



Barts Health **NHS**
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St Joseph's
Hospice
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Six Month Pilot Analysis: Improving Rehabilitation for Men with Prostate Cancer in North East London

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Executive Summary

The Evidence

The incidence of prostate cancer in North East London is significantly higher than the national averageⁱ. Prostate cancer is the most commonly diagnosed cancer across North East London and trends indicate the number of men living with and after prostate cancer in this region is predicted to rise exponentially in the futureⁱⁱ.

Despite robust evidence indicating that exercise reduces the risk of prostate cancer disease progression by 57%ⁱⁱⁱ and recurrence and mortality by 30%^{iv}, men having undergone prostate cancer treatment have rehabilitation requirements, but hesitate to participate in services either due to inadequate expression of their needs or rehabilitation services appealing more to women^v.

The Issues

This was concurrent with findings from our scoping exercise in North East London, which revealed that very few men accessed existing rehabilitation services in the area during the last financial year (April 2014- March 2015). At St Joseph's Hospice patients with a primary diagnosis of prostate cancer represented a very small percentage of patients accessing hospice services (2.5% of all cancers seen by the community palliative care team and 1% of physiotherapy out-patients). Likewise Barts Health Trust offer a comprehensive outpatient based 6 week survivorship course but to date, have had no men with prostate cancer engage with the programme.

From the scoping report, key reasons why men with prostate cancer do not engage with rehabilitation services in North East London are:

- ✓ An absence of health and wellbeing clinics for men and their partners/carers;
- ✓ A lack of referrals to palliative services at St Joseph's Hospice;
- ✓ Because no concise prostate cancer pathway exists that would make info/advice/referrals easier to access;
- ✓ Poor engagement of men living with or beyond prostate cancer with information contained in posters/leaflets and hand-outs;
- ✓ Because there is no physiotherapy provision to educate men on pelvic floor/bladder training and best exercise prescription.

Action

To address these discrepancies in rehabilitation service uptake by men with prostate cancer - despite clear evidence of rehabilitation need and benefit - our Prostate Cancer UK (PCUK) Rehabilitation Project has piloted an innovative six month programme with the explicit objective of engaging more men with prostate cancer in timely rehabilitative support.

The programme has incorporated three different rehabilitation interventions:

1. Health and Wellbeing Clinics to provide face to face exercise and health promotion for all men referred in Prostate clinics.

2. Individual, one to one physiotherapy sessions for men with prostate cancer experiencing physical impairment.
3. Engaging and teaching clinicians and men to improve health beliefs and increase uptake of men into appropriate rehabilitative programmes.

This stratified approach enabled the project to pilot various strategies and better tailor physiotherapy interventions to men's individual needs whilst intrinsically being service user led:

Problem/Impairment	Physiotherapy Intervention
Post-operative urinary incontinence	<ul style="list-style-type: none"> • Pre- operative pelvic floor muscle training • Post-operative pelvic floor muscle training
Frequency/urgency of urine	<ul style="list-style-type: none"> • Bladder training • Hydration advice • Urge Suppression techniques
Fatigue	<ul style="list-style-type: none"> • Graded exercise training • Goal setting • Exercise on prescription referral
Low level of physical activity	<ul style="list-style-type: none"> • Individualised physical assessment and exercise programme. • Graded support • Education on evidence
Reduced mobility	<ul style="list-style-type: none"> • Individualised exercise programme • Referral to onward service
Lack of information and access to rehabilitative services	<ul style="list-style-type: none"> • Education in health and wellbeing clinic • Signposted to local Rehab services

[Six months of Success](#)

This report evaluated the prostate cancer rehabilitation pilot during the six month period of operation between 3rd November 2014 and 8th May 2015. During this time a total of 193 men and partners/carers have been successfully engaged with the project; receiving rehabilitative assessment, treatment or education. This represents a significant achievement as engaging men to participate in rehabilitation programmes were the primary issue challenging the project.

Significantly, the programme has successfully engaged men across the whole prostate cancer pathway showing that rehabilitation tailored to patients needs is appropriate from diagnosis to death. Indeed the number of men with advanced prostate cancer participating in out-patient Physiotherapy at St Joseph's Hospice has tripled due to the pilot rehabilitation programme.

This is evidence to support the instatement of a specialised out-patient Physiotherapist, as men obviously have needs that previously are not being met. Once their physical symptoms are improved or managed in order to improve confidence; there has been a vast increase in engagement of men with other rehabilitative services.

This reinforces the value of an out-patient Specialist Physiotherapist for men with prostate cancer at all stages of the disease trajectory. When bench marking against other specialist Oncology Trusts men with prostate cancer have access to a specialist oncology physiotherapist, therefore a key

finding and recommendation from this report is the recognition and launch of this role within Barts Health NHS Trust.

The six month pilot of a specialist prostate cancer Physiotherapist has been shown to:

- Cost **£3160** per QALY gained
- Improve **urinary incontinence** by **17%**
- Improve lower urinary tract **symptoms** by **57%** from moderate severity to mild
- Increase individual levels of **physical activity** by **209%**
- Increase self-reported **global health** by **17%**
- Improve **confidence** in self-managing side-effects post physiotherapy intervention (and maintained up to 6 months later) by **25%**
- Support men to reduce **unscheduled GP visits by 45%** and a reduce **Hospital admissions by 100%** over six months
- **48** onward referrals to other appropriate services

Patient Impact

This pilot shows that proactive bladder training pre radiotherapy reduces lower urinary tract symptoms by 57%, enabling men to tolerate curative radiotherapy. More importantly men are reporting a significant impact of rehabilitation input on their quality of life:

“This service has given me a new lease of life, it has given me the confidence to go out and look for work.”

Of particular note 82 % of men reported their main issue was caused by lower urinary tract symptoms. During the latter 3 months of the pilot the most frequently referred issue impacting on men was urinary frequency and urgency in the radiotherapy treatment pathway.

Participation in rehabilitation and specifically bladder training was found to effectively improve men's continence control and associated global health (see above). This highlights an innovative opportunity to develop the Physiotherapy role in the radiotherapy pathway by providing bladder training and pelvic floor exercise to all men prior to receiving radiotherapy or surgery.

Presently physiotherapy training pre prostatectomy or radiotherapy is not routinely in place for men within Barts Health NHS Trust. Outcomes from our pilot suggest this may represent an area which needs addressing to ensure prostate cancer services are providing a multi-disciplinary approach to men and to help proactively reduce future costs associated with long term continence management.

Likewise exercise rehabilitation contributed to improved physical outcomes for a smaller number of men who were experiencing physical impairments related to their illness. Benefits included a **209%** increase in individual physical activity and although not a formal metric; four men were supported to return to work through this programme.

The role of the Specialist prostate cancer Physiotherapist does fill major gaps within the Prostate Cancer Pathway. But more importantly the project has proved there are many physical impairments

caused by prostate cancer which have comprehensively improved following formal training (fatigue/exercise/lower urinary tract symptoms) that only a Specialist Physiotherapist can provide.

Economic Impact of Specialist Physiotherapy Intervention

Participation in the one to one Physiotherapy intervention was linked with a reduced utilisation of other health services with 45% fewer unscheduled GP visits recorded and a 100% reduction in hospital admissions and consequent savings across the health economy.

Generally the National Institute for Health and Care Guidance recommends considering interventions costing the NHS between £20,000 and £30,000 per Quality Adjusted Life Year (QALY) gained cost effective^{vi}. The predicted cost/impact of the specialist prostate cancer Physiotherapist is £3160 per Quality adjusted Life Year gained. Consequently very cost efficient when evaluated against the NICE guidance.

Income generation is successfully implemented across other Tertiary Cancer Hospitals for Oncology Physiotherapy out-patient roles and within Barts Health NHS Trust for women with breast cancer. If this large collection of positive outcomes is pro-actively utilised and entered into Barts Health's commissioning intentions the development of a dedicated Specialist out-patient post open to all patients in Oncology (not just breast cancer) could be self-sustaining thanks to income generation.

Furthermore, the holistic needs assessment is a core feature of the recovery package, which is part of the Commission for Quality and Innovation Payment Framework^{vii}. This is of financial consequence as a Specialist out-patient Physiotherapist would be well placed to complete the Holistic needs assessment and consequently has a financial remuneration attached.

