	2.636	1.686	2.813	3.686	2.647	2.265	1.971	2.171	3.857	4.714	3.529	4.944	5.771

Figure 13 Inpatient Activity Trend

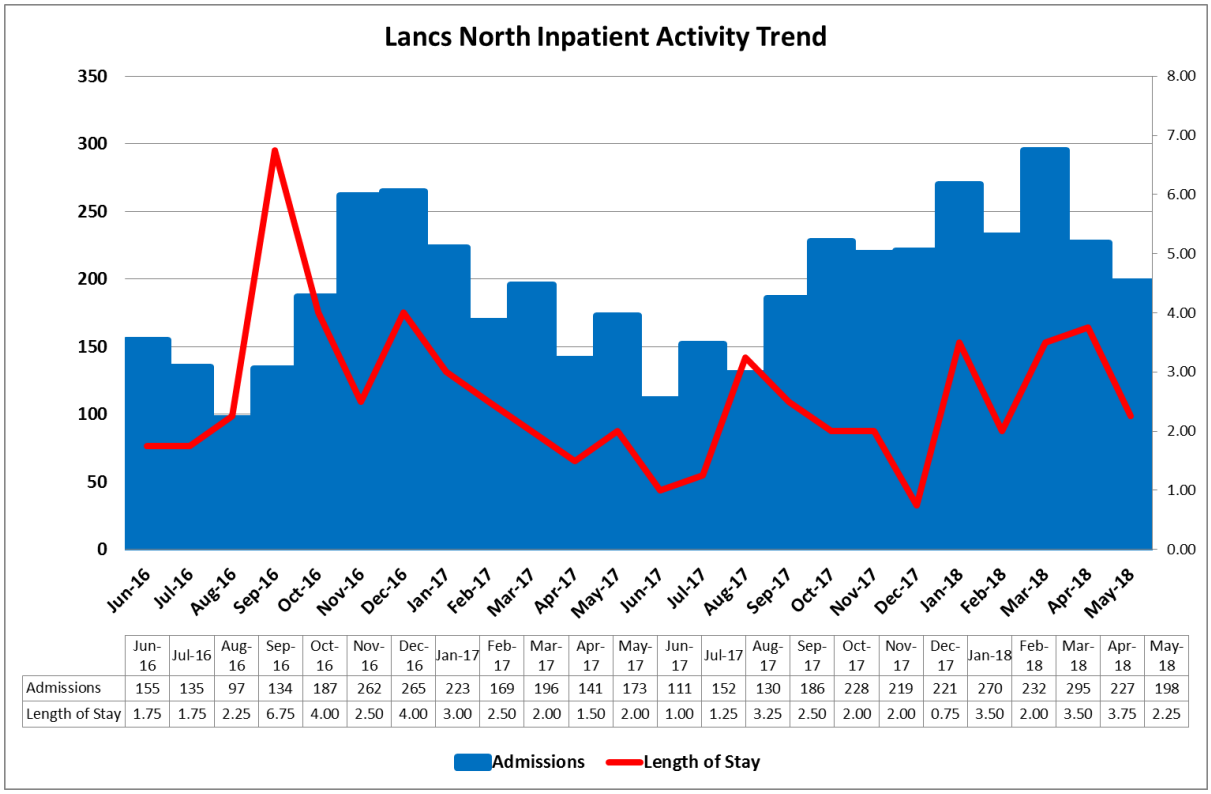
Bundle 1 ICCs, however, see an overall falling trend in LoS after the beginning of the MBRN implementation.



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18
Admissions	235	211	155	212	299	380	411	347	259	282	229	277	201	230	220	284	346	417	397	454	386	459	359	294
Length of Stay	1.63	2.00	3.00	4.25	3.63	2.25	3.75	3.63	3.13	2.38	2.88	2.25	2.00	2.38	2.50	2.00	1.75	2.13	1.88	3.13	3.50	4.00	4.50	3.50

