The Evaluation of the Nurse-led Respiratory Clinics
Health Hawke’s Bay
2015

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The Evaluation of Respiratory Nurse-led Clinics: Health Hawke's Bay

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## Abbreviations and Terminology

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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AHB</td>
<td>Asthma Hawke’s Bay: A not-for-profit charitable trust based in Hawke’s Bay to provide support and education to clients with respiratory conditions.</td>
</tr>
<tr>
<td>AHBRNE</td>
<td>Asthma Hawke’s Bay Respiratory Nurse Educators: Respiratory Nurse Educators who work for AHB.</td>
</tr>
<tr>
<td>COPD</td>
<td>Chronic Obstructive Pulmonary Disease: A chronic disease of the respiratory system.</td>
</tr>
<tr>
<td>CNE</td>
<td>Clinical Nurse Educator: Registered nurse responsible for on-going education and professional development of nurses, who liaised between the tertiary and PHC sectors.</td>
</tr>
<tr>
<td>DHB</td>
<td>District Health Board: An organisation that ensures provision of health and disability services to geographically-defined populations.</td>
</tr>
<tr>
<td>GASP</td>
<td>Giving asthma support to patients: An asthma education, monitoring, assessment and management tool (Ray &amp; McNaughton, 2014).</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner: A Doctor who works in the community based at a General Practice.</td>
</tr>
<tr>
<td>HBDHB</td>
<td>Hawke’s Bay District Health Board: The DHB responsible for Hawke’s Bay region.</td>
</tr>
<tr>
<td>HHB</td>
<td>Health Hawke’s Bay: The Primary Health Organisation (PHO) operating in Hawke’s Bay.</td>
</tr>
<tr>
<td>LTC</td>
<td>Long Term Conditions: Refers to any ongoing, long-term or recurring condition that can have a significant impact on people’s lives (National Health Committee, 2007).</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary Health Care: Health care that occurs in the community and embraces diagnosis, treatment, health education, screening and disease prevention (Ministry of Health, 2014).</td>
</tr>
<tr>
<td>PHO</td>
<td>Primary Health Organisation: Primary health organisations safeguard the provision of primary health care services, through general practices, to those people who are enrolled with the PHO.</td>
</tr>
<tr>
<td>POC</td>
<td>Packages of Care: Refers to the four fully funded RP clinic visits that clients enrolled in the RP are entitled to access.</td>
</tr>
<tr>
<td>PN</td>
<td>Practice Nurse: Registered nurse working in a General Practice.</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>RBLM</td>
<td>Results Based Logic Model</td>
</tr>
<tr>
<td>RN</td>
<td>Registered Nurse</td>
</tr>
<tr>
<td>RNC</td>
<td>Respiratory Nurse Champions</td>
</tr>
<tr>
<td>RNS</td>
<td>Respiratory Nurse Specialist</td>
</tr>
<tr>
<td>RP</td>
<td>Respiratory Project</td>
</tr>
<tr>
<td>General Practice</td>
<td>Term to refer to the General Practitioner Clinics, which are part of the Respiratory Project.</td>
</tr>
<tr>
<td>Clients</td>
<td>In this report we use the word ‘clients’ for patients. The word ‘patient’ is retained in direct quotes and references where this word was used. In the survey clients were referred to as patients, as this is common terminology used interchangeably in healthcare settings.</td>
</tr>
</tbody>
</table>

**Package of Care Terminology**

<table>
<thead>
<tr>
<th>Occasion</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled</td>
<td>A POC defined as a client enrolling into the RP.</td>
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<tr>
<td>Follow-up</td>
<td>A POC identified as a clinic visit occurring after an enrolment visit.</td>
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<td>Screened-no COPD</td>
<td>A POC whereby a client was screened and found not to have a chronic respiratory condition.</td>
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<td>Screened-declined</td>
<td>A POC whereby a client was found to have a chronic respiratory condition, but they declined to be enrolled into the RP.</td>
</tr>
<tr>
<td>Did Not Attend (DNA)</td>
<td>A POC whereby a client did not attend a scheduled RP clinic appointment.</td>
</tr>
<tr>
<td>Occasions of Service</td>
<td>Term used throughout the report to refer to any one of the above POC.</td>
</tr>
</tbody>
</table>
Acknowledgements

The nurse-led respiratory clinics project was initiated and implemented by Health Hawke’s Bay in 2013. The co-ordinators of the project are:

- Ms Trish Freer, Service Development and Health Programmes Manager
- Ms Janet Hill, Health Programmes Co-ordinator (Long Term Conditions)
- Ms Chris Petersen, Primary Care Information Technology Liaison
- Ms Helen Morris, General Practice Information and Systems Support

The School of Nursing at the Eastern Institute of Technology was contracted to evaluate the clinic and has been a part of this project since October 2014. The researchers on this evaluation are:

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- Ms Jo Aston, Associate Charge Nurse, Hawke’s Bay District Health Board
- Ms Julie Shaw and Ms Chris Davidson, Respiratory Nurse Educators, Asthma Hawkes Bay
- The Respiratory Nurse Champions in the General Practices
- The General Practices that agreed to be a part of the project
- Ms Deborah Taylor CRFS, Charge Clinical Respiratory Physiologist, Hawke’s Bay District Health Board
- Ms Mandy Pattinson, RN, BN, MN, Research Assistant, Eastern Institute of Technology
Executive Summary

This report provides the evaluation of a pilot project for nurse-led respiratory clinics located in General Practices delivering Primary Health Care (PHC) services to the people of Hawke’s Bay, managed by Health Hawke’s Bay (HHB) for the period 1st September 2014 to 30th June 2015. The project has been jointly implemented by HHB, the Hawke’s Bay District Health Board (HBDHB), and Asthma Hawke’s Bay (AHB). The catalyst for the project came from the concerns of a Respiratory Nurse Specialist (RNS) and an Associate Charge Nurse Manager (ACNM) working in the HBDHB, following observations that people with chronic respiratory conditions were falling through service gaps between acute and PHC services, and that Emergency Department (ED) presentations and hospital admission rates of acute exacerbations of chronic respiratory conditions were high. From these small beginnings, the Respiratory Project (RP) was developed by HHB to support nurse-led healthcare and co-ordination of chronic respiratory conditions including asthma and chronic obstructive pulmonary disease (COPD), within PHC services. Whilst the motivation for the project was to reduce unnecessary hospital admissions, the emphasis was on the co-ordination and streamlining of client healthcare, with a strong PHC ethos focusing on early detection and timely management of chronic conditions at the PHC level. During the 18 months that the RP has run, a total of 2,152 people have accessed at least one aspect of the RP accounting for a total of 3,442 occasions of service.

Funding for this project was provided from reserves from the CarePlus funding stream. The aim of the project was to improve self-managed healthcare for clients with chronic respiratory conditions, using the continuity of healthcare approach across all primary, secondary, and tertiary healthcare services. Healthcare, including education and health promotion, was to be provided primarily by Practice Nurses (PN) in General Practice, with the ongoing support of General Practitioners (GPs), Respiratory Nurse Specialists (RNSs), and Respiratory Technicians. This approach was strengthened by the nomination of Respiratory Nurse Champions at each participating General Practice who assumed primary responsibility for the project at a client-healthcare level.

HHB is the Primary Health Organisation (PHO) in Hawke’s Bay and so has responsibility for improving access to PHC services, whilst ensuring that the Hawke’s Bay population have equitable healthcare. One way that HHB can achieve this is by supporting activities that encourage co-ordinated healthcare between acute and primary services utilising a collaborative, multi-service, and multidisciplinary approach with the overall aim being to achieve optimum health outcomes whilst reducing health disparities (New Zealand Government, 2015). The RP was established to achieve this for the Hawke’s Bay population diagnosed with asthma and COPD.

An evaluation of the RP was undertaken by the researchers from the Eastern Institute of Technology (EIT), to measure the outcomes of the RP. This was achieved by:

- Identifying gaps in healthcare provision, particularly focusing on populations within higher Quintile categories, high needs populations, and Māori;
- Describing the unique aspects of nurse co-ordinated healthcare;
- Mapping the occasions of service arising from the RP to populations and services;
- Ascertaining the linkages in service continuity; and
The Evaluation of Respiratory Nurse-led Clinics: Health Hawke's Bay

- Clarifying the financial, clinical, and professional impact of the RP.

The evaluation of the project was based on the Results Based Logic Model (RBLM), designed to evaluate PHC, as this:

....illuminates the array of activities that are potential levers for change; recognizes the unique and distinguishing features of PHC and outcomes attributable to this sector; and identifies the way in which PHC and other health sectors converge to affect health system level performance and the health of the population. (Treasury Board of Canada, 2012, p. ii)

The evaluation used a process of data triangulation using data from the key stakeholders and user groups collected through interviews and surveys, and medical and demographic data pertaining to all clients associated with the RP provided by HHB. The stakeholders included nurses, GPs, project leaders from HHB and the DHB, and clients.

Figure 1: The Results Base Logic Model Flow Chart (Treasury Board of Canada, 2012, np)

The key findings from the RP evaluation are summarised as follows:

- A total of 18 General Practices participated in the RP with 1,566.4 POC being used and 3,442 occasions of service being identified.
- The majority of clients enrolled in the RP were identified as being in Quintiles 4 and 5, reflecting improved access to healthcare for high-needs clients.
- Higher representation of women compared with men.
- General Practices demonstrated flexibility in the use of the POC allocations that was responsive to client-centred care management.
- The RP demonstrated a capacity for the PHO to deliver cost effective, responsive care with a community point of co-ordination, supporting a robust PHC focused, sustainable model of care.
- Nurses working in the RP felt empowered and autonomous in their respiratory practice, highlighting a high level of professional development in the management of chronic respiratory conditions.
- The data indicated high use of POC to screen clients identified by the PNs for screening, enrolment and follow-up care.
The low numbers of DNAs indicated an acceptance of the value of the RP at the client level.

The reduction of hospital admissions resulting from acute exacerbations of chronic respiratory disease was noted and this may be attributable to the RP.

Based on the evaluation of the data, the effectiveness of the RP as a nurse-led clinic to effectively co-ordinate and encourage self-management of chronic respiratory conditions is clearly demonstrated. The contributions to clinical, financial, and organisational efficiency are evident, and as such, the recommendation is that this project continues with an ongoing analysis of data over an extended period. As the World Health Organisation (WHO) identifies, any new healthcare strategy that involves the addition of PHC measures, requires monitoring over time, rather than short pilot studies if the true benefits of clinical, financial, and resource allocations are to be validated (2008).
Introduction

In 2011, 20% of acute presentations to the ED of the Hawke’s Bay Regional hospital in Hastings were for respiratory conditions\(^1\). Highlighting the number of clients presenting to the ED at the HBDHB with acute exacerbations of their chronic respiratory conditions, two HBDHB nurses, one a manager in an acute service at the hospital and the other a RNS in respiratory healthcare, raised concerns about the way that COPD clients were managed in both the hospital and in the community. Although processes of communication and co-ordination of healthcare existed between the hospital and General Practices, the emergent information suggested that client follow-ups were not being effectively managed as clients presenting to the ED for treatment meant that the management of chronic respiratory conditions appeared reactive to clients’ acute needs rather than pro-active to their on-going management. A period of monitoring of respiratory presentations suggested that with PHC nurses’ intervention, including liaison between hospital clinicians and the General Practices, many presentations could be prevented through clients with chronic respiratory conditions being managed in the community by their PHC providers. PHC providers are the best placed clinicians to manage and treat clients with chronic health conditions because of the unique relationships they have with clients, their situation, and their whānau/support systems.