Strategic Impact of Specialist Physiotherapy Intervention

Both running three successful health and wellbeing clinics' and supporting return to work strategically link with the NHS Five Year Forward View^{viii}. This key document is directing healthcare providers to do more to support people to manage their own health, stay healthy, make informed choices about treatment, managing conditions and avoiding complications. However if the specialist Physiotherapy role is not commissioned beyond this project these men will return to receiving minimal support to manage their own health.

Promoting Professional Awareness

Alongside a clinical service, this project aimed to raise awareness of the consequences of prostate cancer and improve individual clinician/professional's confidence to:

- Proactively identify men's rehabilitation needs
- Proactively promote exercise as the fourth cancer treatment^{ix}
- Proactively refer men to rehabilitation services

During the project the specialist prostate Physiotherapist facilitated six teaching sessions to 77 clinicians who come into therapeutic contact with men with prostate cancer within their role. Sessions highlighted a lack of professional knowledge and awareness around the importance of rehabilitation and exercise for men with prostate cancer.

Sessions were positively reviewed and showed a significant improvement in clinicians' self-reported knowledge and awareness of symptoms and how to manage them (minimum 83%) and an increased awareness of available rehabilitation and community support services (minimum 82%). The education of professionals has been key to raising awareness of men's rehabilitation needs and supporting onward referral to appropriate rehabilitation services throughout the pathway.

Conclusion

Findings from the Prostate Cancer Rehabilitation pilot are resoundingly positive. The programme has been evaluated through the rigorous use of outcome measures and subjective feedback to assess acceptability and effectiveness of rehabilitation interventions for men with prostate cancer. This enables us to report with confidence that rehabilitation interventions have significant positive impacts on symptoms, specifically lower urinary tract, physical activity and wellbeing for men with Prostate cancer.

Recommendation

→ It is an explicit recommendation to establish a dedicated Specialist Oncology out-patient Physiotherapist accessible to men with Prostate Cancer within Barts Health NHS Trust. Consequently expanding the potential to in-come generate, addressing the inadequacies of the oncology Physiotherapy provision when benchmarked across other tertiary centres and contributing to key aspects of the delivery and consequent commissioning (against the Commission for Quality and Innovation payment framework) attached to the Recovery Package.

→ Implementation of an improved surgical pathway to improve post-operative advice and continence support at the surgical site; as follow up at their local centre has meant the men are receiving inconsistent rehabilitative support.

→ Explore the possibility of future research to provide a foundation for specialist physiotherapy within the radiotherapy treatment pathway, in particular to support the findings within this document on improving lower urinary tract symptoms.

→ No change in service delivery or expertise is required within the St Joseph's Hospice therapies team and men are happily engaging with the services on offer once through the door, the challenge is to continue the increased proactive referral of men into St Joseph's Hospice services. This will depend on the continuation of the health and wellbeing clinics with St Joseph's Hospice representation present, the carryover of the teaching sessions delivered to healthcare professionals and the investment of a permanent specialist out-patient Physiotherapist to recognise and refer men with prostate cancer to palliative care in a timely way.

1. Introduction

Prostate cancer is now the most common cancer in men in the UK. More than 41,700 men were diagnosed in the UK in 2011 with areas of London identified as having some of the highest incidence rates nationally^x. While survival has increased substantially over the last 40 years, prostate cancer is the second highest cause of male cancer death in the UK^{xi}.

The incidence of prostate cancer in North East London (142.8 per 100,000) is higher than the national average (105.8 per 100,000), consequently Prostate Cancer is the most commonly diagnosed Cancer across North East London with the number of men living with and after prostate cancer in the UK predicted to rise^{xii}

Evidence indicates that prostate cancer and its various treatments are associated with a wide range of distressing physical and psychological symptoms, including fatigue, lymphoedema, anxiety, depression, hot flushes and impaired mobility^{xiii} which can affect individuals for many years.

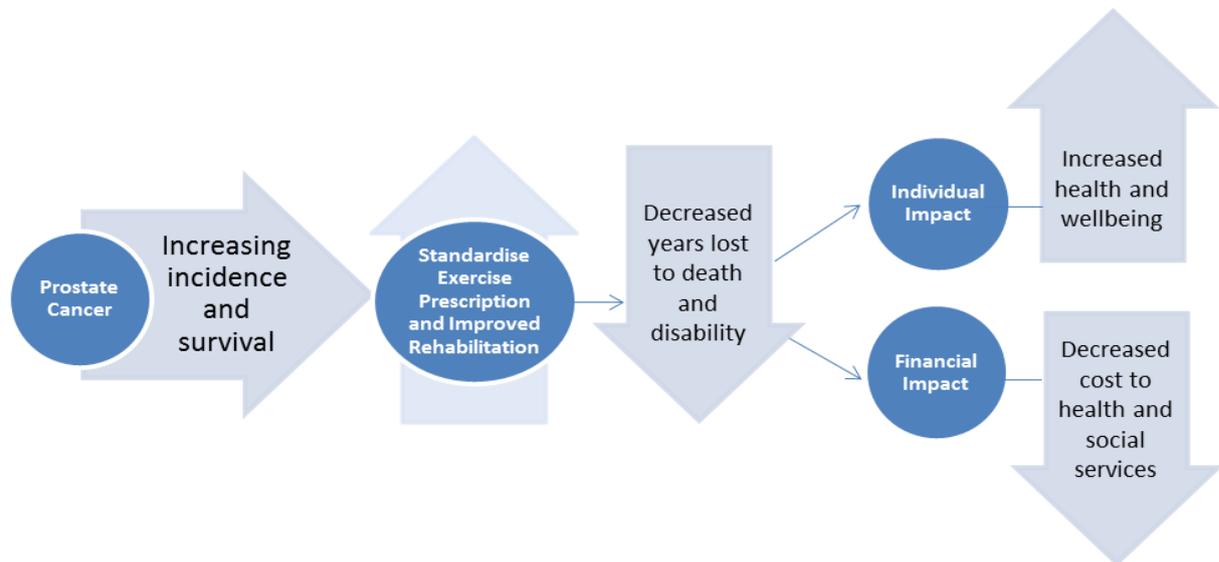
There is increasingly strong evidence that physical activity can help prevent and manage these symptoms^{xiv}. Evidence shows that exercise reduces the risk of prostate cancer disease progression by 57%^{xv} and recurrence and mortality by 30%^{xvi}.

The World Health organisation has quantified the burden of disease using disability adjusted life years (DALYs equals healthy years lost due to mortality and disability), which equals 344 DALYs per 100,000 (second highest cancer impact behind lung cancer) for men with prostate cancer per year^{xvii}

Sullivan et al^{xviii} in the Lancet Oncology Commission discussed that the burden of cancer is a major economic expenditure for high income countries and that Novel, more effective, and less toxic interventions to be explored as a way of improving the effectiveness of cancer care. If exercise can reduce mortality and progression of prostate cancer^{xix} (the years lost to life which contribute to DALYs) and exercise can improve/manage the disability induced by prostate cancer^{xx} (years lost to disability which contributes to DALYs); then standardising exercise and rehabilitation is an effective and non-toxic method to reduce DALYs incurred by prostate cancer.

However, research shows that men having undergone cancer treatment have rehabilitation needs, but hesitate to participate in the services offered^{xxi}. Research is in its early stages regarding how best to engage men into more positive health behaviours^{xxii}, which may explain why men develop and die sooner from cancers that statistically should affect men and women equally. Men appear to have poorer health habits and less interest in healthy lifestyle and often keep their problems to themselves^{xxiii}. Therefore exploring how to effectively engage men into optimal physical activity is an important outcome from this project.

Flow diagram representing the hypothesised Individual and National Economic Impact of Improved Rehabilitation and Standardised Exercise for Men Living with and Beyond Prostate Cancer:



A growing problem ensues, where men with prostate cancer are not benefitting from the research based positive effects from rehabilitation following a cancer diagnosis with a long term financial impact caused by mortality and disability.

To tackle these and other issues the charity Prostate Cancer UK (PCUK) launched the Health and Social Care Programme, working with the NHS and health organisations to test new models of care. St Joseph’s Hospice and Barts Health have joined forces to support a 18 month PCUK funded project to ‘improve rehabilitation for men with prostate cancer in north east London’ headed by a Band 7 physiotherapist with support of a Band 4 Rehabilitation Assistant.