Figure 14 Bundle 1 Inpatient Activity Trend

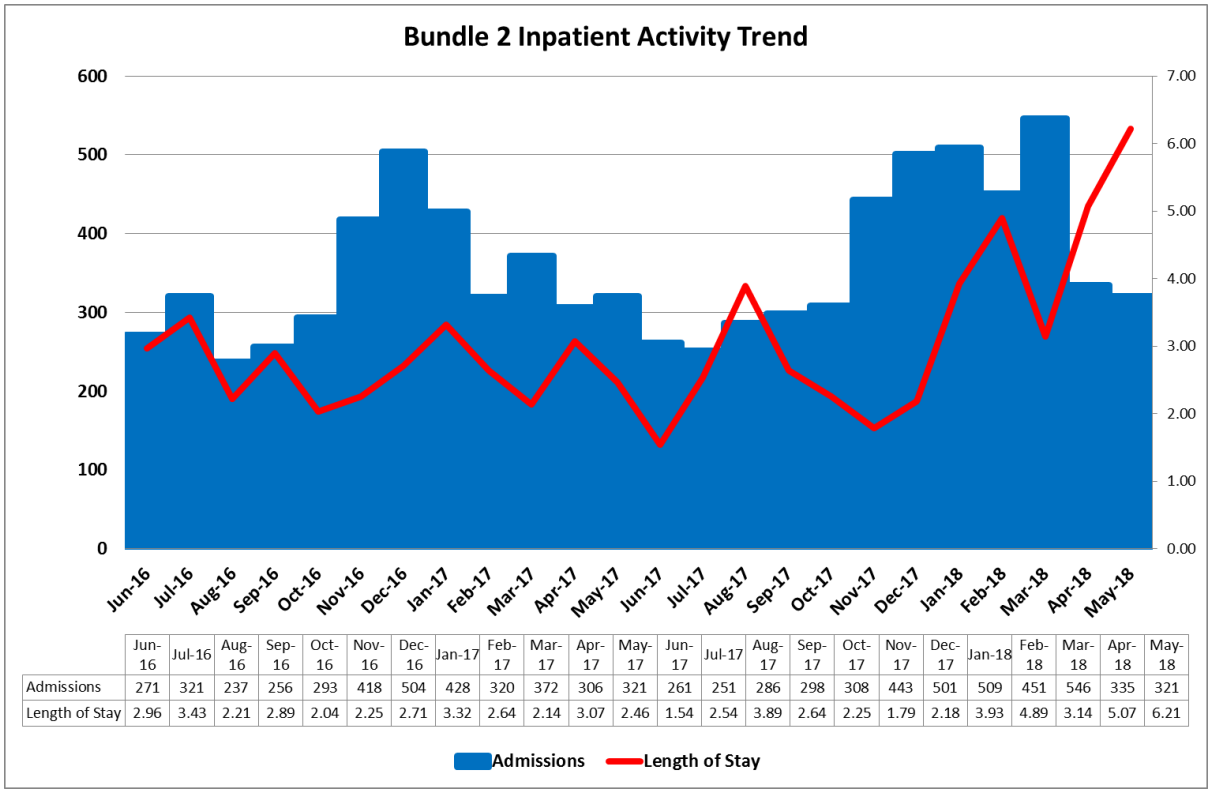
This trend is more pronounced in the Lancashire North ICCs.



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18
Admissions	155	135	97	134	187	262	265	223	169	196	141	173	111	152	130	186	228	219	221	270	232	295	227	198
Length of Stay	1.75	1.75	2.25	6.75	4.00	2.50	4.00	3.00	2.50	2.00	1.50	2.00	1.00	1.25	3.25	2.50	2.00	2.00	0.75	3.50	2.00	3.50	3.75	2.25

Figure 15 North Lancs Inpatient Activity Trend

This trend is set against a trend of increasing LoS in the Bundle 2 ICCs (where the MBRN is not implemented at all yet).



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18
Admissions	271	321	237	256	293	418	504	428	320	372	306	321	261	251	286	298	308	443	501	509	451	546	335	321
Length of Stay	2.96	3.43	2.21	2.89	2.04	2.25	2.71	3.32	2.64	2.14	3.07	2.46	1.54	2.54	3.89	2.64	2.25	1.79	2.18	3.93	4.89	3.14	5.07	6.21

Figure 16 Bundle 2 (not implemented) Inpatient Activity Trend

Revised Plans July 2018

Due to the severe resource constraints and subsequent restrictions on the implementation of the MBRN (see above), the delivery plans were revised in July 2018.

Figures on new GP outpatient referrals from practices involved in the MBRN show that there is an overall 40% reduction. Outpatient attendances remain have not reduced as clinic capacity remains static. Inpatient activity has also not reduced as this can only occur when the community elements of the MBRN are introduced.