A gap in healthcare provision was thus identified that should, by rights be filled by PHC providers. HHB - is the PHO responsible for the delivery of PHC to the Hawke’s Bay population of over 150,000 people. This is done through 28 General Practices throughout Central Hawke’s Bay, Hastings/Havelock North, Napier, and Wairoa. The PHO manifesto requires them to manage cost and human resources related to PHC services and to ensure that the population of Hawke’s Bay has access to sustainable services (Barnett, Smith, & Cumming, 2009). HHB was identified as the most suitable agency to address this gap in service provision. An agreement was reached between HHB, HBDHB, and AHB to develop the RP in partnership with General Practices. This multi-agency approach aimed to improve shared healthcare provision and access to services for respiratory clients across primary, secondary, and tertiary services and led to the RP initiative to develop nurse-led respiratory healthcare, based in General Practices to support and co-ordinate the healthcare of long-term respiratory conditions such as asthma and COPD. According to HHB, nurse-led clinics are designed to “support and co-ordinate the healthcare of people needing help with healthy lifestyle issues” (Health Hawke’s Bay, 2014, np). The primary aim of the RP was to improve the management of chronic respiratory conditions in the community through directly targeting clients with chronic respiratory conditions. Clients were to be supported in the self-management of their condition through the provision of culturally appropriate, individualised healthcare (Health Hawke’s Bay, Hawke’s Bay District Health Board, and Asthma Hawke’s Bay, 2014).

Funding was made available from the CarePlus reserves, which has supported a pilot service with a focus on clients with chronic respiratory conditions. This was achieved by making POC available to participating General Practices to be used over a 18 month period, the last six months of which was additional supported funding. A RP package of care was identified as representing four free clinic visits – totalling two and half hours of clinician time.

The RP was also supported by equipment provided by HHB to the participating practices (notably to perform spirometry), and existing software used by the General Practices with modifications

\(^1\) Information provided by the ED Nurse Manager of HBDHB
to tailor the programmes to support respiratory assessments. Clients with chronic respiratory conditions were able to access the RP through the POC funding so the only cost to clients was envisaged as the on-going costs of prescriptions.

The RP delivered healthcare that was client focused and clinician driven, and grew the confidence and understanding of clients with chronic respiratory conditions to allow them to manage their own health whilst utilising the available healthcare budget in efficient and fiscally responsible ways. The RP began with providing education and assistance to PNs to support evidence-based practice of chronic respiratory conditions and to encourage the autonomous practice that empowers nurses, and thence clients in the management of chronic health conditions. The drive for education and self-management aimed to reduce acute presentations to tertiary healthcare by supporting the management of chronic respiratory conditions in the PHC environment.

The RP commenced in September 2014 and was initially run through seven General Practices - however, over the course of the following 12-month period it was extended to include 18 General Practices throughout the Hawke's Bay region. The RP was eventually completed on the 30th June 2015. Originally the HHB made 1,000 POC available to the seven General Practices. A further allocation was provided when another 11 General Practices entered the pilot phase of the RP which resulted in a final count of 1,556.4 POC being used. These additional POC were made available as a result of the flexible use of the POC, managed by client need rather than mandated annual visits, so that no further new funding was required. Each of the 18 General Practices participating in the RP were allocated POC based on potential client numbers with each POC representing up to four fully funded clinic visits (with the first consultation being up to one hour in length, and subsequent visits being half an hour).

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2 See Appendix 5 for a breakdown of the use and allocation of the POC.
The Evaluation Framework

The RP was evaluated using the Results Based Logic Model for PHC (RBLM) (Watson, Broemeling, & Wong, 2009; Watson, Broemeling, Reid, & Black, 2004) (Figure 2), together with the Four Key Dimensions of Equity-Oriented Primary Healthcare Services (Browne et al., 2012) (Figure 3), to record the contribution that the RP is making to improving access, equity, and continuity of healthcare to the population of Hawke’s Bay. According to Watson et al. (2004) a RBLM develops a picture that describes how a system, organisation, or project expects to produce benefits to its target population. This model allows for the analysis of activities and resources, across all levels of an organisation with an equity model as central to it (Treasury Board of Canada, 2008; Wong et al., 2011). This is strengthened when the Equity-Oriented model for PHC (Browne et al., 2012) is included as this allows a service to be measured across deprived or marginalised population groups. This is an important inclusion in any PHC service evaluation, because access to healthcare and equity in healthcare should remain central to service delivery, hence populations who have significant healthcare issues but have the least access to it, need to be identified (World Health Organization, 2008).

The RBLM provides key indicators that guide analysis of the service. Indicators are sub-divided into PHC efficiency and PHC effectiveness (Watson et al., 2004; Watson et al., 2009). PHC efficiency is measured by the contexts of the healthcare service, which include population, geographical locations, social and cultural environments; and support for fiscal, material, and human resource management. The policy and governance of the service provides additional evidence of the efficiency of a service by demonstrating commitment to and support of PHC delivery.

PHC effectiveness examines practice outputs by demonstrating the quality of service provision, and its responsiveness and comprehensiveness through immediate (direct outcomes), intermediate (indirect outcomes), and final outcomes that seek to sustain or improve a healthcare system. This approach allowed for the collection and analysis of a wide range of information relevant to the RP including demographic and RP clinic use data, and both qualitative and quantitative data from surveys and interviews.
Figure 2: Results Based Logic Model (Watson et al., 2004, p. 6)
Methods for Data Collection

The evaluation drew on a triangulation of qualitative and quantitative research methods including:

- Surveys sent to PNs and GPs (Appendix 1 and Appendix 2 respectively) involved with the RP, comprising structured questions based on the key parameters and strategies from the RBLM and the Equity Model (Browne et al., 2012) (Watson et al., 2004);
- Interviews conducted with health professionals working in the RP, and clients who had been enrolled in the RP;
- Collating the use of the POC allocations to the General Practices participating in the RP;
- Statistical analysis of demographic and RP clinic use data recorded by HHB;
- Examination of information that identified financial, clinical, and human resource support and development for the RP – documents were drawn from national policy, service policy, guideline development and support, and clinical activities and decision-making.

No sensitive information exposing participants’ personal details was used in the evaluation.

Issues relating to Māori as the tangata whenua of New Zealand, and their participation in this research, were considered (Health Research Council of New Zealand, 2010) and a Māori advisor was thus available for the project team should this be required throughout the duration of the evaluation.

Ethical approval was given by the EIT Research and Ethics Committee in accordance with the usual research requirements.
Analysis of Data

A total of 18 General Practices participated in the RP with 1,420 POC allocated and 1,566.4 POC used, which resulted in a total of 3,442 occasions of service across the following categories:

Table 1: The Respiratory Project Occasions of Service Descriptions

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled</td>
<td>A POC defined as a client enrolling into the RP.</td>
</tr>
<tr>
<td>Follow-up</td>
<td>A POC identified as a clinic visit occurring after an enrolment visit.</td>
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<td>Screened-no COPD</td>
<td>A POC whereby a client was found not to have a chronic respiratory condition.</td>
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<tr>
<td>Did Not Attend (DNA)</td>
<td>A POC whereby a client did not attend a scheduled RP clinic appointment.</td>
</tr>
</tbody>
</table>

Fifty-three PN surveys were sent out with 20 responding to the survey, making a 38% response rate. Of these, seven consented to be interviewed, with six proceeding to interview.

Seventeen GP surveys were sent out with six returning completed surveys, making a 35% response rate. No GPs consented to be interviewed.

Seven clients consented to be interviewed.

The POC utilisation (Appendix 5), PN survey (Appendix 1) and the GP survey (Appendix 2) are provided as appendices, and in this section information from this data has been drawn on for discussion using the RBLM.

Table 2 provides a summary of findings based on the RBLM parameters:

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3 In the statistical data this included both categories of ‘first visits’ identified in the funding allocations provided by HHB as those clients who have had a comprehensive assessment by a PN or GP which includes spirometry and COPD or GASP advanced form and Care Plan; and those who have already undergone previous spirometry testing and have been diagnosed as having COPD but who want to be enrolled into the RP and PN has completed a care plan.
Table 2: The Respiratory Project Findings Mapped Against Respiratory

<table>
<thead>
<tr>
<th>RBLM Parameters</th>
<th>Respiratory Project Evaluation Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contexts</strong></td>
<td></td>
</tr>
<tr>
<td>Hawke’s Bay Region</td>
<td>■ Regional/ rural area.</td>
</tr>
<tr>
<td></td>
<td>■ Predominantly farming region.</td>
</tr>
<tr>
<td></td>
<td>■ Four regions – Napier, Hastings (including Havelock North), Central Hawke’s Bay, Wairoa.</td>
</tr>
<tr>
<td></td>
<td>■ The Wairoa region has the most deprived population group, Napier the least.</td>
</tr>
<tr>
<td></td>
<td>■ Population made up of people identifying as European, Māori, Pacific, Asian, and other.</td>
</tr>
<tr>
<td></td>
<td>■ European and Māori the most prevalent population groups.</td>
</tr>
<tr>
<td><strong>Inputs</strong></td>
<td></td>
</tr>
<tr>
<td>Fiscal</td>
<td>■ PHO funded using existing POC allocated to General Practices proportional to population distribution within the practice region.</td>
</tr>
<tr>
<td>Material</td>
<td>■ Respiratory care is co-ordinated in the General Practices.</td>
</tr>
<tr>
<td>Human resources</td>
<td>■ Spirometry delivered and funded under the RP for PNs in General Practice</td>
</tr>
<tr>
<td></td>
<td>■ Collaborative approach between PHO, DHB, and AHB for education, training, and support of PNs.</td>
</tr>
<tr>
<td></td>
<td>■ Care co-ordinated by PHC through the development of designated RNCs in General Practices.</td>
</tr>
</tbody>
</table>
Table 2: The Respiratory Project Findings Mapped Against Evaluation Findings (continued)

<table>
<thead>
<tr>
<th>PHC Effectiveness</th>
<th>Activities (enable PHC delivery)</th>
<th>Outputs (products and services)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Policy and governance-level activities and decisions</td>
<td>Respiratory guidelines and standing orders developed collaboratively with PHO and DHB.</td>
</tr>
<tr>
<td></td>
<td>Health care management-level activities and decisions</td>
<td>PHO processes provided support and leadership that enables nurse-led care.</td>
</tr>
<tr>
<td></td>
<td>Clinical activities and decisions</td>
<td>PNs have authority to manage POC in accordance with client needs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>General Practices are central to care coordination.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PHO provision of databases and processes enabled streamlined approaches to healthcare management.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RNCs’ meetings support ongoing communication and professional development related to clinical and operational aspects of the RP.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AHBRNE and RNSs located at the DHB and AHB provided overall clinical support and leadership to the General Practices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Respiratory co-ordination and case management driven by respiratory trained and educated PNs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Models of care supported by PHO/DHB resources and policies.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDT collaboration both within the General Practices and across services and organisations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data collection for the RP co-ordinated by the PHO.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Findings support the achievement of the indicators required by the PHO with reference to reaching vulnerable populations, enhancing health and well-being, enhancing access to healthcare, and the equity of that healthcare.</td>
</tr>
</tbody>
</table>
### Table 2: The Respiratory Project Findings Mapped Against Evaluation Findings (continued)

<table>
<thead>
<tr>
<th>Immediate (direct outcomes)</th>
<th>PN autonomy improved, supported by ongoing professional development.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nurse-led care is evident with acceptance from the MDT.</td>
</tr>
<tr>
<td></td>
<td>PNs have taken ownership of the RP.</td>
</tr>
<tr>
<td></td>
<td>Client self-management evident, and client health literacy improved.</td>
</tr>
<tr>
<td></td>
<td>Occasions of service related to follow-ups and low numbers of DNAs suggest ‘buy-in’ from clients, and extensive screening by PN.</td>
</tr>
<tr>
<td></td>
<td>Management of care co-ordinated by PNs and driven by client need.</td>
</tr>
<tr>
<td></td>
<td>PNs targeted clients for screening who are at risk of developing COPD.</td>
</tr>
<tr>
<td></td>
<td>Proactive and responsive PHC evidenced by high numbers of clients screened and found not to have COPD.</td>
</tr>
<tr>
<td></td>
<td>Quintiles 3, 4, and 5 most represented.</td>
</tr>
<tr>
<td></td>
<td>Māori most represented in low Quintiles, and equal Māori and European representation in Quintile 5.</td>
</tr>
<tr>
<td></td>
<td>Women most represented.</td>
</tr>
<tr>
<td></td>
<td>Age groups over 45 years most represented across all Quintiles and ethnic groups.</td>
</tr>
<tr>
<td></td>
<td>Pacific peoples under-represented in proportion to the region’s total population.</td>
</tr>
<tr>
<td></td>
<td>Fewer admissions to hospital for acute respiratory conditions.</td>
</tr>
<tr>
<td></td>
<td>Client health literacy and compliance with treatment and medication plans improved.</td>
</tr>
<tr>
<td></td>
<td>All clients enrolled in the RP have a Care Plan to facilitate the management of their chronic respiratory condition.</td>
</tr>
</tbody>
</table>
PHC Effectiveness

Intermediate (direct outcomes)
- Appropriateness of place and provider
- Health care system efficiency
- Acceptability
- Health care system equity

Final Outcomes
- Project is sustainable provided POC are allocated.
- Healthcare management by PNs pivotal in co-ordinating healthcare through the follow-up of healthcare and education of clients.
- Equity of healthcare supported across all population groups although targeting of Pacific peoples needs to be explored.
- Good communication and collaboration across all services related to respiratory care is evident.