→ Before piloting a service it was essential for this project to research the local prostate cancer population and services/professionals currently in place by:

- Exploring what services are available for men with prostate cancer and their partners/ carers and discover how many men are accessing these services
- Better understanding, the unmet needs of local men with prostate cancer and their carers and discern how this would best be addressed by this AHP led rehabilitation service.

This was achieved through:

- Contacting stakeholders
- Trust data
- Local prostate cancer statistics
- Contact cancer rehab and support services
- Questionnaires for professional/men/partners/carers
- Semi-structured interviews
- Observation
- Focus groups for men/partners/carers
- Online survey.

The main **mapping** findings are that the incidence and mortality of prostate cancer in North East London (142.8 per 100,000) is higher than the national average (105.8 per 100,000) and prostate cancer is trending to become the most common cancer by 2030.

Despite the high prevalence of prostate cancer in North East London, during the last financial year very few men accessed existing rehabilitation services in the area. At St Joseph's Hospice patients with a primary diagnosis of prostate cancer represented very small percentages of patients supported by the hospice.

- The hospice covers a population with an average mortality rate of 5.5% by prostate cancer and 6% by breast cancer.
- However 7% more women with breast cancer (11.5%) access hospice services compared with men with prostate cancer (4.5%).
- 1% of the physiotherapy out-patient service in 2014/2015 was men with Prostate Cancer.

Zero men have completed the Barts Health Trust, hospital outpatient based 6 week survivorship course. Better gyms are the only service offering a 12 week exercise programme, which caters for those living close enough in Newham and Hackney, however currently we have no data available on the number of men with prostate cancer accessing this service.

The main findings arising from the **scoping** project are:

- Men are best engaged via face to face contact
- Men report a lack of information about their condition and support services available
- Clinicians report that men with prostate cancer are provided with information but have a poor retention of information
- There is a lack of referrals of men with prostate cancer by professionals to local rehabilitation services
- Professionals are keen to improve male participation in rehabilitation
- Dominant themes from the focus groups highlighted mens' psychological concerns around fear/worry/sexuality.
- Men's health beliefs were divided between no interest in exercise and wanting to return to normality versus an enthusiasm to learn more regarding 'what is best'.

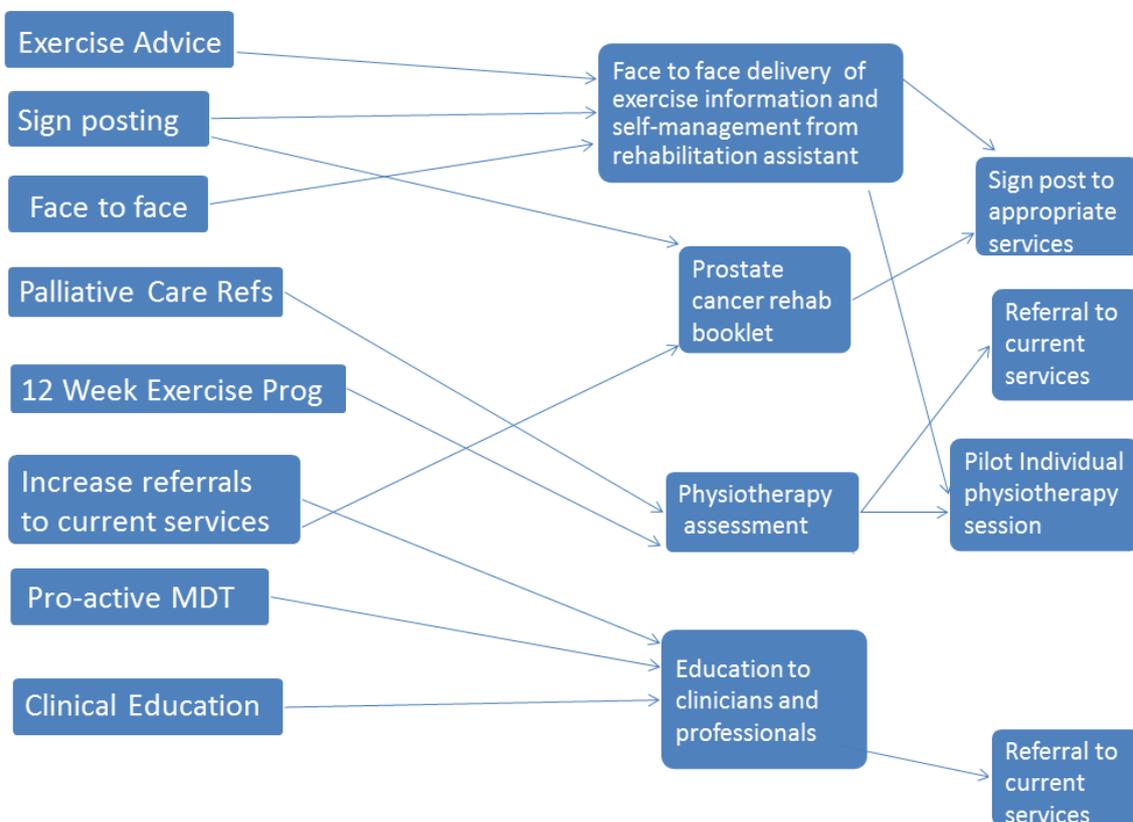
Conclusions from the scoping project were to ensure men with prostate cancer are provided with information about their condition, including the beneficial effects of exercises to reduced disability and mortality and the rehabilitation services available to them locally throughout the disease pathway. There is a need to ensure professionals working with men with prostate cancer also have a sound knowledge of the importance of rehabilitation so that they can inform men and proactively refer them to local services.

To address these findings the project has completed a 6 month pilot of three rehabilitation interventions:

1. Health and Wellbeing Clinics to provide face to face exercise and health promotion for all men referred in Prostate clinics
2. Individual, one to one physiotherapy sessions for men with prostate cancer experiencing physical impairment
3. Engaging and teaching clinicians and men to increase referrals of men into appropriate rehabilitative programmes and improve health behaviours respectively.

The structure of 6 month pilot service delivery was as a result of the scoping and mapping findings described above (in introduction) and illustrated below:

Spider diagram depicting the Main Implications on Rehabilitation (far left), How this can be addressed (middle) and Actions (far right):



The Pilot

Scoping needs and mapping rehabilitative services for men with prostate cancer in North East London was the first project of its kind in this area, consequently the rehabilitation service pilot has been exploratory in nature, in order to learn what works most effectively for the men in North East London.

The prostate cancer rehabilitation service, 6 month pilot was effective between the 3rd November 2014 and the 8th May 2015. This allowed time for the trial of outcome measures and completion of the project plan before hand to optimise effectiveness of the data collected during the service pilot.

The aim of the pilot is to:

- Develop rehabilitation services which engage men with prostate cancer in North East London and address the needs highlighted in the mapping and scoping report.
- Improve referral rates to current rehabilitation/support services.
- Improve function/physical activity, symptom management, psychosocial wellbeing and global health score.
- Raise awareness of rehab needs and services available.

2. Beneficiaries, Outcomes and Satisfaction

The following activity data has been stored and collected on a database or collected from St Joseph's Hospice. Below each headed section is the relevant part of the project plan metric table designed to clearly show what data would be collated.

2.1 Table of Patient Data Collected

	Measure	Measurement tool	Frequency of check						Frequency of Report
			Referral	First AX	6 week	3 month	6 month	9 month	
Referral and Demographic	Total number of referrals	Referral form / service database	✓						Quarterly
	Referrals by age		✓						
	Referrals by gender		✓						
	Referrals by ethnicity		✓						
	Referrals by Borough		✓						
	Referrals by type of referrer		✓						
	Referrals by primary reason for referral		✓						
	Point in prostate cancer pathway		✓						
Attendance and Adherence	Number of referrals successfully contacted	Service database	✓					Quarterly	
	Numbers attended Initial Assessment			✓					
	Numbers agreed to follow up			✓					
	Agreed method of intervention			✓					
	Number of follow up sessions					✓	✓		✓
	Numbers engaged by 6 week follow up call				✓				
	Numbers engaged 3 month review					✓			

Patient Referrals to face to face Physiotherapy service for physical impairments

Type of Session	Number of patients
New Patients	132
Follow-up appointments	133
Follow-up calls	56
6/52 Follow-up	35
Individuals supported	142
Total Contact	356

- 132 new patients have been seen during the pilot (3rd of November 2014 to the 8th of May 2015).
- 142 individuals were seen for face to face physiotherapy sessions during the pilot.
- This comprised of 265 face-to-face sessions with the Physiotherapist, 35 follow up phone calls at 6 weeks and a further 56 follow-up calls by either the Physiotherapist or the Rehabilitation assistant.