With this in mind, the impact assessment has been revised to the following for Bundle 1:

- **Outpatients first appointment**

- Impact Summary:
  - Reduction of 379 first appointments
  - Equating to 47 clinics per year, which equals a net reduction of 6 clinics per month
  - Assuming a similar reduction in follow-up appointments, this would equate to a reduction of 20-30 clinics per year

- **Inpatient NEL admissions**

- Impact Summary:
  - Reduction of 174 non-elective admissions

- Equating to 513 beddays, which would equate to a net reduction of 4 beds over 2 years
- If taking into account a falling LoS (as indicated in figures above), and assuming LoS at 7 days, this would equate to a reduction of 9-10 beds over 18 months.

3.4.5 Financial implications of impact

Taking data provided by the Delivery Group and UHMB business intelligence, possible savings on secondary care spending are presented in this section.

Costings are based on *PbR Tariffs 2017/18*[32] and additional information from *Respiratory Coding and Tariff Update 2017/2018*[33]:

- NEL admission costs are calculated as an average of the PbR spell tariff for all conditions in scope. This arrives at a cost of £2,983 per admission.

- Excess bed days for NEL respiratory spells are given as £208.

- Outpatient first admissions costs are calculated as an average of applicable codes, i.e. 340 (respiratory medicine) and TFC341 (pulmonary function testing), as laid out in the Respiratory Coding and Tariff Update. This arrives as at cost of £218 per first outpatient appointment.

- Follow-up appointment costs are calculated in the same way, arriving at £129 per FUP.

For the scenario of full implementation achieving the predicted impact in terms of NEL admission reduction, bed day reduction and outpatient appointment reduction, this would generate the following tariff reductions:

	Tariff	Projected Reductions	Tariff reduction
Non-Elective admissions	£2,983	332	£990,432
Length of Stay	£208	5078	£1,056,224
First Out-Patient	£218	1337	£291,132
Follow-up Out-Patient	£129	2466	£316,881
Total			£2,654,669

Table 16: Secondary tariff reduction for full implementation and impact scenario

[32] National Tariff Payment System 2017/18. Available at: https://improvement.nhs.uk/resources/national-tariff-1719/ [Last accessed 18/09/2018]

[33] British Thoracic Society (2017). Respiratory Coding and Tariff Update 2017/2018. Available at: https://www.brit-thoracic.org.uk/document-library/delivery-of-respiratory-care/coding/respiratory-coding-and-tariff-update-2017-2018/ [Last accessed 18/09/2018]

Taking into account the cost of delivering the MBRN as calculated above, we arrive at the following financial cost/benefit analysis:

	Per Month	Per Year
MBRN delivery cost	£159,218	£1,910,615
Tariff reduction	-£221,222	-£2,654,669
Net saving	**-£62,004**	**-£744,054**

Table 17: MBRN delivery cost vs. tariff reduction based on predicted impact

These calculations would indicate that the MBRN is not only self-funding, if the reduction in hospital activity is translated into an actual reduction in capacity, but there is a potential for savings of around three quarters of a million pounds per year.

As the above calculations are based on projected figures, the following presents the same calculations based on the current state of implementation. For the MBRN delivery costs, only the proportion of Bundle 1 GP population payments and hospital staff MDT participation are taken into account. Furthermore, as community services are not in place yet, these are taken out of the delivery costs.

	Tariff	Projected Reductions	Tariff reduction
Non-Elective admissions	£2,983	174	£519,082
Length of Stay	£208	513	£106,704
First Out-Patient	£218	379	£82,527
Follow-up Out-Patient	£129	699	£89,821
Total			£798,134

Table 18: Secondary care tariff reduction actual

	Oct 17 to Aug 18
MBRN delivery cost	£596,480
Tariff reduction	£798,135
Net saving	-£201,655

Table 19: MBRN delivery cost vs. tariff reduction actual

This would indicate, that despite the severely curtailed implementation and short running time, the MBRN has already had a financial impact on the health system. It is acknowledged, however, that at the moment, these are not real-term savings, as no capacity reduction has occurred in secondary care.

3.4.6 Summary of Analysis and Limitations

- From the data that is available for this evaluation, the running cost of the MBRN has been calculated as amounting to approximately £1.9m pounds year, or £160k per month.

- Possible tariff reductions in secondary care from reduced NEL admissions and NEL bed-days as well as reduced outpatient clinic capacity amount to over £2.6m per year, or £221k per month. This would arrive at a net savings to the health system of approximately £745k per year, or £60k per month.