Contexts

Watson et al. (2004) state that the population and the location of the services needs to be understood when being evaluated. Thus, the contexts of the RP refer to those wide-ranging factors within which the RP is located and incorporates population characteristics including social, cultural, political, and environmental factors. In addition, policy, legislature, and economic factors that influence how healthcare provision is managed are also integrated.

Population Characteristics

Social, Cultural, and Environmental Characteristics

Hawke’s Bay is a regional centre in New Zealand, with a predominantly primary industry made up of farming and its related industries. It comprises four regions:

- Wairoa District - population of 7,890
- Hastings District – population 73,245
- Napier City – population 57,240
- Central Hawke’s Bay – population 12,717 (Statistics New Zealand, 2013)

There are 34,662 people who identify as Māori registered as living or working in the region, Pacific peoples make up 4.4% of the region’s population, and 3.6% of the population identify as Asian (Figure 4).

The median age of the Hawke’s Bay population is 40.6 years and 16.9% of the population are over 65 years of age. The rate of unemployment is 7.0%, which is comparable with the national unemployment rate. The unemployment rate among the Māori population is 15.6%, and this is also comparable to the national rate (Statistics New Zealand, 2013).

Hawke’s Bay has a high proportion of deprivation as defined by the Quintile index of deprivation (Atkinson, Salmond, & Crampton, 2014). Wairoa is the most deprived region in Hawke’s Bay with over 60% of the resident population in Quintile 5, and over 20% in Quintile 4 (Figure 5).

According to the New Zealand Government, cancers, and vascular and blood disorders were the leading cause of illness in New Zealand in 2006, with coronary heart disease being the leading cause of health loss, followed by depressive disorders, stroke, COPD, and diabetes (New Zealand Government, 2013). These conditions are largely lifestyle related and therefore preventable providing that appropriate and timely PHC is provided. This healthcare, provided in the PHC setting, includes health promotion, health education, early diagnosis, and intervention, which are all aimed at improving populations’ health and individuals’ ability to self-manage their health.

According to the Ministry of Health (2014), COPD was the leading cause of chronic disease in 2006, accounting for 9% of all illness, disability, and premature death in New Zealand. Lamprecht et al. (2011) linked COPD to a previous diagnosis of asthma, gender (female), increasing age, environmental conditions, and social determinants impacting on health. Mannino and Buist (2007) also reported that poorer populations are at greater risk of developing COPD, and that this is more likely when associated with the presence of other diseases such as asthma and tuberculosis.

The overall prevalence of Hawke’s Bay adults diagnosed with asthma is higher than the national rate, and Māori have a higher rate of asthma compared with non-Māori (Statistics New Zealand, 2013). In addition, Hawke’s Bay has a higher rate of hospitalisation for COPD than nationally and, proportionally Māori have a significantly higher rate of premature death (under 65 years) due to COPD than non-Māori. Acute respiratory presentations are responsible for 17% of all presentations to EDs, with figures peaking in the winter months (Statistics New Zealand, 2013).

**Political Characteristics**

PHC services are provided by the Government through PHOs, which are required to improve access to primary and secondary healthcare and to improve the equity of that healthcare. In summary, PHOs are to:

- Provide funding to support the population’s health in the region;
- Ensure clinical and financial sustainability in the region;
- Support population groups to achieve better health outcomes;
Figure 4: Hawke’s Bay Population by Ethnicity

![Hawke’s Bay Population by Ethnicity (2013 NZ Census)]

<table>
<thead>
<tr>
<th></th>
<th>Wairoa</th>
<th>Hastings</th>
<th>Napier</th>
<th>Central Hawke’s Bay</th>
</tr>
</thead>
<tbody>
<tr>
<td>European</td>
<td>46.7</td>
<td>70.6</td>
<td>79.0</td>
<td>80.6</td>
</tr>
<tr>
<td>Maori</td>
<td>59.4</td>
<td>23.0</td>
<td>18.2</td>
<td>21.3</td>
</tr>
<tr>
<td>Pacific Island</td>
<td>2.0</td>
<td>5.6</td>
<td>3.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Asian</td>
<td>1.6</td>
<td>4.0</td>
<td>3.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Other</td>
<td>1.3</td>
<td>2.2</td>
<td>2.5</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Figure 5: Hawke’s Bay Population by Quintile

![Hawke’s Bay Population by Quintile]

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Wairoa</th>
<th>Hastings</th>
<th>Napier</th>
<th>Central Hawke’s Bay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (least deprived)</td>
<td>0</td>
<td>14</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>14</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>3</td>
<td>27</td>
<td>17</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>4</td>
<td>36</td>
<td>20</td>
<td>20</td>
<td>36</td>
</tr>
<tr>
<td>5 (most deprived)</td>
<td>64</td>
<td>30</td>
<td>22</td>
<td>10</td>
</tr>
</tbody>
</table>
■ Work with regional partnerships to ensure collaborative healthcare provision in accordance with the specific needs of populations;

■ Maintain a population awareness that supports the collection of data and the analysis of information to ensure the identification of inequalities between sub groups within the population;

■ Provide health promotion activities by working with local whānau, hapū, iwi, consumers, and other groups to deliver activities that are responsive to the population’s needs;

■ Improve access to healthcare for those people with high needs;

■ Promote self-management and minimise deterioration in health;

■ Improve Māori health.

**New Zealand Government, 2015**

COPD is not one of the New Zealand Government’s national health targets meaning that there is little incentive to consider the management of this chronic health condition through the primary or the tertiary healthcare environments. However, the New Zealand Government has identified, as a priority, achieving accessible and equitable healthcare for all New Zealanders that also recognises the health needs of marginalised populations including Māori, Pacific peoples, and deprived populations within New Zealand (Minister of Health & Minister of Pacific Island Affairs, 2010; Ministry of Health, 2013). Ministry of Health guidelines for PHC (King, 2001) also note that the maintenance of the wellness of the population to allow for improved lifestyles and outcomes, whilst reducing the costs of healthcare across primary, secondary, and tertiary services are the key tenets of the provision of healthcare. With the observation that Hawke’s Bay Māori have high rates of asthma and higher rates of early death from COPD, that respiratory conditions are responsible for high rates of hospitalisations, and that Hawke’s Bay has a large proportion of deprived populations, the need for healthcare that addresses these inequities and targets chronic conditions, cannot be over stated. As Wong et al. (2011) note, “one important goal of strengthening and renewal in primary healthcare is achieving health equity, particularly for vulnerable populations” (p. 1).

**PHC Efficiency**

According to Watson et al. (2004) the PHC efficiency relates to how much resource has been invested in a healthcare service or activity. The balance between the inputs and the outcomes allows for the analysis of a service’s sustainability from a financial perspective and also by assessing the health outcomes of a population as a result of the service.

**Inputs**

Inputs include the financial, material, and human resources that are invested in the RP. The GPs who responded to the survey all confirmed that the RP was managed and co-ordinated by the nurses, so in the majority, the nurses’ responses to the surveys are presented here. Interview information is included as appropriate.
Fiscal Resources

Pilot funding was made available from CarePlus reserves. This meant that HHB made specific funding available to be re-directed to target clients with chronic respiratory conditions by making POC available to participating General Practices to be used over a 12-month period. Traditionally, a POC allows for one-hour-long clinic visit plus three half-hour visits per client per year. For the RP, this strict model was relaxed, allowing the General Practices to decide how many visits a client needed based on clinical assessment rather than services allocated under a POC. Thus PNs could tailor the number and length of clinic visits to the needs of individual clients. This approach meant that 1,566.4 POC\(^4\) were utilised:

<table>
<thead>
<tr>
<th>Location</th>
<th>POC allocation</th>
<th>Enrolled</th>
<th>Follow-up</th>
<th>Declined</th>
<th>No COPD</th>
<th>DNA</th>
<th>Total non POC(^5)</th>
<th>Total POC Used</th>
<th>Additional POC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHB</td>
<td>90</td>
<td>79</td>
<td>79</td>
<td>24</td>
<td>10</td>
<td>15</td>
<td>6.8</td>
<td>85.8</td>
<td>- 4</td>
</tr>
<tr>
<td>Hastings</td>
<td>660</td>
<td>693</td>
<td>579</td>
<td>66</td>
<td>217</td>
<td>59</td>
<td>71.0</td>
<td>751.0</td>
<td>- 92</td>
</tr>
<tr>
<td>Havelock North</td>
<td>90</td>
<td>99</td>
<td>126</td>
<td>49</td>
<td>53</td>
<td>20</td>
<td>20.4</td>
<td>119.4</td>
<td>- 13</td>
</tr>
<tr>
<td>Napier</td>
<td>490</td>
<td>413</td>
<td>396</td>
<td>225</td>
<td>292</td>
<td>27</td>
<td>103.4</td>
<td>516.4</td>
<td>- 24</td>
</tr>
<tr>
<td>Wairoa</td>
<td>90</td>
<td>80</td>
<td>26</td>
<td>7</td>
<td>62</td>
<td>30</td>
<td>13.8</td>
<td>93.8</td>
<td>- 5</td>
</tr>
<tr>
<td>Totals</td>
<td>1420</td>
<td>1364</td>
<td>1206</td>
<td>371</td>
<td>634</td>
<td>151</td>
<td>215.4</td>
<td>1566.4</td>
<td>- 130</td>
</tr>
</tbody>
</table>

Clients diagnosed with a chronic respiratory condition could access the RP through the POC funding, meaning that their clinic appointments, and all diagnostic testing would be fully funded. The only cost to clients was the on-going cost of prescriptions.

The clinicians involved in the RP acknowledged the flexibility of the funding noting that this meant delivery of care could be truly directed to the needs of the clients. PNs and GPs also noted that healthcare costs were a significant barrier to many of their clients and the availability of the RP POC funding meant many were able to access appropriate PHC where before, this was not an option due to costs. The funding that was provided to the project is summarised in Table 4.

Material Resources

The RP was supported by equipment provided by HHB to the participating General Practices (notably to perform spirometry), and existing software used by the General Practices with modifications to tailor the programmes to support respiratory assessments. All the PNs who responded to the survey had access to the computer software.