Comparison to target number of beneficiaries made in the project bid

- In the project bid to Prostate Cancer UK the projected number of beneficiaries was 250 men per year for a men's health group and 100 men and 50 carers in the palliative rehab.
- With the 142 men supported through the one to one service and 51 men and partners/family supported by the Health and Wellbeing Clinics (described below).
- **A grand total of 193 men and partners/carers have been supported compared with an assumption in the project bid of 200 men and carers.**

Conclusion

- Currently with the service as it stands seeing men across the prostate cancer pathway, the project is 7 individuals below projections predicted in the project bid.
- Overall the physiotherapy role has been successful in the previously explored 'difficult' task of simply engaging men.
- The service piloted is different to that predicted by the bid as we are not running a men's health survivorship programme but this has been driven by the mapping and scoping work.

Patient Demographics

See below tables containing the demographic details of all the individuals who accessed the one to one specialist physiotherapist:

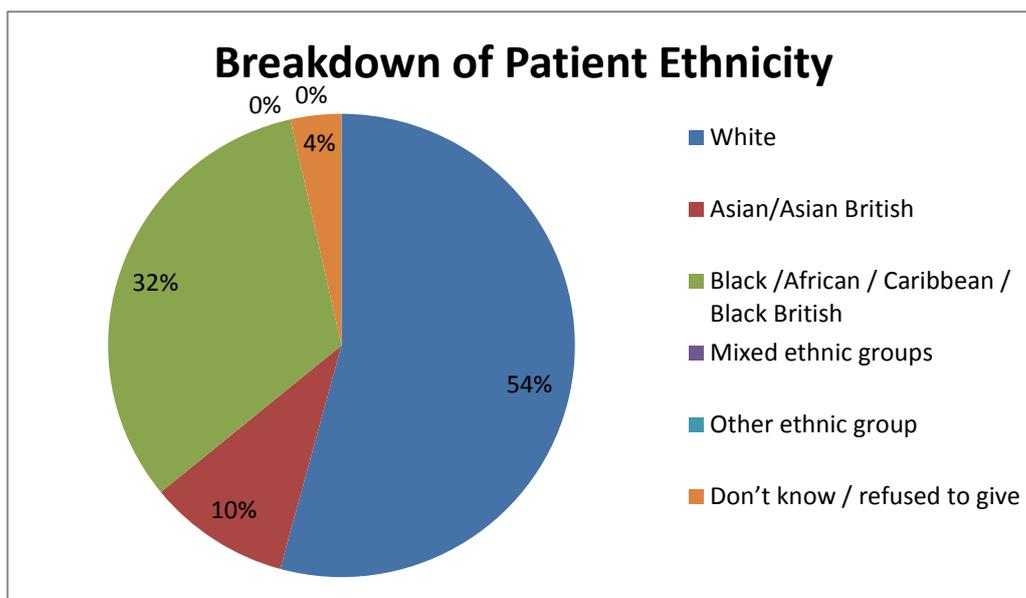
Age	Number of individuals
49 or under	0
50 – 59	29
60 – 69	44
70 – 79	50
80 and over	5
Unknown	14

Gender	Number of individuals
Female	0
Male	142

Borough	Number of individuals
City and Hackney	9
Newham	33
Tower Hamlets	29
Waltham Forest	39
Islington	1
Camden	0
Barking	1
Havering	1
Redbridge	20
unknown	9
Total	142

Ethnicity	Number of individuals
White	77
Asian/Asian British	14
Black /African / Caribbean / Black British	46
Mixed ethnic groups	0
Other ethnic group	0
Don't know / refused to give	5
Total	142

Graph showing the demographic split of the men supported by the one to one physiotherapy sessions:



Findings

- The majority of men seen by the prostate cancer specialised physiotherapist are between the ages of 60-79 (66%)
- The percentage of black men seen represents 32.5% of the cohort supported. The average across the 4 boroughs from the latest census is 16.5% (Black population: 17 % in Waltham Forest, 23% in Hackney, 7% in Tower Hamlets and 18% Newham).
- A crude calculation would be to double this to 33% as a target ethnicity number to engage, as black men are twice as likely to get Prostate Cancer.

Conclusion

→ Consequently the pilot physiotherapy service has been successful at engaging men and also engaging a proportional ethnic distribution.

Method of Referral

67% of all referrals were made through clinics. These were the Uro-Oncology clinic at St Bartholomew's Hospital every Thursday and the bi-weekly Oncology Clinic at Whipps Cross Hospital. During the pilot programme the specialist prostate cancer Physiotherapist sits alongside, meaning patients get referred and seen on the same day as their appointment with their consultants.

Referrals have also been received internally through St Joseph's Hospice and from clinician letters/emails/faxes. Consequently these patients have been contacted and the assessment has typically taken place in the out-patient therapy department at St Bartholomew's Hospital or St Joseph's Hospice.

Tables below showing number of referrals made by which clinician and which method:

Referred by:	Number of Men Referred By:
Dr Tipples	59
Mr Hines	16
Mr Cathcart	13
Dr Wells	29
Clinical Nurse Specialist	6
Other	15
Dr Shamash	4
Total	142

Method of referral	Number of Men
Clinic	95
Letter	12
Email	9
St Joseph's	6
Fax	3
Other	17
Total	142

Point seen in Prostate Cancer Pathway

The project collected data for each individual seen by the one to one Physiotherapy service regarding at what "point" in the prostate cancer pathway they were seen. This was to better understand when men are suffering symptoms and who this project is rehabilitating

Table below shows how many individuals' seen at which point of the cancer pathway:

Point in Pathway	Number of Men	Percentage
Diagnosis	12	8%
End of Treatment	58	41%
Palliative	13	9%
Recurrence	2	1%
Terminal Care	2	1%
Treatment	52	37%
Other	3	2%
Total	142	100%

Findings

- The majority of men seen by the one to one physiotherapy service, were **undergoing treatment (37%)** or had **finished treatment (41%)**, 9% of the men seen by the specialist Prostate Physiotherapist were palliative and terminal care patients.

Main Reported Symptom

As the men were referred by health professionals/clinicians the majority of patients were screened for symptoms. Which has resulted in all of the men seen reporting to suffer from at least one symptom or consequence of prostate cancer and its treatment. The most pressing physical symptom reported was recorded below:

Table below shows the main physical symptom recorded by the men seen:

Main Reported Symptom	Number of Men
Continence	66
Falls	0
Fatigue	7
Frequency	2
Hydration	3
Lymphedema	1
Pain	1
Physical Activity	7
Pre-op PF training	5
Pre-rad Bladder Training	8
Reduced Mobility	8
Stress Incontinence	13
Urgency	20
other	1
Total	142

Findings

- During the first 3 months of the pilot all urinary symptoms came under the symptom name continence. However, as the project progressed there was a need to specify the type of urinary symptoms being reported as it became the foremost physical symptom reported.
- As a result 66 individuals reported “continence” during the first three months of the pilot.
- The latter three months of the project had 51 individuals categorised into more specific urinary symptoms (the terms covering lower urinary tract symptoms are highlighted in the above box).
- 82 % reported their main issue was caused by lower urinary tract symptoms. During the latter 3 months of the pilot the most frequently referred issue impacting on men was urinary frequency and urgency in the radiotherapy treatment pathway.
- Men on the surgical pathway were referred for pre-operative pelvic floor muscle training and occasionally post-operative and also 1/2/3 years post-operatively. This highlights the

gap in post-operative management post-surgery as a number of men had not received conservative management of their lower urinary tract symptoms.