- In summary, all indications point to the MBRN being a cost-effective step change in delivering respiratory services in the Morecambe Bay area.

- The calculations are based on reasonable assumptions, but there are several limitations from lack of data that could affect the costings:

Data Issue	Effect	Recommendations
Only Bundle 1 is operative so far, and the community service element is missing entirely. All bar one ICC in Bundle 1 is in North Lancashire, all Bundle 2 ICCs are in South Cumbria.	It is uncertain how the costings of the MBRN to local ICCs extrapolate from Bundle 1 to Bundle 2. Whilst Bundle 1 contains predominantly big practices in more urban areas, Bundle 2 contains predominantly smaller practices in more rural areas that would have to pool resources in Primary Care Networks (PCNs) for providing additional MBRN services.	It has been identified that the £3 per list patient GP population payment should be raised to £3.25. It is recommended that further work is completed before a move to a differential investment formula can be made across all practices in Morecambe Bay.
There is a lack of precise data on which positions are funded from which sources.	It is not possible to determine whether these are recurrent or non-recurrent funds, and how much of the time spent on MBRN activities exactly is additional, backfilled or carried out on goodwill during the staffs' time off. This makes it extremely difficult to precisely calculate the running costs and funding needs of the MBRN.	From the Delivery Group update in March 2018 we know that £180k of non-recurrent enablement funding was not included in the original MBRN proposal considered by Delivery Group, as this was being funded through the non-recurrent support to General Practices bid to NHS England. This essential funding has been lost and will require replacing. Dedicated funded clinical leadership will be required to complete the implementation of the MBRN. Dedicated project management will be required to support clinical network leaders and PCN

		clinicians. The exact nature of these positions in financial terms, however, is unknown.
The fact that the data dashboard is not available yet makes monitoring of KPIs difficult, which in turn affects the accuracy of cost/benefit analyses.	An additional KPI that will be part of the dashboard data is prescribing. From the Delivery Group presentation on potential ROI of the MBRN (BHCP 2016), we know that "Right Care identified an opportunity of £700k (FYE)." The target reduction of 50% FYE would therefore equate to potential savings on prescribing of £350k. As no data is available on this at present, this cannot be factored in to the economic analysis.	The qualitative analysis of the MBRN indicates that the new pathways improve diagnostic accuracy and prevent exacerbations, which should have a significant impact on prescribing, as the prescription of unnecessary, unsuitable and ineffective medication is reduced. The indications from data that is available on the performance of the MBRN so far are positive.

- **The economic evaluation, however, has also shown that in order to deliver the savings to the health economy that are certainly possible through an effective MBRN, it has to be fully implemented.**

- Even in its short life span, there is good evidence that the MBRN delivers savings from reduced hospital activity. However, the slow progress in implementing the community aspects of the MBRN model will have a knock-on effect on high-level outcome figures, particularly regarding hospital admissions. For example, waiting times of over 8 months for pulmonary rehabilitation services in Barrow has resulted in many patients being admitted to hospital, where they could have been adequately maintained in the community, given a working community respiratory service infrastructure.

- One key element to this is the role of non-recurrent funding (whether vanguard or other) in establishing the model. For example, the non-recurrent funding identified so far has not permitted the CPFT and BHT community teams to advertise for additional staff. In addition, the impending move of services to UHMB has reduced the availability of managers to work with the MBRN lead clinicians to accurately specify the additional roles and capacity that will be required to fully implement the MBRN model.

- This analysis suggests the full MBRN model (including Primary Care services, Community services and Secondary Care services) will be able to be self-funding, or even cost saving; but recurrent funding will be needed to establish thus. A possible source of this funding is if the reduced activity benefits in secondary care translate into funding of the GP and community service elements of the MBRN.

3.5 What are the 'active ingredients' of a care model? Which aspects, if replicated elsewhere, can be expected to give similar results and what contextual factors are prerequisites for success?