All of the 18 General Practices that participated in the RP, that did not have a spirometer already, were supplied with spirometry testing equipment at a total cost of $19,500.00. All PNs received education and training and are accredited to perform spirometry testing and interpret the test results. All PNs who responded to the survey reported being competent to perform spirometry testing and 16 (84%) reported that they had enough ongoing education to support their spirometry testing.

\(^4\) Complete breakdown of POC allocations is provided in Appendix 5.

\(^5\) Total non POC were those visits that had been allocated to other funding streams for various reasons.

\(^6\) These numbers are shown as a negative in the information provided by HHB. They reflect the additional POC allocations over the original funded POC.
practice. The initial and ongoing education, and annual accreditation was provided by HBDHB Respiratory Technicians who reported a significant reduction in referrals for spirometry testing to the DHB and AHB as a direct result of the RP.

Table 4: Claiming Rules to Support Utilisation for the Respiratory Project (Health Hawke’s Bay, 2013)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive assessment (by GP/Practice Nurse) including Spirometry and COPD or GASP(^8) advanced form and care plan.</td>
<td>$82.00</td>
</tr>
<tr>
<td>Up to 3 appointments</td>
<td>$46.00</td>
</tr>
<tr>
<td>COPD Declined Program - Patient(^8) has been given spirometry and diagnosed as having COPD but does not want to be part of the Respiratory Programme.</td>
<td>$46.00</td>
</tr>
<tr>
<td>Non COPD Not Eligible - Patient(^9) has been given spirometry and not been diagnosed as having COPD and therefore not eligible for the Respiratory Programme</td>
<td>$46.00</td>
</tr>
<tr>
<td>Respiratory Enrolment and Care Plan - Patient has been given spirometry and diagnosed as having COPD and wants to be enrolled into the Respiratory Programme and nurse has completed a care plan</td>
<td>$82.00(^{10})</td>
</tr>
<tr>
<td>Respiratory Follow Up Consultation - Patient is already enrolled in Respiratory Programme and is having one of the three follow up consultations as part of their package of care.</td>
<td>$46.00</td>
</tr>
</tbody>
</table>

**Health Human Resources**

Each of the 18 General Practices nominated a designated RNC to co-ordinate the RP. Each RNC was required to be GASP and ‘Quit Card’\(^{10}\) trained. Each RCN also attended a three-hour education and training session with the Clinical Respiratory Physiologist at HBDHB in the performance and interpretation of spirometry. In addition, the RNS/AHBRNEs from the HBDHB and AHB were available for advice and support by phone or email. These nurse specialists also visited each General Practice each month to offer on-going education and professional development to clinicians involved in the RP. GPs and PNs who responded to the survey reported accessing the expertise of the RNS and AHBRNEs to assist with the planning and management of the clients enrolled in the RP – this included clinical advice, updated information, and assistance with complex patients.

Monthly Respiratory Champions’ meetings with the PNs and RNCs were organised and held at the HHB offices and represented a forum for the RP nurses to meet each other, network, and share.

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\(^7\) Giving Asthma Support to Patients (GASP) is an online tool used to provide asthma education and to equip health care professionals with skills and knowledge to undertake an asthma assessment (Ray & McNaughton, 2014).

\(^8\) The word “patient” has not been changed to “client” as this table is quoted directly from the HHB Respiratory Programme Booklet, September 2013, p. 9.

\(^9\) This refers to those patients already diagnosed with COPD and who have a plan of care prior to the RP, but who were invited to enrol in the RP.

\(^{10}\) Quit cards is a protocol for nurses to educate patients when considering the cessation of smoking. See http://www.smokefreenurses.org.nz/ABCQUIT+CARDS.html
experiences. In addition, updates and progress on the RP were discussed and external speakers who were specialists working in various fields of respiratory healthcare were invited to present at the meeting.

**PHC Activities (Enable PHC Delivery)**

This section of the RBLM provides for the examination of service activities and processes that support clinical activities through policy and authorities at the service level (Watson et al., 2004).

**Policy and Governance-level Activities and Decisions**

The RP is a collaborative initiative between four healthcare services – HHB as the PHO, 18 General Practices, the HBDHB, and AHB – working together to ensure sustainable access to healthcare to reduce health disparities and to address the healthcare provision of the population across all services. One way to achieve this is through integration of services across healthcare organisations, and the RP project has achieved this. HHB is providing the funding, leadership and governance of the RP; the HBDHB has provided the human resource related to spirometry education and training and the co-ordination between acute and primary services; and AHB has provided support to the General Practices as well as the provision of some of the PNs’ education and training.

Whilst the decision on allocating the POC rests with HHB, the collaboration, discussion, and direction occurring at the RNC meetings highlighted the ability to use a flexible approach in managing the POC in accordance with client need. This has paved the way to client-centred healthcare, rather than healthcare which is driven by a rigid policy of four visits per patient per year, as it has been previously managed. This is evident in the number of follow-up visits that have been accessed by some clients with some accessing two or three occasions of service, and others between four and nine - thus 57 clients have had between four and nine occasions of service after their initial enrolment consultation (this represents more than one full POC), 92 have accessed one full POC (one enrolment and three follow-up appointments), and a further 492 have accessed a partial POC.

Policies and procedures relating to the RP include medication standing orders, back-pocket scripts, spirometry testing and test interpretation protocols, and referrals between tertiary and primary healthcare services. Fourteen of the 16 PNs who responded indicated that they had access to guidelines related to the RP; 10 reported that there were service approved protocols and standing orders; and four reported that they also followed national clinical directives. All the GPs who responded said that they followed RP related guidelines and national directives. A PN indicated that following updated and standardised processes was “changing the way that we are not just managing the stable COPD and asthma in primary care but actually the unstable as well”.

Processes were developed to support continuity in care and client self-management. One such process of note is the back pocket scripts. This is an intervention whereby clients are provided with a prescription of medications, including antibiotics, which a client can have filled when developing exacerbation symptoms. Respondents (PNs and GPs), were asked if they believed that back pocket scripts have reduced acute presentations with all the GPs saying that they did reduce acute presentations, and an equal number of PNs (47.1%, n = 8) also agreeing with this and also not agreeing with it.
The Evaluation of Respiratory Nurse-led Clinics: Health Hawke’s Bay

**Healthcare Management-level Activities and Decisions**

The RP represents a service that is client-focused with the aim being to deliver a healthcare service that acknowledges the health problem (chronic respiratory condition) and works with the client to deliver a plan of health management that focuses on the client’s needs. Prior to the launch of the RP, the delivery of care was fractured, expensive, and time-consuming as clients had to be referred by the primary healthcare provider to secondary or tertiary healthcare services to undergo diagnostic testing (spirometry). The results would then be sent on to the General Practice the client was registered in and another appointment would be made to follow the results up with the client and clinicians.

The RP has ensured a client-focused approach by educating PNs to perform and interpret spirometry testing meaning that clients could access and receive all the healthcare they needed through a single point of care. The RP PNs were also able to integrate services clients were entitled to receive, and manage all referrals and education as required by each individual client. The flexibility of the funding also allowed for appointment times and lengths to be tailored to the needs of clients rather than working to a one-size fits all model. In addition, the PNs who responded to the survey and those who were interviewed indicated that they worked to a flexible model that mostly allowed ad hoc referrals to be seen by a RNC as clients presented rather than having to make an appointment and re-present on another day. Nurses noted that requiring patients to represent for appointments resulted in many missed appointments as clients may face challenges to attend the clinic (including travel and time constraints in busy lives).

The issue of a RNC or suitably trained PN/RNC always being available was however a challenge for some of the General Practices with ten PNs reporting that there was replacement cover for any work absences, whilst nine said there was no replacement cover for them. However, it was also noted that AHBRN supported the RP during these times and that there was also support available from other PNs.

**Clinical Activities and Decisions**

The majority of PNs who responded to the survey (84%, n = 16) and those who were interviewed, reported using evidence-based frameworks in their practice. In addition, all reported being competent in performing spirometry testing, and 89% (n = 16) reported that they felt the ongoing education and help was adequate to support their continuing competence in performing spirometry.

The RP PNs undertook education and training in the use of standard respiratory assessment tools (GOLD Standard\(^\textsuperscript{11}\)), (GOLD Global Science, 2015; Gross, 2001); the COPD Assessment Test (CAT\(^\textsuperscript{12}\)), the Clinical COPD Questionnaire (CCQ\(^\textsuperscript{13}\)), and the GASP assessment (Ram & McNaughton, 2014) to allow them to conduct initial and follow-up client assessments, and to provide education to clients about their condition and how to manage it. Eighty-five percent of PNs (n = 15) reported that they

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\(^{11}\) The GOLD standard of COPD care is a guideline for health professionals to follow in the assessment, diagnosis and management of clients with COPD, see http://www.goldcopd.org/guidelines-resources.html

\(^{12}\) The CAT test is a simple questionnaire that is provided to clients who are at risk of chronic respiratory conditions, see http://www.catestonline.org/images/UserGuides/CATHCPUser%20guideEn.pdf

\(^{13}\) The CCQ is a validated test that allows clinicians to assess for changes in client condition, particularly with early signs of acute exacerbation, see http://www.ccq.nl/
actively managed follow-up appointments and referrals, whilst all the GPs noted that they did not get involved with this as they considered the follow-up of clients to be the responsibility of the PNs.

The monthly RNCs’ meetings provided an excellent forum for professional development and provided an accessible way for nurses to network and keep abreast of developments in the clinical world of respiratory healthcare. External speakers from affiliated healthcare specialties (for example sleep and respiratory technicians, and pharmacists) were also seen as presenting invaluable professional development opportunities. These opportunities were offered at each monthly meeting and covered a broad range of respiratory condition related topics.

The clear focus of the RP on chronic respiratory conditions allowed clinicians to target identified groups and deliver focused healthcare that was responsive to clients’ identified and specific health needs and conditions. In addition, clients were recruited into the RP through a number of different strategies:

- Clients with an existing COPD diagnosis invited to participate in the RP (identified through auditing client health records);
- Clients with a new diagnosis of COPD (likely from a secondary or tertiary healthcare episode);
- Clients who have been admitted to hospital following an acute exacerbation of a chronic respiratory condition;
- Screening of at-risk clients (for example smokers or ex-smokers, clients with asthma).

Care Plus is the funding stream that is allocated to LTC. By ring-fencing POC for the RP, PNs were able to screen existing General Practice clients who were considered at risk for chronic respiratory conditions, as well as inviting clients already diagnosed with COPD to enrol onto the RP. There is no better evidence than to refer to the pie chart below (Figure 6) that shows there were a total of 3,330 clinic visits involving screening and enrolment into the RP.

The communication and co-ordination of healthcare between the tertiary and PHC providers was strengthened through the development of a hand-over of care form that was completed by hospital nurses following discharge from the tertiary hospital setting, and sent to the appropriate General Practice. This did not result in significantly improved communications between the two sectors, and has now been discontinued. However, the RNS at the hospital and the ACNM for Acute Services (ED) monitor all respiratory presentations to ED and admissions to the wards, and ensure that this information is reported back to the relevant General Practices via email to the PNs, ensuring that there is continuity of care. Early HBDHB statistics suggest a downward trend in the number of acute exacerbations of respiratory conditions that are admitted to hospital (Figure 7).

**Outputs (Products and Services)**

This section identifies the direct outcomes of the PHC investments, and addresses the type of outputs, the volume of service deliveries, responsiveness, and comprehensiveness of holistic healthcare (Watson et al., 2004). Outputs provide the overall information about the services that were provided through the RP, the number of clients who accessed the service, and the range of improvements to services and to healthcare management that were demonstrated. The RP has provided evidence that services are supported and healthcare has been enhanced through the
Figure 6: Occasions of Service

Figure 7: COPD Admissions to Hawke's Bay District Health Board: 2012 - 2015
dedicated support of PNs co-ordinating service deliveries and managing respiratory care in the community.