Conclusion

The majority of men seen by the one to one specialist prostate cancer Physiotherapy service were **undergoing treatment (37%)** or had **finished treatment (41%)**. Therefore the specialist post is rehabilitating men mainly in acute services and those whose needs are based in the primary care; this highlights that the positive impact is across the health economy.

The term incontinence initially was used to all lower urinary tract symptoms. This explains the high number of men having incontinence suffering with incontinence as their main symptom as it was initially used as an umbrella term.

Increasingly the Prostate Specialist Physiotherapist was referred men to optimise their bladder control and the volume they can hold, in order to be appropriate to receive radiotherapy and to minimise the impact on their long term urinary continence.

Bladder training pre pelvic radiotherapy is an area lacking in an evidence base therefore the treatment principles are transferred from the field of women's Health Physiotherapy. However, with improving survival rates, optimising long term side effects is an important agenda for future physiotherapy research.

Bladder training and lower urinary tract symptoms are the main treated in the one-to-one sessions but it is worth noting that men may suffer with more than one issue which will be addressed during the face to face session.

Recommendations

- Continue to disseminate the findings that men following a diagnosis of prostate cancer are suffering with physical side-effects both during treatment and many years after treatment.
- Recommend an improved surgical pathway with post-operative advice and continence support at the surgical site, ensuring onward referral to incontinence physio after the Clinical Nurse Specialist has checked and optimised pelvic floor muscle training, as trial without catheter and continence follow up at their local has meant the men are receiving an inconsistent rehabilitative support.
- Investigate the possibility of future research to provide a foundation for specialist physiotherapy within the radiotherapy treatment pathway.

Type of follow up support given

The Physiotherapy assessment determines the baseline measures for each patient and the rehabilitative focus that they require. Advice and treatment is delivered by the Physiotherapist relating to the patients diagnosis, point in Pathway, and symptoms. This is done during the initial assessment, after which the patient is either followed up with another specialist physiotherapy session, or their progress is monitored over the phone at 6-week intervals or they are referred to other local support services.

Table showing number of men supported by methods of follow-up:

Method of follow up intervention	Number of Men
One-to-one	120
Follow-up calls	81
Exercise Group	5
Other (discharged/Deceased)	16

2.2 Clinical outcomes

All patients assessed and referred into the Prostate Cancer service had outcome measures recorded. These outcomes were trialled in the pilot to gather data on a range of outcomes which included socioeconomic impact, confidence in symptom self-management, functional ability and wellbeing.

The table from the project plan provides a reference regarding outcomes and data collected:

	Measure	Measurement tool	Frequency of check						Frequency of Report
			Referral	First Ax	6 week	3 month	6 month	9 month	
Physiological Outcomes	Level of mobility	EQ-5D Questionnaire		✓		✓	✓	✓	Quarterly
	Level of self-care			✓		✓	✓	✓	
	Level of anxiety or depression			✓		✓	✓	✓	
	Level of pain/discomfort			✓		✓	✓	✓	
	Level of ability to carry out usual activities			✓		✓	✓	✓	
	Global Health score			✓		✓	✓	✓	
	Subjective Physical activity level	The Godin-Shephard Leisure Time Physical Activity Questionnaire		✓		✓	✓	✓	
Symptom Specific Outcome Measure	Incontinence	ICIQ/IPSS		✓		✓	✓	✓	Quarterly
	Fatigue	Brief Fatigue Inventory		✓		✓	✓	✓	
	Physical Activity	YMCA step test		✓		✓	✓	✓	
	Reduced Mobility	Modified Rivermead Index		✓		✓	✓	✓	
	Falls	Balance battery		✓		✓	✓	✓	
	Lymphoedema	circumference cm		✓		✓	✓	✓	
Patient Experience	Confidence to manage symptom	Confidence VAS		✓	✓	✓	✓	✓	Quarterly
	Satisfaction levels	Patient/partner/carers satisfaction card		✓		✓	✓	✓	
	Number of sessions attended	Programme Card		✓				✓	
	Overall service experience	Patient/partner/carers satisfaction card		✓				✓	

Lifestyle Outcomes	Global Health score	EQ-5D Questionnaire		✓		✓	✓	✓	
	Average change in physical activity levels	The Godin-Shephard Leisure Time Physical Activity Questionnaire		✓		✓	✓	✓	Quarterly
	Total number of sessions completed during referral period	Programme card and service database		✓		✓	✓	✓	
	Onward referral numbers	Assessment form		✓		✓	✓	✓	
Cost savings and cost effectiveness	Effect on hospital admissions	Assessment form	✓	✓		✓	✓	✓	Annually
	Effect of length of stay of hospital admissions	Assessment form	✓	✓		✓	✓	✓	
	Effect on un-scheduled GP appointments	Assessment form	✓	✓		✓	✓	✓	
	Quality Adjusted Life Years gained	EQ-5D	✓	✓		✓	✓	✓	

[Patients Clinical Outcomes 6 months after initial Physiotherapy Intervention](#)

The 6 month pilot has complete data sets for 83 patients, 24 of which were repeated at 3 months and 12 at 6 months.

[Self-Rated Confidence to manage their Symptom](#)

All the patients completed a pre Specialist Physiotherapy treatment confidence rating how confident they felt managing their symptom after the treatment, education and advice was delivered. The **Self-management confidence level** was then re-measured post sessions indicating the impact of the intervention.

Example below of assessment visual analogue scale for self-rated confidence level:

Confidence

How confident do you feel to manage your Pre-intervention?

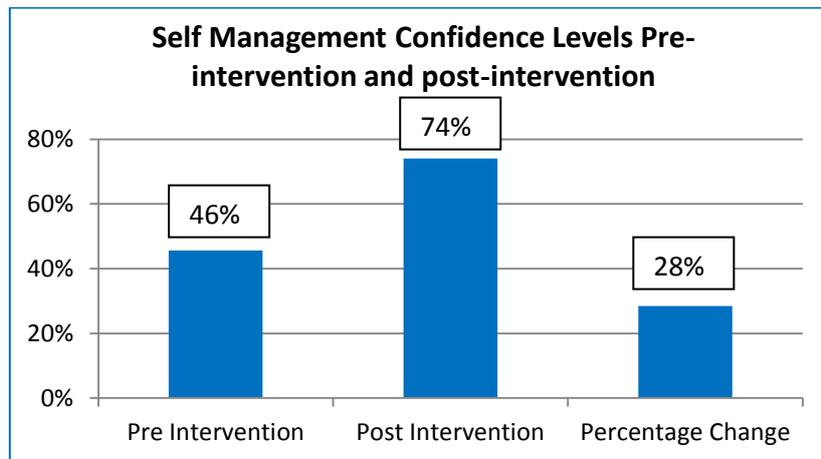
0 1 2 3 4 5 6 7 8 9

10

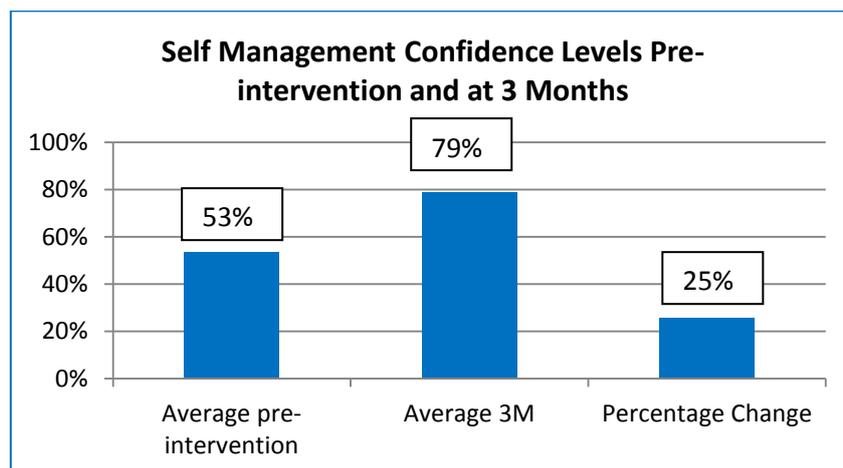
Not at all confident

Completely confident

Graph showing the self-rated confidence pre Prostate Cancer Physiotherapy Intervention and post Physiotherapy intervention:



Graph showing the self-rated confidence pre Prostate Cancer Physiotherapy Intervention and 3 months post Physiotherapy intervention:



Graph showing the self-rated confidence pre Prostate Cancer Physiotherapy Intervention and 6 months post Physiotherapy intervention:

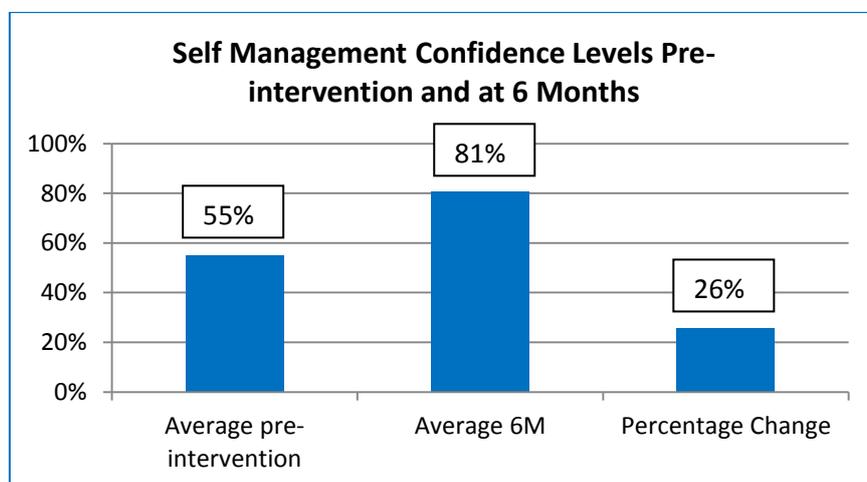
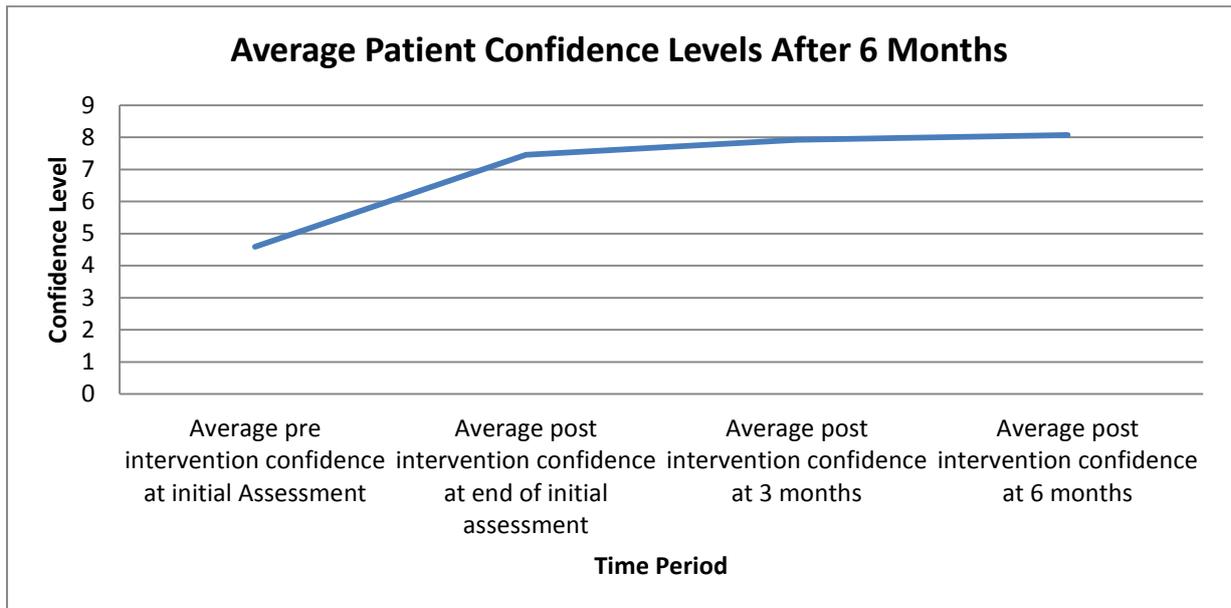


Table and graph showing average self-rated confidence level (0-10) to manage from initial assessment to 6 months:

Average pre intervention confidence at initial Assessment	Average post intervention confidence at end of initial assessment	Average post intervention confidence at 3 months	Average post intervention confidence at 6 months
4.58	7.45	7.92	8.07



Findings

- A total of 83 patients' confidence score was recorded before and after the initial Physiotherapy assessment. The impact of the Specialist Prostate Cancer Physiotherapy session resulted in a 28% increase in confidence to self-manage their main physical symptom.
- 24 patients were followed up after 3 months and the confidence levels continued to remain 25% greater than on initial assessment.
- 12 patients were followed up after 6 months and the confidence levels continued to remain 26% greater than on initial assessment.
- Pre Intervention Confidence was generally low with the average score of less than 4.5/10, this increased post intervention and continued to increase averaging 8/10 confidence 6 months post physiotherapy session.

Conclusion

- There was a **25%** increases in individual confidence post physiotherapy intervention.
- Post physiotherapy intervention the men averaged **80%** confidence in managing their symptom 6 months after initial Specialist Prostate Cancer Physiotherapist session.

Recommendations

→ This intervention outcome is strategically very relevant, linking in with the NHS Five Year Forward View^{xxiv} which is directing healthcare providers to “do more to support people to manage their own health, staying healthy, making informed choices of treatment, managing conditions and avoiding complications”. However if the specialist Physiotherapy role is not commissioned beyond this project these men will return to receiving minimal support to manage their own health.

→ It is clear that Physiotherapy has a positive impact on a man’s self-reported confidence to manage his main physical symptom.

Conclusion

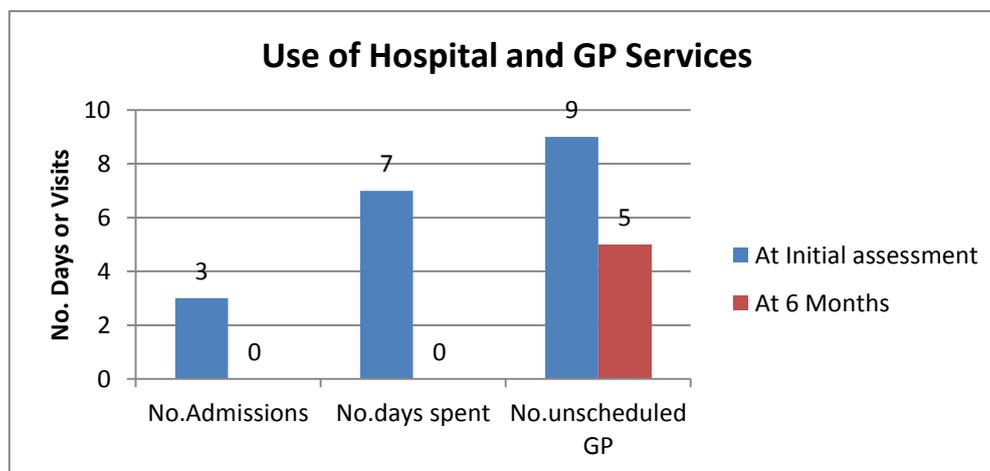
→ There was a **25%** increases in individual confidence post physiotherapy intervention.

→ Post physiotherapy intervention the men averaged **80%** confidence in managing their symptom 6 months after

Socio-economic Impact of the Specialist Prostate Cancer Physiotherapist’s Intervention

Hospital admissions, days spent in hospital and unplanned GP appointments were measured on initial assessment and 6 month follow up. The hope of collecting this data was to explore any correlation between intervention and a reduction in GP/Hospital use and consequent healthcare savings.

Graph showing the reduction in hospital admissions, days spent in hospital and number of un-scheduled GP appointments after Physiotherapy intervention:



Findings

- Across the 13 patients (with full six months data sets) there were 3 admissions to hospital, totalling 7 days in all and 9 unscheduled GP appointments (not planned but patients felt that they had an urgent need) on initial assessment.
- Six months after Physiotherapy assessment and intervention, the same 13 individuals had 0 admissions to hospital and 5 unscheduled GP appointments.
- Consequent **reduction in Unscheduled GP visits by 45%** and a **reduction in Hospital admissions by 100%**
- However it should be noted that the hospital admissions include those who were admitted for prostatectomy.