3.5.1 Active Ingredients Comparison

In the 12 Month Report, data analysis suggested that there were four key ingredients for implementing new models of care in Morecambe Bay. The data from the Stage 2 evaluation suggests that while these ingredients are also active within the MBRN model, its implementation has found ways through some of the disabling aspects of these themes. These are shown in the following table:

Active Ingredient	BCT-wide Findings[34]	MBRN FIndings
Leadership	• A strong picture to emerge from participants' accounts was the notion that a top-down model of leadership was inappropriate for the changes being attempted. The data as a whole lacked strong examples of overarching system-wide leadership, and frustrations were reported with a lack of transparency over decision-making at higher levels. • The enabling mechanisms of leadership identified by participants reflected more of a model of localised, collective leadership. However, the focus on incremental, localised • Changes often struggled to be clearly related to a larger-scale and strategic models of change.	• The MBRN model required key individuals to drive the initial process of change with a clear vision. The model was built as a "network" rather than a "system", which enabled the changes to develop iteratively as they enlarged, with consistency provided by a core leadership group. This has, to date, provided a way of negotiating the tensions between localised delivery and strategic direction that BCT encountered. • Enabling this also required "buy-in" and degrees of good will from managers and clinicians in order to maintain the process of change.
Communication	• Communication was a multi-dimensional theme, including: o Clarity of strategy and direction o Multi-directional feedback loops to inform decision-making o Localised conversations between both staff, and organisations more generally	• The growth of the MBRN has been characterised by an openness and willingness to learn from the expertise held by other NHS staff, and to understand patients from a holistic perspective. • This is rooted in the provision of structured opportunities for the bring-together of knowledge,

[34] See HASCE (2017), Local Evaluation of Morecambe Bay PACS Vanguard: 12 Month Report, pp. 143-152

	○ Communication with patients and public.	expertise and learning to take place. In particular, the MDTs have been reported as providing a mechanism through which NHS staff can come together and develop an understanding of the roles of others. In doing so, they have broken down the barriers to communication between primary, secondary and community care services.
k Cultural Change	• The data suggested that while participants fully understood the reasoning behind proposed changes, and the need for new models of care to be implemented, there was often a lack of tangible evidence to demonstrate changes in culture.	• The theme of increased trust in the ability of other clinicians to effectively manage patients and reducing the need for follow up hospital appointments has been recurrent throughout the data. The tangible outcomes of the network have been key to this shift. • It must be remembered, however, that the MBRN has yet to be rolled out into Bundle 2. This may present new challenges around bringing together different organisational cultures.
Necessary Tensions to Negotiate	• The delivery of the vanguard at a system-wide level faced several tensions that were a necessary product of the process. These included: ○ Localised delivery vs whole system change ○ Project-based work (i.e. non-recurrent funding) vs long-term sustainable work ○ Focus on efficiencies vs focus on "upstream care"	• Tensions remain regarding how the non-recurrent funding used to establish the MBRN can be replaced. • The model has demonstrated its capacity to be self-funding, with sufficient investment.

Table 20 Active Ingredients of an NCM – comparison of evaluation stages

3.5.2 Integrated Care and Knowledge Ecology

- Data analysis suggests that the fundamental active ingredient for the new model of care the MBRN represents is the bringing together of knowledge expertise in order to facilitate integrated care.

- The data suggests that this bringing together does not necessarily follow a linear structure. In order to deliver an iterative and integrated service, it is perhaps better to think of a new care model as less a linear structure, and more of the facilitation of an ecology of knowledge and expertise, from both clinicians and patients, which results in improved clinical outcomes and self-care.

- This "ecological" account of a new care model does not always fit with the traditional focus on outcomes and linear pathways within health provision; nor, indeed, to some of the logic models applied in the 12 Month Evaluation. It requires understanding an NCM as more than simply a design on a page, and more of a collective endeavour which arises out of interactions between different parts of the existing system. One way to illustrate it is through the following diagram:

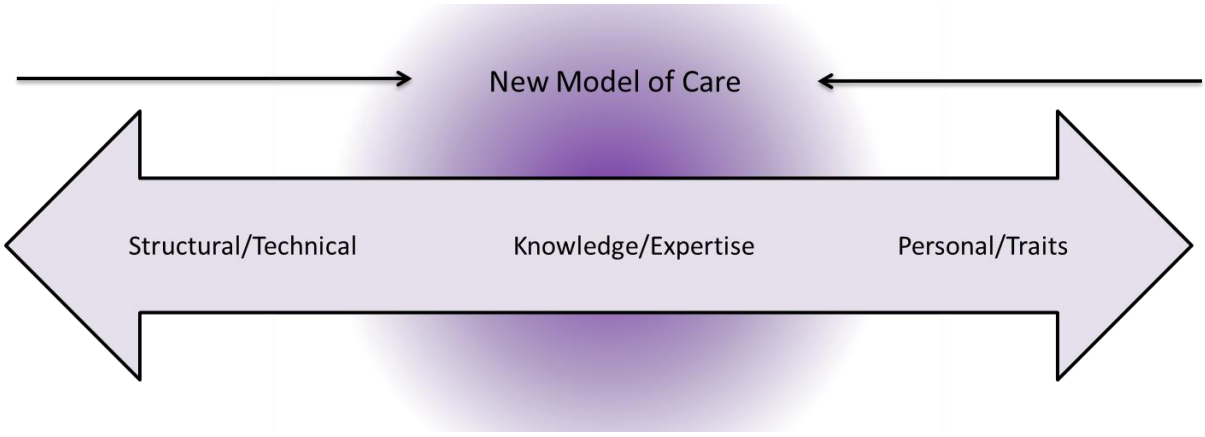


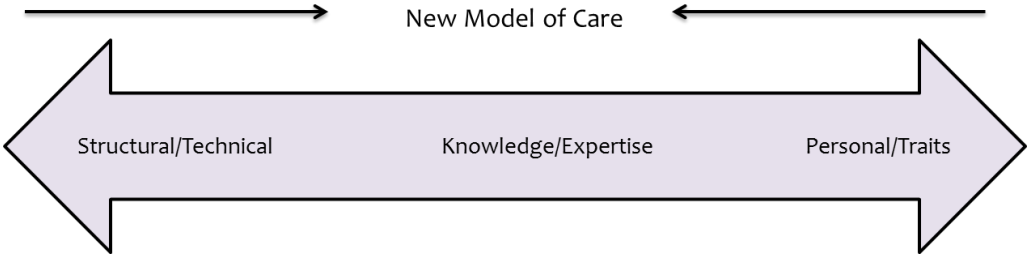
Figure 17 Ecological account of a new care model

- Here, the core enabler of the model is seen as activities and outcomes reflecting the bringing-together of knowledge and expertise from different areas in tangible ways. These are pulled together from two, often opposed directions: on the one hand, structural and technical themes, and on the other hand, themes related to personal qualities, traits and assets.

- From the data collected for this evaluation we can identify that at either end of this continuum are the main disablers for the new model of care: for example, issues around funding and capacity are structural aspects of care, embedded within larger systems of practice, information and governance. Likewise, geography and demographics are

structural issues which have previously contributed to the higher rates of respiratory problems in the population. At the other end, the need for "buy-in" from staff and managers can be seen as a personal aspect of the system, as it involves an engagement with the ethos of the MBRN model.

- However, when structural and personal aspects are brought together as enablers, the result is the facilitations of shared knowledge and expertise, which results in a more integrated model of care. We can thus understand how the "active ingredients" arising from the Stage 2 evaluation, both enabling and disabling, take a clear shape when considered along this continuum. This is represented in the following diagram:



Key contexts	Geographical, historical and socio-economic demographics	Differences in potential roll-out to other areas	Clear need for improvement in respiratory conditions across Morecambe Bay	Awareness of social aspect of conditions (e.g. need for good "back up teams" for patients)	Leadership, motivation and enthusiasm Autonomous development of model
Reporting techniques	Outcomes that 'matter' not always captured by existing reporting techniques Reporting often guided by QOF requirements	Improved IT and information sharing, e.g. EMiS Template	Indications of positive change in outcome data Diagnosis and medication reviews Improved self-understanding and self-care reported by patients	Improved communication between practices	Open-ness to learning and sharing expertise within individuals
Staffing, roles and resources	Lack of capacity, and potential for MBRN to increase burden Recruitment and attrition of key staff	Identification of leads and teams Partial implementation of model due to funding	MDTs Upskilling staff "Learning points" arising through MDTs	Engagement from leads and wider teams	Investment of additional time by individuals
Improved communication between patient and clinicians, and between MBRN participants	Traditional silo working	Continuity of care from a patient perspective Involvement in a pathway	MDT allows Holistic view of the patient	Increased staff confidence that patients aren't 'falling through the gaps.'	Importance of trust, including patient's trust in clinicians

Figure 18 Active Ingredients in the MBRN model

3 Conclusion and Recommendations

4.1 The Morecambe Bay Respiratory Network

- The evaluation of the MBRN to date has shown it to be a successful new model of care, with the potential to become a self-funding initiative which reduces secondary care activity, improves self-care amongst patients and enhances the learning and upskilling of staff.