The aim of the RP was to manage chronic respiratory conditions in the community and to streamline and co-ordinate that healthcare across multiple services. This has been achieved by supporting, educating, and training PNs in General Practices to lead healthcare, and through the implementation of policies and guidelines. The nurse-led model of healthcare has been enabled through the allocation of POC which are managed by the PNs in accordance with clients’ clinical needs. The PNs acknowledged the value that the RP provided in supporting client self-management and educating clients to have a deeper understanding of the disease and how to manage it. As one PN noted “patients often comment to me before they leave that they have learnt so much and are more than pleased to have a written management plan”. In addition, the ability to follow clients up and to refer them to support services such as pulmonary rehabilitation has been evident, with that service indicating a 300% increase in service utilisation since the commencement of the RP.

Table 5 summarises the data findings from all the occasions of service in the RP, separated into regions, age groups, ethnicity, type of service, and Quintiles. Although the PHO endeavour to target at-risk population groups, particularly individuals in the lowest Quintiles, the data highlights all those clients who have been supported by the RP. It is evident that a broad spectrum from the whole range of age groups, Quintiles, and ethnicities across the region have benefited from the RP.

**PHC Effectiveness**

The effectiveness of the outputs are divided into immediate outcomes, intermediate outcomes, and final outcomes, all of which examine the effectiveness of healthcare delivery in relation to the investment made through the inputs (Watson et al., 2004).

**Immediate (Direct Outcomes)**

According to Watson et al. (2004), immediate outcomes are “those most attributable to outputs and for which the program can reasonably assume control and responsibility“ (p. 12). This area of analysis takes into account the populations receiving healthcare apropos of risk reduction, effects of healthcare, self-management, and health literacy. This section also examines the PHC workforce, without whom improved PHC could not be achieved.

**Maintain or improve the work life of the PHC workforce**

Watson et al. (2004) note that “…the health, satisfaction and productivity of the health care workforce are outcomes of all health service delivery sectors” (p. 13). The PNs interviewed as part of this evaluation reported feeling empowered in their practice as a result of their work in the RP. The education and training provided with the spirometry together with the education and support received during the RP, have allowed nurses associated with the RP to expand their knowledge of respiratory conditions, with one PN stating, “I think the programme has definitely, opened up more, yes it has freed up and empowered nurses”. One client supported this view by stating “I don’t go to my doctor at all about my breathing, I just go straight to [PN name]”. 
### Table 5: Respiratory Project Demographics

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 years</td>
<td>7</td>
<td>0.3</td>
</tr>
<tr>
<td>6-17 years</td>
<td>30</td>
<td>1.4</td>
</tr>
<tr>
<td>18-24 years</td>
<td>30</td>
<td>1.4</td>
</tr>
<tr>
<td>25-44 years</td>
<td>167</td>
<td>7.8</td>
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**Increased knowledge about health and healthcare among the population**

This section considers how the RP has enabled client self-management through a better understanding of their disease condition, which in turn supports improved health outcomes (Watson et al., 2004). All of the 18 nurses who responded to the survey believed that the RP supported clients to manage their own healthcare needs whilst 12 reported that they were able to assist clients in maintaining or improving their work life. In addition, 17 nurses felt that their role led to increasing their clients’ knowledge about health and healthcare, which was a view echoed by all GPs. Seventeen PNs and all GPs also indicated that they were able to support an increased knowledge about health within the population. One PN noted that, “patients often comment to me before they leave that they have learnt so much and are more than pleased to have a written management plan”. Clients shared the following information in regard to better understanding their condition:

*They [PN] gave me the pamphlets and everything to read and what they did and they showed me how to do the exercise ... I felt I could do that myself and I still do too.*

*She [PN] gave me a card all about COPD and what to take when and what to do and da da da da and yes, with the change of medication I feel a lot better and I think it has been good.*

**Reduced Risk, Duration and Effects of Acute and Episodic Health Conditions**

Part of the role of ensuring better health outcomes is to measure whether there is a reduction in the acute, episodic, and recurrent conditions that affect clients with a LTC. When asked specifically whether the RP had resulted in a reduction in the number of acute respiratory health events, 15 of the 17 nurses and all three of the GPs felt that it had achieved this aim. When interviewed one nurse shared the following story:

*One patient said they used to not take their inhalers but gave them to his kids. Now he knows what the inhalers are for and how they work means he will take them himself and get his kids assessed. I know he is now taking his inhalers because he popped in to see me one day to say he has not felt as well in a long time.*

When asked what kind of skills and processes they had been taught to manage their respiratory condition better, one client said, “*Well you know your breathing techniques and all that type of thing; how to relax and not get into panics when you get short of breath, how to calm yourself down*”. Another client noted how being enrolled in the RP has assisted in controlling symptoms of his chronic respiratory condition by saying that “*to me it was such a change [in condition] I couldn’t believe it. And that was within about twenty four hours*”.

**Reduced Risk and Effects of Continuing Health Conditions**

There was an overwhelming consensus from the clinicians that the RP had resulted in reducing the risk, duration, and effects of chronic respiratory condition. Whilst one PN noted that the introduction of any new programme takes between three and five years to ascertain the full measure of its success, others noted that the education, support, and follow up all contribute to reducing the risk of exacerbations and deterioration of conditions. As one client said, “*I just want to say that the clinic is wonderful because I would not have known that my asthma was not properly controlled unless I had got onto this programme*.”
Part of reducing risk is to manage early diagnosis and facilitate ongoing monitoring of clients’ health. The screening of at-risk clients and ensuring ongoing monitoring through follow-up appointments is therefore essential. Figure 8 details all occasions of service by ethnicity and highlights the following important points:

- Those clients who identify as either Māori or Pacific peoples are screened have higher incidences of COPD and are more likely to enroll in the RP than clients who identify as European;
- Clients who identified as either Māori or Pacific peoples are more likely to not attend appointments than all other ethnicities;
- Māori clients have fewer incidences of Screened - no COPD than European clients whilst European clients are more likely to decline enrolment than Māori or Pacific clients.

Client satisfaction with the RP was indicated in this statement from one client:

Well I've had a respiratory problem COPD from years of smoking and yes it got to the stage where the inhalers I was using were not doing all that well so the nurse put me on [medication] which has made a hell of a difference. Yes it's, and I have given up smoking too of course.
PHC Immediate Outcomes

**Appropriateness of Provider**

Watson et al. (2004) note that “[t]he concept of appropriateness has been summarized as delivering the right service to the right person by the right provider in the right place at the right time” (p. 13). It has long been recognised that a PHC provider who has formed a trusting relationship with their clients and understands their needs is in the best position to manage clients with chronic health conditions (Muldoon, Hogg & Levitt, 2006; Gillam, 2008). It is thus appropriate that the RP is managed at the PHC level by HHB. In addition, the positioning of the RP as a nurse-led clinic within the PHC setting is supported by HHB, which notes that nurse-led clinics are designed to “support and co-ordinate the healthcare of people needing help with healthy lifestyle issues” (Health Hawke’s Bay, 2014, np). All the GPs and PNs who responded to the survey believed that General Practices were the appropriate location for the RP within the PHC setting. However, some respondents suggested that visiting clients in their home would also be appropriate.

The services offered as part of the RP include point-of-care spirometry testing which means that chronic respiratory conditions can be diagnosed immediately and a plan of care to maximise health can be worked out in a partnership between the clinician and the client. In addition, the responsiveness of the RP, which allows ad hoc referrals, means that the RP ensures that the time is almost always ‘right’.

**Healthcare System Efficiency**

This intermediate outcome refers to healthcare system efficiency, as distinct from the efficiency of the PHC system;

> An efficient health care system uses resources to the point at which the marginal benefit is equal to the marginal cost. The consumption of resources beyond this point results in provision of ineffective treatment and the diversion of resources away from other societal needs. Efficiency entails achieving the desired results with optimal use of resources. (Watson et al., 2004, p. 13)

A primary driver of the efficiency of the RP has been the ability to apply a flexible funding model under a POC, which has been well utilised, and funding maximised for the delivery of high quality health services in primary care (See Appendix 5 for allocations of POC). Additionally, the RP was able to target at-risk populations in the more deprived areas of Hawke’s Bay (particularly Wairoa), through funding AHBRNEs to support General Practices in high-risk areas and mentor growth of knowledge, capacity, and capability of RNs.

The nurse-led healthcare has enhanced point of care strategies that PNs deliver. This, together with the improvements to policies, protocols, and guidelines has streamlined healthcare delivery within General Practices. The breakdown of the work that PNs undertake in the nurse-led clinics is outlined in Figure 9, which highlights the range and extent of care co-ordination for chronic respiratory conditions that they manage.
During the development of the RP support systems, HHB in collaboration with HBDHB created a LTC form. The form contained a number of referrals and activities that were relevant to chronic respiratory conditions that acted as a checklist for managing client healthcare. This form has enabled more autonomous practice for PNs who have undertaken many of the activities listed on the form, which is captured in Figure 10. Of note are educational activities such as inhaler technique which PNs stated that they checked with the client 100% of the time. Referral to pulmonary rehabilitation has improved, and as previously mentioned, this has increased 300%, with 67% (n = 12) of PNs saying that they referred patients to this service. It was noted however at a RNCs’ meeting, that this increased referral has placed strain on the pulmonary rehabilitation services, with emerging issues around waiting lists.

When asked how the RP had impacted on their practice, the majority of the PNs all commented that they actively manage the follow-up appointments for clients enrolled in the RP all of the PNs suggested that the ability to co-ordinate healthcare in their clinics supports client self-management, with one PN noting that, “patients have a better understanding of their disease and it makes them more confident”.

All three of the GPs who completed the survey noted that the nurses managed the RP effectively with one stating that, “honestly, my clinic nurses do most of this for me. They are really excellent, we work as a team. We very rarely refer patients out any more for further Pulmonary function testing or Respiratory consultant review”. Additionally, one client summed up the PN’s valuable role, stating:

I was starting to have breathing problems. I expected to be eventually sent off to the hospital because breathing problems ... were starting to be serious. However the nurse, because you go to the nurse before you go to the doctor, ... told me that she was now qualified ... she carried out some tests on me and she and the doctor had a bit of a con flab and they decided to have a go at me themselves...I never felt rushed, because if we had to do anything especially with the nurse, she was quite happy to give me as much time as I felt I needed.

When examining the HHB data to establish the types of activities and services provided by the PNs, it demonstrated that there were 3,442 occasions of service during the RP. The flexibility of the POC usage has enabled PNs to follow clients up based on their clinical needs. An example of this client-centred healthcare is highlighted by the fact that some enrolled clients required more than the initial allocation of four clinic visits to support the management of their condition, and the flexible structure of the RP and the POC, could accommodate this. Table 6 identifies 2,152 clients who had an initial contact with the RP. Of these 1,457 had no further contact and 695 had subsequent contact.

There were a total of 97 occasions of service provided by PNs to clients on more than four occasions of service (or more than one complete POC).
Figure 9: Practice Nurse Activities in the Respiratory Project

Which of these best describes your practice with regard to the respiratory programme? Please tick all that apply.

- I have standing orders that I work from
- I co-ordinate care for a medical practitioner/medical team who makes the final decisions on clinical management
- I receive referrals from other health professionals
- I am able to refer patients to other health professionals
- I co-ordinate care and I am able to make changes to the care plan as required
- I provide education during the first visit
- I arrange all the diagnostic tests required
- I undertake the first visit assessment
- I manage the respiratory care packages
- I do the spirometry

Figure 10: Practice Nurse Responses to the Long Term Condition Form

With regard to the tasks section of the Long Term Conditions form, which areas do you routinely complete on the first visit? Please tick all that apply.