Primary Care savings due to reduction in Unscheduled GP visits

The Unit Cost of Health and Social Care 2014^{xxv} guidance quotes a single clinic GP session at a cost of £56. With a reduction of 4 GP visits (of a sample of 12) between Physiotherapy intervention and 6 month re-assessment this is a total saving of **£224**.

Using this as an average sample across the 83 patients with full initial data sets a presumption would be a saving of **£1,549** in GP costs saved.

Secondary/Tertiary savings due to reduction in Hospital Admissions

The Unit Cost of Health and Social Care 2014^{xxvi} guidance quotes a non-elective Inpatient stays (short stays) £611 therefore if admissions form a sample of 12 have reduced from 3 to 0 that is a saving of **£1833** presuming that the physiotherapy intervention had an impact on this.

Again spreading this sample across the 83 individuals an assumption could be made that savings of **£ 12,678** could be made six months after physiotherapy intervention.

Conclusion

- There is a positive correlation between Specialist Physiotherapy intervention and a reduction in health and social care use which provides further support for the financial impact of this post.
- The project appreciates there are a host of variables which could impact on these findings and as this is not a controlled trial.

Recommendation

- Utilise these findings when highlighting a business case, as this is a holistic intervention that has long-term public health implications.
- Due to returning to work, reduction in GP visits and hospital admissions this is an integrated post across primary, secondary and tertiary care.

Support Provided to Return to Work

Following the 3 month Pilot Analysis one of the recommendations was to record if return to work needed to be addressed by the Specialist Physiotherapist. Of the 83 individuals with full data sets, five individuals reported the need to return to work. Proving this caseload is indicative of the average age distribution for prostate cancer which is typically an older onset of prostate Cancer, therefore return to work is not a common issue.

However 6 individuals were limited functionally and professionally by the consequences of prostate cancer and its treatment which have been described in more detail in the table below:

Individual	Work Status pre Prostate Cancer	Impairment Post Prostate Cancer Diagnosis	Current Physical and Work Status
1.	Working full-time for the council	Fatigue, Stress and urge incontinence	Currently Undergoing Radiotherapy
2.	Unemployed	Fatigue, Stress and urge incontinence	No longer Incontinent of urine, exercising regularly and linked in with job centre plus for return to work
3.	Working full-time as a key worker for adults with learning disabilities	Fatigue, Stress and urge incontinence	No longer Incontinent of urine, exercising regularly and planning to apply for jobs this month.
4.	Full-time Photographer	Fatigue	Returned to full-time work
5.	Full-time Builder	Mixed Urinary incontinence	Currently under-going RT

Findings

- The Specialist Physiotherapist has supported five men to manage their physical symptoms in order to be capable to return to work. This links in with the NHS Five Year Forward View^{xxvii} which aims to “target health to support can help keep people in work thus improving wellbeing and preserving livelihoods.”

Recommendation

- Utilise these findings when highlighting a business case, as this is a holistic intervention that has long-term public health implications.
- Due to returning to work, reduction in GP visits and hospital admissions this is an integrated post across primary, secondary and tertiary care.

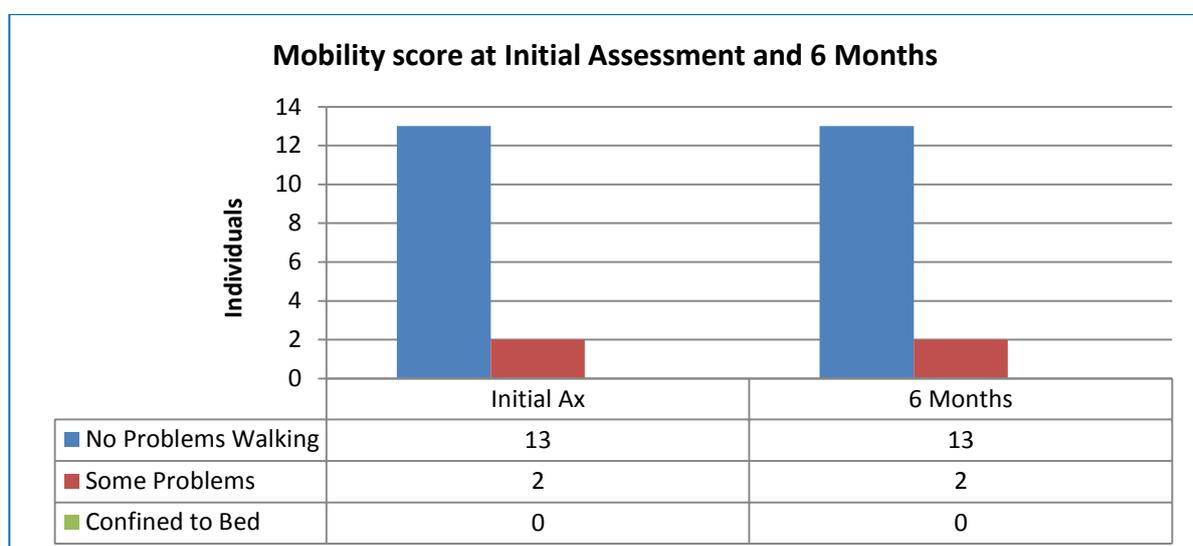
Quality of Life Outcome Measure- EQ-5D 3L

The EQ-5D-3L is a standardised and internationally recognised measure of health outcomes and quality of life which can be used to calculate Quality Adjusted Life Years (QALY) taking into account both the quantity and quality of life generated by healthcare interventions. It is the mathematic product of **life expectancy** and a measure of the **quality of the remaining life-years**^{xxviii}.

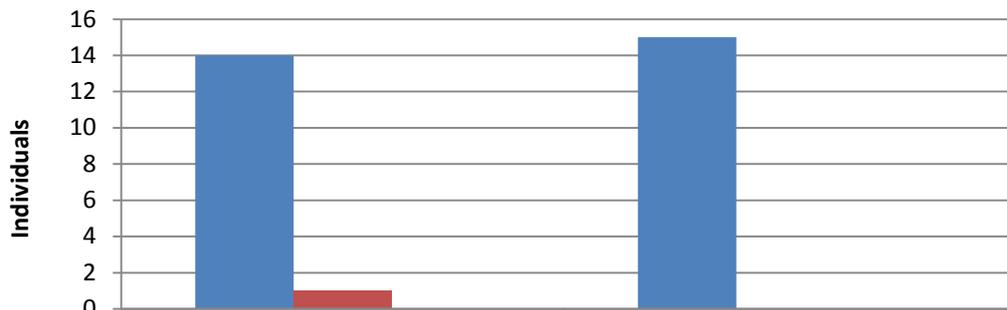
The outcome measure was used to evaluate the one to one Physiotherapy intervention because the National Institute for Health and Care Excellence advises on the use of health technologies within the National Health Service and recommends to use the EQ-5D, to calculate the ratio of cost to QALYs saved for a particular health care intervention.

The EQ-5D-3L descriptive system comprises of the following 5 dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has 3 levels: no problems, some problems, extreme problems. The men are asked to indicate his health state by ticking in the box against the most appropriate statement in each of the 5 dimensions; this is then repeated at three and six months later.