- The model has developed ways of overcoming a number of problems and tensions identified with the implementation of NCMs in the 12 Month Report; in particular, its model of leadership and its emphasis on communication.

- Therefore, the evaluation recommends that the model is continued to be supported by Bay Health and Care Partners. The economic evaluation has also shown that in order to deliver the savings to the health economy that are certainly possible through an effective MBRN, it has to be fully implemented, including its community services.

- However, the expected roll-out of the model has been delayed during the timespan of the evaluation, and the absence of funding for community care has meant that the model is yet to be fully realised. This means that comparison sites have not been available to evaluate. While data suggests that the model has been successful for those stakeholders who participated in the evaluation, the evaluators did not have access to non-engaging stakeholders.

- With this in mind, the following recommendations can be made for the future delivery and rolling out of the network model. These recommendations have been formed both in response to the analysis presented in this report and in the Stage 2 Early Findings Report, and also following a dissemination workshop with participants in the evaluation, held in September 2018, to discuss emerging findings and draw out key messages.

    - A key active ingredient for the success of the model has been the enthusiasm and drive of individuals involved. Because of this, it is important to acknowledge and explore any local resistance to adopting the model within different ICCs, as it is unlikely to succeed where the underlying ethos of the MBRN is not also adopted.

    - Implemented new ways of working will benefit from agreed timescales amongst service deliverers, as well as clear access to resources and information about the MBRN.

- There is a strong need to develop agreed frameworks for the quality and consistency of delivery, in order to ensure that the benefits of the model experienced in some areas are shared across Morecambe Bay. This will include acknowledging the limitations of previous reporting techniques, and adopting agreed approaches to data collection and analysis.

- Capturing the multi-dimensional nature of respiratory data is crucial. Therefore, following data through patient cohorts as well as higher-level outcomes will allow the changes taking place via the MBRN to be identified. Linking clinical data with broader quality of life data will also be beneficial.

- Likewise, it is important to continuously seek ways of measuring patient understanding and confidence, so that self-care can be improved.

- The new model of care creates what is described in Section 3.5.2 above as a "knowledge ecology." It is recommended that this ecology continues to evolve, particularly in regard the dialogue between service users and clinicians: the use of patient groups, peer support groups and so on may help to facilitate this.

4.2 New Care Models in Morecambe Bay

Alongside the recommendations above, as well as those presented in the 12 Month Report and the Stage 2 Early Findings Report, the following general conclusions and recommendations can be drawn at the close of this two-year evaluation project on New Care Models in Morecambe Bay.

- A new model of care is rarely entirely "new", in that it is shaped and formed through historical and contextual aspects. These contexts can often lead to embedded behaviours and ways of working at both structural and personal levels. The design of an NCM must be alert to how it intends to change these contexts in order to enable the model of care to succeed.

- The recurrent theme of all successful NCM initiatives within this evaluation has been communication, frequently beginning with local conversations and bringing different organisations into dialogue.

- This means that the process of implementing new models of care is not linear, and often involves finely balancing a number of necessary tensions. Models which are implemented from the "top down" are less likely to be effective than localised and iterative practices. Localised integration of care which is then modelled and expanded has shown a more productive outcome.

- At the same time, this requires an NCM to have the capacity for clear feedback loops, so that issues such as non-engagement, resistance or failure can be explored and analysed.

- Delivery of NCMs requires strong leadership, both at programme-level and at more senior levels. This includes the capacity to acknowledge and reflect on failings as well as successes; to use evidence and data in appropriate ways for the complexity of the Morecambe Bay health economy; and to provide transparency and timeliness with decision-making.

- A key success to the MBRN to date has been its development of a learning culture within respiratory care. There remain specific obstacles to this being reproduced at a wider level, which has a subsequent effect on the capacity for improvement. To address this, it is recommended that new initiatives provide clear yet contextualised KPIs, utilising a range of evidence sources that go beyond high-level outcomes.

- Evaluation must be embedded in programmes and initiatives from the earliest point. While certain outcomes and measures may be considered more prescient (e.g. financial savings achieved), there is a strong need for evaluation to support these with complimentary measures and analyses, such as changes in culture, perceptions of care and qualitative effects. This will support evidencing the longer-term sustainability of new models of care.