- Complete care plan
- Arrange SABA prescription
- Refer to pulmonary rehabilitation
- Consider advanced care plan
- Discuss home insulation
- Discuss disability entitlement for WINZ
- Consider Flinders assessment
- Refer to Iwi provider
- Enrol in Asthma/COPD support group
- Give green prescription
- Discuss occupational hazards
- Review the inhaler technique
- Provide patient education
- Provide action plan and back pocket script
- Complete the COPD assessment
Table 6: Follow-up Occasions of Service

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Examples of instances with multiple occasions of service include:

- One client had 11 occasions of service, which included 1 enrolment, 3 follow-up visits, and 7 DNAs.
- The most follow-ups for one client was eight.
- Eleven clients had 4 follow-up visits, eleven had 5 follow-up visits, and 2 had 6 follow-up visits.
- The most DNAs was 7, and 1 client had 4 DNAs but also had 4 follow-up visits.

**Acceptability**

“Acceptability includes satisfaction with the services received and how this service meets the needs of the community” (Watson et al., 2004, p. 14). Case studies provide an overview of the occasions of service which highlights the number of enrolled, follow-up, screened-no COPD, screened-declined, and DNAs.

The number of DNAs was very low, with 142 DNAs out of 3,442 total occasions of service, representing just 4.1% of all occasions of service. One PN suggested that, “I have had no DNAs so that shows how they [the clients] value the service”. An example of the tenacity of PNs to follow-up the DNAs is evident in the following case studies:

- Case No 1: Quintile 5 Female Māori client aged 77 years was enrolled into the RP and had 4 follow-up visits and 4 DNAs.
- Case No 2: Quintile 5 Female Māori client aged 60 years was enrolled into the RP and had 4 follow-up visits and 2 DNAs.
Case No 3: Quintile 1 Female Māori client aged 62 years was enrolled into the RP and had 3 follow-up visits and 7 DNAs.

Case No 2: Quintile 4 Male European client aged 54 years was enrolled into the RP and had 3 follow-up visits and 3 DNAs.

A downward trend of hospital admissions has been noted since the commencement of the RP, which suggests its effectiveness in managing chronic respiratory conditions in the community. As one PN stated:

*The patients have confidence in you and come back for their reviews, sharing their progress with you and getting excited about their progress. They discuss all aspects of their care with us, no matter how trivial, so we build up a great rapport*. Additionally, another client stated, “I have a lot of faith in my doctor and as I say [name of PN] is good yes.

As the DHB RNS noted, the sooner a client receives a management plan, the earlier healthcare strategies can be put into place, the better the health outcomes. In addition one PN said:

*I have seen so many great outcomes, new diagnosis, improvement in patient education and interest in their condition and care planning - so many older patients not using inhalers correctly and as a result of the programme they have free visits which they appreciate and DO attend.*

Another PN said, “I feel it’s a great programme and should definitely stay in primary health.”

PNs were asked to rate the acceptability of the RP with various stakeholders in the community. All the nurses believed that the RP was contributing to a better healthcare service, whilst 15 (88%) believed that the clients thought it was a good service. The PNs felt that free healthcare was a key driver of clients’ engagement with the RP.

**Healthcare System Equity**

This intermediate outcome refers to equity of the health care system, including the degree of equity of PHC. “An equitable health care system and PHC system distributes care to the population on the basis of relative need rather than, for example, ability to pay” (Watson, et al., 2004, p. 14).

The RP provides fully funded healthcare to high needs population groups and ensures that the ability to pay does not affect access to healthcare. Vulnerable and high-needs populations can be directly targeted through audits of client records and this also addresses issues of healthcare inequities by ensuring that those with most need receive the appropriate healthcare. Referrals to other healthcare providers and social service agencies have resulted from the RP, which can also be seen to be addressing issues of equity in society. The flexible and responsive client-focused model ensures that appropriate healthcare can be delivered when and how it is of most benefit to clients.

PHO targets include identifying population health trends, and then putting in place strategies to improve healthcare provision in those identified areas requiring additional support and services. At the beginning of the RP, HHB identified Māori females as being an important high-risk population group that the RP could support. The data provides evidence of meeting some of these targets by not only supporting a wide cross-section of the population, but more specifically through the
number of enrolled clients who are in Quintiles 3, 4 or 5 (Figure 11), and the number of both Māori and female Māori clients screened and enrolled on the RP.

All population groups have had equal access to the support offered by the RP. This is evidenced by the range of clients from different ethnic backgrounds and across the range of Quintile groups. European clients were strongly represented in the Quintile 1 category (n = 239) representing 90.5% of all Quintile 1 enrolments, and Māori clients were least represented (n = 15) being 5.7% of the total Quintile 1 group. However, the representation of these two ethnic groups is similar for Quintile 5, with European clients numbering 326 (50%) and Māori clients numbering 292 (45%). The numbers of clients identifying as Asian or Pacific peoples are however very low across all groups. Yet despite the low enrolment numbers of Pacific peoples (n = 24) they are over represented in Quintile 5 (65%), which suggests there is a need to encourage Pacific peoples to be supported through the RP.

Table 7 shows the distribution of males and females across the ethnic groups in the RP. The representation of females (57.4%, n = 1,234) across all ethnic groups is slightly higher than males.
Table 7: Respiratory Project Clients by Ethnicity and Gender

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**PHC Final Outcomes**

Watson et al. (2004) acknowledge that the success of a programme must be monitored over time and that it needs to take into account all those internal and external factors that influence a programme’s outcomes, including PHC efficiency and effectiveness, as well as community and environmental influences.

The survey asked GPs and PNs to indicate who they believed acknowledged the RP as contributing to better healthcare from a choice of answers that included; the health care team, the service, the clients or the community. All (100%, n = 17) the PNs and GPs acknowledged the healthcare team as contributing to better healthcare with 88.2% (n = 15) of PNs indicating that the clients also acknowledged this.

**Sustainable Healthcare System**

PHC is the key component of a sustainable healthcare system. The appropriate management of clients with chronic health conditions at the PHC level reduces acute hospital admissions and has a positive impact on clients’ work readiness and ability to work. The NZ Government PHC Strategy (King, 2001) identifies the importance of well-planned and delivered, appropriate, and responsive PHC and the RP is an example of this.

Figures supplied by the HBDHB indicate that there has been a drop in admissions to hospital as a result of acute exacerbations of chronic respiratory conditions since the RP began and the clinicians who were interviewed and surveyed for this evaluation also support this. Reducing hospital admissions contributes to a sustainable healthcare system (see Figure 7). Supporting clients in the community is one of PHOs priority targets (New Zealand Government, 2015). Both the Associate Charge Nurse and the RNS from HBDHB believe that the RP has supported this by enabling General Practices to become the main point of access for chronic respiratory conditions. Moreover, nurse-led healthcare has resulted in the effective co-ordination of follow-ups, which are responsive to client needs. This factor, together with the number of screened-no COPD reflects a proactive approach to assessing at-risk clients, whilst allowing for early COPD diagnosis and appropriate healthcare interventions. As a DHB RNS noted:

*The impact we are already seeing in outpatients is huge, there is a huge decrease in spirometry referrals. Because they are coming from primary care ... I think we were roughly on about sixty or seventy a month and we are now down to six, from sixty to six to two to zero.*

When asked what factors support a sustainable healthcare system, all the GPs and PNs said that ongoing funding for the RP was essential for it to continue. They commented that the largest barrier for many clients was the inability to afford consultation fees in the General Practices as well
as the cost of spirometry. Free visits and the upskilling of PNs to undertake spirometry in General Practice has supported effective community based one-stop-healthcare where clients no longer have to endure multiple appointments and additional costs.

**Improve or Maintain Functioning, Resilience and Health for Individuals**

“PHC is expected to improve or maintain the health and well-being, or impede a decline in health, of individuals who receive services” (Watson, et al., 2004, p. 14). PNs and GPs have stated how impressed they are with the continuing improvements they are seeing in client compliance with healthcare management plans and medication as a result of the RP. Thirteen PNs described their contribution to supporting the health of their clients through the RP as being able to support holistic healthcare opportunities that enable continuity of care within their General Practice setting. Twelve PNs (71%) also noted the importance of the provision of a greater integration of services, and thirteen (76%) acknowledged improved multidisciplinary team communication. PNs noted that through education and responsive follow up, clients were managing their health better at home, with 15 (83%) of the PNs saying that they believed they supported the reduction of risk, duration, and effects of chronic conditions. As one client noted:

*I used to cycle a lot and I mean a lot and I haven’t been able to do that, partly because of breathing but partly because of lack of motivation and also sort of an energy thing. Now I am not back to cycling the sort of numbers I was or anywhere near that but most weeks I manage to clock at least 100ks anyway.*

**Improved Level and Distribution of Population Health and Wellness**

Watson et al. (2004) note that with improved access and equity in healthcare, vulnerable populations are given the opportunity to take control of their health and to actively participate in healthcare through the improvement of health literacy and support from health professionals. The RP has supported access to healthcare for clients who potentially would not be able to afford the frequency of follow-up that some have required, based on evidence of the high proportion of Quintile 5 clients. The RP has enabled clients to receive healthcare within their community, whilst being supported in managing their chronic respiratory condition. Early intervention of healthcare has been enabled through both the funding support and the education and training of PNs to lead and co-ordinate healthcare in the General Practice setting. As noted by a PN:

*The introduction of the programme has increased our use of spirometry in diagnosing respiratory conditions. Our patients have greatly benefited from the programme and by attending pulmonary rehabilitation. My own knowledge in respiratory conditions has increased and I am providing a better service to our community.*

Distribution of healthcare has been evident across all population groups and Quintiles with a PN stating that:

*It is not just high needs patients who have respiratory conditions, so should continue to be available for everyone across the board as necessary. It would be a sad indictment if access to funded assessment was limited to just high needs populations.*

The reduction in hospital admissions together with clinically responsive use of the POC bears testimony to the improved healthcare. When asked about the sustainability and appropriateness of the RP, all the PNs and GPs noted that now that this programme has gained momentum,
there are very real positive outcomes being noted in the management of respiratory conditions, specifically around being able to follow clients up when they need it, and not just when funding can support it. They all noted that the health and wellbeing of the community would suffer if the RP was discontinued. When asked to comment on this one PN said the programme has supported improved clinical outcomes:

*Less (sic) acute exacerbations and further loss of lung function for patients because they know what they are to do to prevent this. Too many patients have been waiting to see what happens before going to see the doctor and then turn up really quite sick. Lung function testing etcetera is specialised.*

A client noted that:

*At night you know I would be wheezing and all those sort of problems and coughing and yes. But now yes I cycle and I play golf and do all the things a lot easier now than I did before I went on this programme so yes.*

One PN said:

*I think as well it also gives us opportunity too, you know we end up with more engagement with people which brings on other healthy measures for the family. You know because it follows through with other stuff...Because you can guarantee that most of these people have multiple problems not just the one they present with.*

**Summary of Findings**

The aim of the RP was to develop nurse-led respiratory clinics in General Practices to enable client-centred healthcare to occur from a community located point of care. The objectives of the RP included improving access to healthcare and the improvement of well-being and self-management of chronic conditions. It also facilitated equity of care through the allocation of funding that allowed for no client out of pocket expenses, aside from the ongoing cost of regular prescriptions.

Overall, the results can be summarised as follows:

- Clients aged over 45 years have the highest rates of COPD, suggesting that COPD remains an older adult condition.
- The ‘Did Not Attends’ are low at 4.1% (n = 142) indicating both the appropriateness of the service and the value clients ascribed to the RP.
- The proactive screening of clients by PNs resulted in 624 (18%) potentially at-risk clients being screened and found not to have COPD, with enrolments into the RP accounting for 34% (n = 1179) of all screenings.
- Clients who identified as European comprised 50% (n = 326) of all Quintile 5s, with Māori clients representing 45% (n = 292) in this Quintile, providing strong evidence of the RP equity.
- Pacific peoples (1.7%) and clients identifying as Asian (0.7%) are the least represented across all age groups, suggesting that the RP is not reaching these population groups.
The PNs and GPs surveyed were enthusiastic about the project aims and its progress, with GPs acknowledging the value of nurse-led care for respiratory conditions, and PNs articulating excitement at being empowered to provide co-ordinated, client-centred healthcare.

Clients, PNs and GPs all recognised that General Practices were the most appropriate setting for these nurse-led clinics.

Flow-on-effects of the co-ordination of care for chronic respiratory conditions located in General Practices are evidenced by the downward trend of hospital admissions and the increase in referrals to Pulmonary Rehabilitation.
Discussion and Recommendations

This project has permitted PNs and GPs to explore an alternative way of managing clients with chronic respiratory conditions. This could only be achieved with the financial support and clinical guidance through a collaborative partnership between HHB, AHB, and HBDHB.

Using existing funding the RP has enabled changes to the way POC have been managed within General Practices. Data have shown that the new model of care that has unfolded as a result of this funding change, allows for a greater equity in the care of clients with chronic respiratory conditions. It has also successfully increased the access to healthcare because of the no-cost access to healthcare model of the RP, and because PNs have taken the initiative to actively follow up clients.

The RP has supported PHO targets related to improving the healthcare of populations known to have poorer health outcomes, in particular those clients in Quintiles 3, 4, and 5, and Māori clients. The RP has also identified that Pacific peoples have not been well represented. According to the Ministry of Health (2014), 27% of Pacific peoples are considered to be living in hardship, which is treble the rate of the general population. Of significance is the fact that Pacific peoples are less likely to make use of primary and preventative health care services (Ministry of Health, 2014). Moreover, 31.4% of Pacific peoples smoke in NZ with the additional concern being the high number of family members who smoke in a household, increasing the risk of non-smokers also developing a chronic respiratory condition (Tala Pasifika 2010). In view of the high rates of respiratory conditions and deprivation among Pacific peoples, targeting this population group for inclusion on the RP should be considered a priority in the future.

The RP has supported the PHO focus on primary health care objectives by focusing the management of healthcare at a community practice level. The success of the RP is evident in the enrolment figures and the occasions of service that have been initiated by PNs. PNs have been able to actively follow clients up who have failed to attend a scheduled clinic appointment.

The co-ordination of care for chronic respiratory conditions located in General Practice has resulted in a reduction in hospital admissions of clients with acute exacerbations of their chronic respiratory conditions, and has enabled more client referrals to Pulmonary Rehabilitation. This reduction of hospital admissions should be acknowledged as an important step to supporting Māori health in the Hawke’s Bay region. This is particularly important in the light of the recently released report identifying that Māori people aged 45 years and over are 3.5 times more likely to be admitted to hospital with a chronic respiratory condition (Robson, Purdie, Simmonds, Waa, Rameka R, & K., 2015, p. 25).

PNs have been empowered through access to professional development, and the authority to manage aspects of clients’ healthcare that has been part of the RP. The education and training in spirometry and the guidance provided by the AHBRNes and the DHB RNS, has allowed PNs to gain confidence in co-ordinating the healthcare of clients with chronic respiratory conditions. These specialist support nurses located in the HBDHB and AHB, need to continue to have time allocated so that PNs can continue to have access to this specialist support.

All health professionals involved with the RP have recognised the value of nurse-led care for respiratory conditions through their articulation of how much their PNs are doing for clients
with chronic respiratory conditions. This professional recognition presents the opportunity for continued collaborative practice and interdisciplinary communication that ultimately supports the maintenance of what has been shown to be an effective clinical practice model.

Although it has been recognised that the General Practices are the most appropriate setting for co-ordination of chronic respiratory conditions, the sustainability of the RP is dependent on the ongoing provision of the funding model developed in the RP. Without this funding, the RP cannot continue.
Conclusion

This RP has been successful in meeting the needs of clients with chronic respiratory conditions. It has supported the enhancement of community and individual wellness by providing better access to healthcare and improved equity in healthcare. Commentaries from PNs and GPs alike attest to the value of the RP:

*Please can the programme continue.*

*Delighted with the progress of the respiratory programme thus far.*

*It seems to be an excellent programme. Any tools that we can provide our respiratory patients will improve their overall health. The program allows adequate time to provide the necessary investigation and teaching required to do our job well.*

*The more my patients understand about their own health, the better that we can work together to improve/maintain their health status. My patients can hopefully also positively influence others around them.*

*‘Pilot’ is always a dirty word in primary care. Funding is provided to start an innovative service which is shown to work, then there is no more funding and somehow the expectation is that the work then becomes part of everyday work. I sincerely hope that this does not happen with this project.*

Client comments have also provided positive feedback about the RP:

*Oh I am very happy because it [the RP] has achieved so much for me.*

*I have got no complaints at all. Can’t think of any way that could be improved, for me in any case.*

*The asthma clinic is wonderful because I would not have known that my asthma was not properly controlled unless, I got onto this programme.*

*Xxx [name of PN] is great so I am sure I could talk to her at any time, she sees me in the waiting room and she calls me in to her room and talks to me.*

The RP has proven its value in terms of demonstrating a model of healthcare that has created a fully inclusive community-based point of service for chronic disease management. This has been an exciting project to be involved with, and the early positive results are both encouraging and empowering for health professionals and clients alike. The nurses taking part have voiced their enthusiasm and passion for the work they have been able to do. The evaluation has shown that the RP is effective in clinical and financial inputs. The effectiveness of the RP presents a model for other initiatives to follow in the development of PHC-focused, integrated healthcare.
The Evaluation of Respiratory Nurse-led Clinics: Health Hawke's Bay
The Evaluation of Respiratory Nurse-led Clinics: Health Hawke’s Bay

References


Appendices
Appendix 1 - Practice Nurse Survey

1. How long have you been a registered nurse?
   - 0 - 5 years
   - 6 - 10 years
   - 11 - 19 years
   - 20 years or more

2. What is your ethnic background?
   - Māori
   - Pacific Island
   - Asian
   - NZ European
   - Other

3. Please indicate the cultural/ethnic backgrounds of the patient populations you work with.
   Please tick all that apply
   - Māori
   - Pacific Island
   - Asian
   - NZ European
   - Other

4. Within this population, is there a high percentage of migrants?
   - Yes
   - No
   - Unsure
   - Comments

5. The World Health Organization suggests that “Social determinants are those conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels” (World Health Organization http://www.who.int/social_determinants/en/)
   Taking this definition into account do you believe there are any social determinants that impact on your ability to provide health care?
   - Yes, please go to Question 6
   - No, please go to Question 7
   - Unsure
   - Comments
6. If yes, please tick all that apply
   - Housing
   - Heating
   - Unemployment
   - Chronic conditions
   - Literacy
   - Health Literacy
   - Overcrowding
   - Transport
   - Low Quintile
   - Comments

7. Which of the following best describes your practice setting
   - GP practice with more than 10 GPs.
   - GP practice with between 5 and 9 GPs
   - GP practice with fewer than 4 GPs
   - Comments

8. In relation to managing patients on the respiratory programme, do you
   - Run a nurse-led clinic
   - Work with GP as required
   - Comments

9. Do you have a designated clinic space for the respiratory programme?
   - Yes
   - No
   - Unsure
   - Comments

10. Your position is
    - Full time
     - Part time
     - Casual
     - Other
     - Comment

11. Do you have access to professional development?
    - Yes
    - No
    - Unsure
12. How were you chosen to be a part of this respiratory programme?
   I am a respiratory nurse specialist
   I have an interest in respiratory condition
   I am a solo practice nurse
   Other
   Comments

13. Have you been trained in spirometry?
   Yes
   No
   Comments

14. Do you perform spirometry testing?
   Yes please go to question 15
   No, please go to question 18

15. Do you feel competent performing spirometry testing?
   Yes
   No

16. Are you the only nurse trained to perform spirometry at your practice?
   Yes
   No
   Comments

17. Do you have enough ongoing education to support your spirometry practice?
   Yes
   No
   Comments

18. Are there any further education and training activities related to respiratory conditions that you feel would benefit your work?
   Reponses

19. Is the respiratory programme
   Your only workload
   Part of your workload
   Only as required
   Other
   Comments
20. How often does the Respiratory Nurse Specialist visit your practice?
   - Daily
   - Weekly
   - Monthly
   - Comments

21. What support do you get from the Respiratory Nurse Specialist? Please tick all that apply.
   - Clinical advice
   - Updated information
   - Assistance with complex patients
   - Available for telephone consult
   - Other

22. What technology/electronic support do you have?
   - Computer
   - Mobile phone
   - Clinical software
   - Other

23. Do you have someone with respiratory expertise replacing you for annual and sick leave?
   - Yes
   - No
   - Unsure
   - Comments

24. How did you recruit patients into the respiratory programme? Please tick all that apply
   - Auditing patient records
   - Identifying respiratory conditions during a visit
   - Identifying deteriorating patients (frequent attendees)
   - Other
25. Which of these best describes your practice with regard to the respiratory programme? Please tick all that apply
   I do the spirometry
   I manage the respiratory care packages
   I undertake the first visit assessment
   I arrange all the diagnostic tests required
   I provide education during the first visit
   I co-ordinate care and I am able to make changes to the care plan as required
   I am able to refer patients to other health professionals
   I arrange all the diagnostic tests required
   I provide education during the first visit
   I co-ordinate care and I am able to make changes to the care plan as required
   I am able to refer patients to other health professionals
   I co-ordinate care for a medical practitioner/medical team who makes the final decisions on clinical management
   I have standing orders that I work from
   Comments

26. I arrange patients’ follow-up visits after first and subsequent care package clinic presentations
   Yes
   No
   Unsure
   Comments

27. I follow up the ‘did not attend’ patients who are on the respiratory programme
   Yes
   No
   Unsure
   Comments

28. Do you practice using evidence based frameworks?
   Yes
   No
   Unsure
   Comments

29. Are there adequate organisational policies that support your practice in relation to respiratory conditions?
   Yes
   No
   Unsure
   Comments
30. Please indicate which of the following clinical guidelines support your practice. Please tick all that apply

- Respiratory programme related guidelines
- Service approved clinical practice guidelines
- Service approved protocols/standing orders
- National clinical directives
- Other

Comments

31. With regard to the tasks section of the Long Term Conditions form, which areas do you routinely complete on the first visit? Please tick all that apply

- Complete the COPD assessment
- Provide action plan and back pocket script
- Provide patient education
- Review the inhaler technique
- Discuss occupational hazards
- Give green prescription
- Enrol in Asthma/COPD support group
- Refer to Iwi provider
- Consider Flinders assessment
- Discuss disability entitlement for WINZ
- Discuss home insulation
- Consider advanced care plan
- Refer to pulmonary rehabilitation
- Arrange SABA prescription
- Complete care plan

Comments

32. Is the Long Term Conditions form

- Useful
- Not so useful
- Unsure

Comments

33. Is the software package that supports the respiratory programme easy to navigate and use?

- Yes
- No
- Unsure

Comments
34. Does the Respiratory Primary Care Patient Transfer form support better continuity and follow-up with patients who have attended the hospital?
   Yes
   No
   Unsure
   Comments

35. Do you believe that back pocket scripts have reduced acute presentations?
   Yes
   No
   Unsure
   Comments

36. For the first respiratory assessment, is one hour enough time?
   Yes
   No
   Unsure
   Comments

37. Do you actively manage the follow-up appointments for patients enrolled on the respiratory programme?
   Yes
   No
   Unsure
   Comments

38. Do you believe that this respiratory programme has supported patient self-management?
   Yes
   No
   Unsure
   Comments

39. In your role, do you assist clients to maintain or improve their work life?
   Yes
   No
   Unsure
   Comments
40. Does your role help support increased knowledge about health and health care among the population?
   Yes
   No
   Unsure
   Comments

41. In your role, do you believe that you reduce the risk, duration and effects of acute and episodic health conditions?
   Yes
   No
   Unsure
   Comments

42. In your role, do you perceive that you reduce the risk, duration and effects of chronic health conditions?
   Yes
   No
   Unsure
   Comments

43. Which of the following do you think a respiratory clinic should be located in? Please tick all that apply
   GP practice
   Separate clinic
   Patients’ homes
   Community setting
   Hospital
   Other
   Comments

44. What best describes your contribution as part of the respiratory programme to population health care? Please tick all that apply
   Access to care
   Continuity of care
   Reduction in health care costs
   Greater integration of services
   Improved multidisciplinary care
   Other
   Comments
45. In your opinion, is the respiratory programme acknowledged as contributing to better health care, by any of the following? Please tick all that apply.
   - The health care team
   - The service
   - The patients
   - The community
   - Other
   Comments

46. In your opinion, has the introduction of the respiratory programme improved access to health care?
   - Yes
   - No
   - Unsure
   Comments

47. In your opinion, has the introduction of this programme improved the equity of care you provide to your community?
   - Yes
   - No
   - Unsure
   Comments

48. In your opinion, do you think that the respiratory programme is sustainable?
   - Yes
   - No
   - Unsure
   Comments
   - What factors, in your opinion, support this sustainability?
     - Time/time constraints
     - Budget
     - Service policy
     - Supportive team
     - National strategic directions
     - Geographic location
     - Programme funding
     - Other
     Comments
49. What factors, in your opinion, negate/prevent/hinder the sustainability?
   - Time/time constraints
   - Budget
   - Service policy
   - Supportive team
   - National strategic directions
   - Geographic location
   - Programme funding
   - Other
   - Comments

50. In your opinion, has the respiratory programme improved overall respiratory service provision?
   - Yes
   - No
   - Unsure
   - Comments

51. What else do you believe would support the respiratory programme?
   - Responses

52. Is there anything else you would like to share with us?
   - Responses
53. **Consent Form for Participation In Research (By Focus group)**

I consent to participate in an interview for the research project entitled “Evaluation of the Nurse Led Respiratory Clinics” for Health Hawkes Bay.

I have read the information provided.

I agree to audio recording of my information and to the participation in the interview on condition that my identity is not revealed.

I understand that I may not directly benefit from taking part in this research.

I am free to withdraw from the project at any time and I am free to decline to answer any questions.

While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.

Whether I participate or not, or withdraw after participating, it will have no effect on my employment or professional standing.

I may ask that the recording be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.

By completing this section and providing my contact details, I accept that I have consented to being interviewed and that I will be contacted by the researchers to arrange a time for the interview.

I agree to being interviewed.
Appendix 2 - General Practitioner Survey

1. How long have you been a GP?
   - 0 - 5 years
   - 6 - 10 years
   - 11 - 19 years
   - 20 years or more

2. What is your ethnic background?
   - Māori
   - Pacific Island
   - Asian
   - NZ European
   - Other

3. Please indicate the cultural/ethnic backgrounds of the patient populations you work with. Please tick all that apply
   - Māori
   - Pacific Island
   - Asian
   - NZ European
   - Other

4. Within this population, is there a high percentage of migrants?
   - Yes
   - No
   - Unsure
   - Comments

5. The World Health Organization suggests that “Social determinants are those conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels” (World Health Organization http://www.who.int/social_determinants/en/).

   Taking this definition into account do you believe there are any social determinants that impact on your ability to provide health care?
   - Yes, please go to Question 6
   - No, please go to Question 7
   - Unsure
   - Comments
6. If yes, please tick all that apply.
   - Housing
   - Heating
   - Unemployment
   - Chronic conditions
   - Literacy
   - Health Literacy
   - Overcrowding
   - Transport
   - Low Quintile

7. Which of the following best describes your practice setting?
   - GP practice with more than 10 GPs
   - GP practice with between 5 and 9 GPs
   - GP practice with fewer than 4 GPs

8. Your position is
   - Full time
   - Part time
   - Casual
   - Other

9. Do you have access to professional development?
   - Yes
   - No
   - Unsure

10. Have you been trained in spirometry?
    - Yes
    - No
    - Comment

11. Do you perform spirometry testing?
    - Yes, please go to Question 12
    - No, please go to Question 15
    - Comments

12. Do you feel competent performing spirometry testing?
    - Yes
    - No
    - Comments
13. Are you the only GP trained to perform spirometry at your practice?
   Yes
   No

14. Do you have enough ongoing education to support your spirometry practice?
   Yes
   No

15. Are there any further education and training activities related to respiratory conditions that you feel would benefit your work?
   Responses

16. How often does the Respiratory Nurse Specialist visit your practice?
   Daily
   Weekly
   Monthly
   Other

17. How often does the Respiratory Nurse Specialist visit your practice?
   Daily
   Weekly
   Monthly
   Other

18. What support do you get from the Respiratory Nurse Specialist? Please tick all that apply
   Clinical advice
   Updated information
   Assistance with complex patients
   Available for telephone consult
   Other

19. How did you recruit patients into the respiratory programme? Please tick all that apply
   Auditing patient records
   Identifying respiratory conditions during a visit
   Identifying deteriorating patients (frequent attendees)
   Other
   Comments
20. Which of these best describes your practice with regard to the respiratory programme? Please tick all that apply
- I do the spirometry
- I manage the respiratory care packages
- I undertake the first visit assessment
- I arrange all the diagnostic tests required
- I provide education during the first visit
- I am able to refer patients to other health professionals
- I receive referrals from other health professionals
Comments

21. I arrange patients' follow-up visits after first and subsequent care package clinic presentations
- Yes
- No
- Unsure
Comments

22. I follow up the 'did not attend' patients who are on the respiratory programme
- Yes
- No
- Unsure
Comments

23. Do you practice using evidence-based frameworks?
- Yes
- No
- Unsure

24. Are there adequate organisational policies that support your practice in relation to respiratory conditions?
- Yes
- No
- Unsure
Comments
25. Please indicate which of the following clinical guidelines support your practice. Please tick all that apply
   - Respiratory project related guidelines
   - Service approved clinical practice guidelines
   - Service approved protocols/standing orders
   - National clinical directives
   - Other
   Comments

26. With regard to the tasks section of the Long Term Conditions form, which areas do you routinely complete on the first visit? Please tick all that apply
   - Complete the COPD assessment
   - Provide action plan and back pocket script
   - Provide patient education
   - Review the inhaler technique
   - Discuss occupational hazards
   - Give green prescription
   - Enrol in Asthma/COPD support group
   - Refer to IWI provider
   - Consider Flinders assessment
   - Discuss disability entitlement for WINZ
   - Discuss home insulation
   - Consider advanced care plan
   - Refer to pulmonary rehabilitation
   - SABA prescription arranged
   - Complete care plan
   Comments

27. Is the Long Term Conditions form
   - Useful
   - Not so useful
   Comments

28. Is the software package that supports the respiratory programme easy to navigate and use?
   - Yes
   - No
   - Unsure
   Comments
29. Does the Respiratory Primary Care Patient Transfer form support better continuity and follow-up with patients who have attended the hospital?
   Yes
   No
   Unsure
   Comments

30. Do you believe that back pocket scripts have reduced acute presentations?
   Yes
   No
   Unsure

31. For the first respiratory assessment, is one hour enough time?
    Yes
    No
    Unsure
    Comments

32. As the primary GP, do you actively manage the follow-up appointments for patients enrolled in the respiratory programme?
    Yes
    No
    Unsure
    Comments

33. Do you believe that this respiratory programme has supported patient self-management?
    Yes
    No
    Unsure
    Comments

34. In your role, do you assist clients to maintain or improve their work life?
    Yes
    No
    Unsure

35. Does your role help support increased knowledge about health and health care among the population?
    Yes
    No
    Unsure
    Comments
36. In your role, do you believe that you reduce the risk, duration and effects of acute and episodic health conditions?
   Yes
   No
   Unsure
   Comments

37. In your role, do you perceive that you reduce the risk, duration and effects of chronic health conditions?
   Yes
   No
   Unsure

38. Which of the following do you think a respiratory clinic should be located in? Please tick all that apply
   GP practice
   Separate clinic
   Patients’ homes
   Community setting
   Hospital
   Other
   Comments

39. What best describes your contribution as part of the respiratory programme to population health care? Please tick all that apply
   Access to care
   Continuity of care
   Reduction in health care costs
   Greater integration of services
   Improved multidisciplinary care
   Other

40. In your opinion, is the respiratory programme acknowledged as contributing to better health care, by any of the following? Please tick all that apply
   The health care team
   The service
   The patients
   The community
   Other
41. In your opinion, has the introduction of the respiratory programme improved access to health care?
   Yes
   No
   Unsure

42. In your opinion, has the introduction of this programme improved the equity of care you provide to your community?
   Yes
   No
   Unsure

43. In your opinion, do you think that the respiratory programme is sustainable?
   Yes
   No
   Unsure
   Comments

44. What factors, in your opinion, support this sustainability?
   Time/time constraints
   Budget
   Service policy
   Supportive team
   National strategic directions
   Geographic location
   Programme funding
   Other

45. What factors, in your opinion, negate/prevent/hinder the sustainability?
   Time/time constraints
   Budget
   Service policy
   Supportive team
   National strategic directions
   Geographic location
   Programme funding
   Other
46. In your opinion, has the respiratory programme improved overall respiratory service provision?
   Yes
   No
   Unsure

47. What else do you believe would support the respiratory programme?
   Responses

48. Is there anything else you would like to share with us?
   Responses
Appendix 3 – Health Practitioners Interview Guide

1. Tell us about your respiratory practice and the respiratory programme.
2. How did you get involved with the respiratory project?
3. Reporting structure – who do you report to and is this supportive of your work? Do you have any thoughts on how this could be improved?
4. Tell us about your assessment both initial and follow up of respiratory patients.
5. Can you describe how you develop the patient care plan and also the use of the electronic care plan?
6. What strategies do you put in place in regard to ensuring that patients and the multidisciplinary team are following the care plan?
7. What education do you provide for your patients?
8. Do you use Pre-signed prescriptions and tests?
9. Can you tell us more about the back pocket scripts, and how they work?
10. What kind of follow up do you have for patients enrolled on the project?
11. Can you tell us about the Respiratory Primary Care Patient Transfer?
12. Following on from this, how do you find the communication between other services and departments?
13. With the Long term Conditions form, tell us how you find this form, first the content of the form and its ease of use, and then the software package and its ease of use.
14. Can you tell us about your skill development in relation to your practice needs for the respiratory project? Are you supported in your competency and skill development?
Appendix 4 – Client Interview Guide

1. How did you get involved with the respiratory project?
2. Who does your initial assessment?
3. What is your experience with follow-up and how much encouragement do you get to attend?
4. Does the education you are provided support your management of your condition?
5. Are you attending the GP practice less frequently?
6. Do you ever go to the ED?
7. How often do you attend ED since being involved on this programme?
8. Who do you contact when you are feeling unwell? Has this changed since you have been enrolled on this programme?
9. What is your experience of using back pocket scripts and do they help you?
10. Do you think that you are given enough time in the appointments you have with your GP and the practice nurse?
11. Who do you have most involvement with?
12. Do you feel that this programme has helped you to manage your own respiratory condition better?
13. Anything else?
## Appendix 5 – Package of Care Utilisation

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The Evaluation of Respiratory Nurse-led Clinics: Health Hawke's Bay