The charts below show the five quality of life indicators taken on assessment and compared with six months post initial assessment:

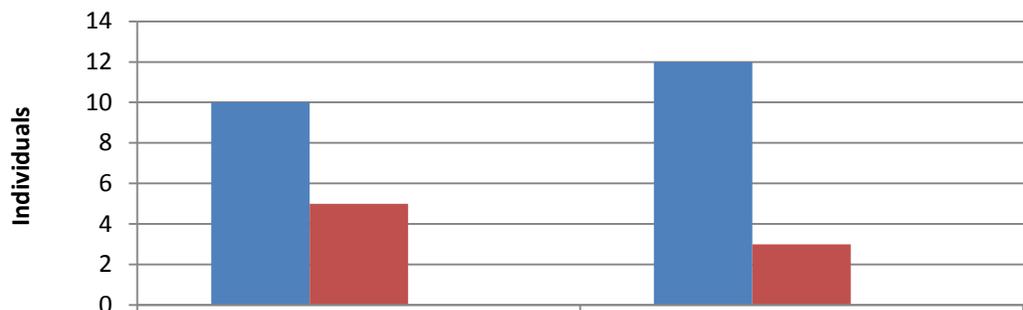


Self-care score at Initial Assessment and 6 Months



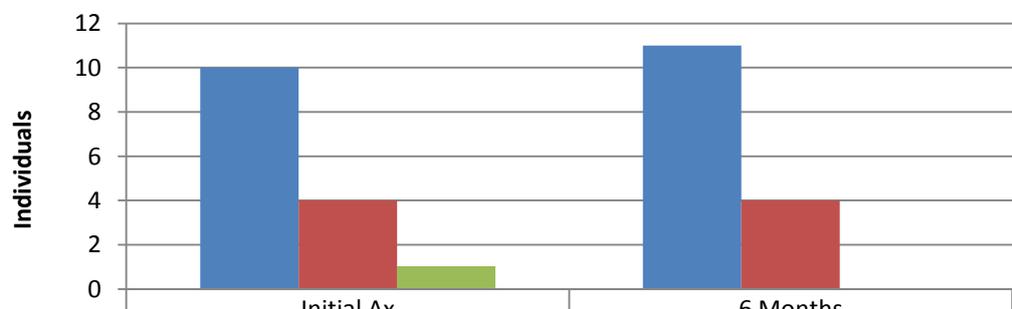
	Initial Ax	6 Months
No Problems Walking	14	15
Some Problems	1	0
Confined to Bed	0	0

Activity score at Initial Assessment and 6 Months

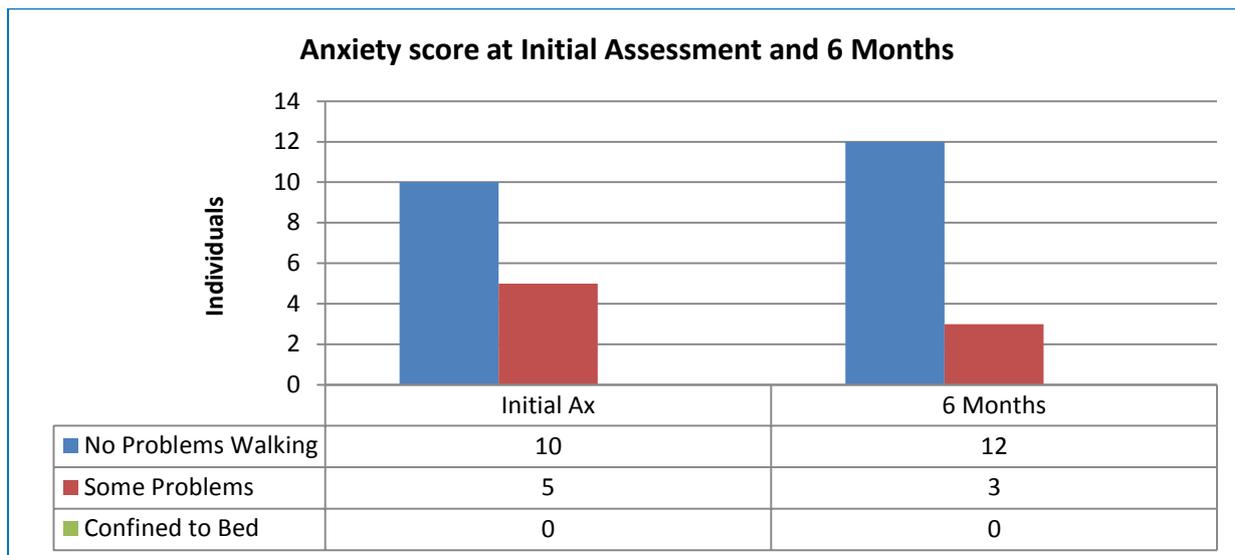


	Initial Ax	6 Months
No Problems Walking	10	12
Some Problems	5	3
Confined to Bed	0	0

Pain score at Initial Assessment and 6 Months



	Initial Ax	6 Months
No Problems Walking	10	11
Some Problems	4	4
Confined to Bed	1	0



Findings and Cost Analysis of Improved Quality of Life Indicators

Time-Trade-Off (TTO) is a tool used in health economics to help determine the quality of life of a patient or group. The baseline TTO is the number of years out of ten in good health an individual would choose to live versus ten years in poor health. This number is often used in turn to calculate quality-adjusted life years or QALYs^{xxix} from the EQ-5D.

Using the individual data sets from the 15 men with initial and six month EQ-5D-3L data, a table was populated showing the associated TTO. The difference between initial and 6 months is then averaged to find the average improvement across this sample (which is 0.07).

Generally the National Institute for Health and Care Guidance recommends considering interventions costing the NHS between £20,000 and £30,000 per QALY gained cost effective^{xxx}. As recommended the average improvement across this sample (which is 0.07) should then multiplied by £30,000 to get the £ value of this QALY for one man (results in table below = £2,108.00).

This implication across the health economy can then be multiplied by the number of men in the sample (15 x £2,108.00) to calculate the QALY's across the sample (equals £31,620).

Because this sample of 15 men (from a cohort of 99) were not specifically selected to represent the sample, this number can be used to generalise the impact of Physiotherapy on all of the men who are undertaking the intervention and already have a baseline EQ-5D-3L. This calculates the overall value of the quality of life measure equalling (£ 2,108 x99) **£ 208,692**.

Extrapolating this value into future years is more difficult without further research because you have to take into account life expectancy, and how people's health conditions would change as time passes both with and without the intervention. The other main weakness with the analysis is that you cannot be certain that all the benefit exhibited in the improved EQ-5D scores comes from the one to one Physiotherapy intervention. To achieve this certainty you would need to look at a control

group, which is unlikely to be possible considering the variety of men at differing stages of the disease.

Table below show the raw data form the EQ-5D-3L initial and six month follow up data with the Time Trade Off (TTO) calculation and consequent financial value:

Individual	EQ-5D-3L Five Dimensions					TTO	EQ-5D-3L Five Dimensions					TTO	TTO Difference
	M	S	Ac	P	An		M	S	A	P	An		
1.	1	1	1	1	2	0.848	1	1	1	1	1	1	0.152
2.	2	1	2	2	2	0.62	2	1	1	1	1	0.85	0.23
3.	1	1	1	1	1	1	1	1	1	1	1	1	0
4.	1	1	2	1	2	0.812	1	1	1	1	2	0.848	0.036
5.	2	2	2	3	1	0.055	2	1	2	2	1	0.691	0.636
6.	1	1	1	1	1	1	1	1	1	2	2	0.725	-0.275
7.	1	1	1	1	1	1	1	1	1	1	1	1	0
8.	1	1	2	2	2	0.689	1	1	2	2	2	0.689	0
9.	1	1	1	1	1	1	1	1	1	1	1	1	0
10.	1	1	1	1	1	1	1	1	1	1	1	1	0
11.	1	1	1	1	1	1	1	1	1	1	1	1	0
12.	1	1	1	1	1	1	1	1	1	1	1	1	0
13.	1	1	1	2	1	0.796	1	1	1	1	1	1	0.204
14.	1	1	1	1	1	1	1	1	1	1	1	1	0
15.	1	1	2	2	2	0.689	1	1	2	2	1	0.76	0.071
												Total	1.054
												Average	0.070266667
												Individual Savings	£2,108
												Savings from data set	£31, 620
												Total Sample savings	£208,692

Sample Size

The project has a sample of 99 men who have completed an initial EQ-5D 3L assessment, 49 of those men have repeated the outcome measure at three months and 15 men have completed at six months after Physiotherapy intervention.

The project decided to use the data from the 15 individual beneficiaries with a complete data set across the 6 months, to best represent the different variables which could impact on an individual's quality of life and the ups and downs of Prostate Cancer. This does make our sample size small so it could be argued that the data should not be generalised across the sample of 99 to calculate the overall QALY impact.

To fully explore if the small sample size has generously impacted on the total improvement of QALY's and consequently should not be generalised across the sample of 99; the above calculations have been carried out for the 49 men with initial and 3 months EQ-5D data (tripling the sample size).

The average improvement in QALY's across the 49 men from initial Physiotherapy assessment to 3 months post is 0.085 (please see appendix for table) which is a greater improvement than the 6 month data set of 0.07. Therefore using the 6 month data set is the more modest outcome and therefore more appropriate to generalise across the complete sample number.

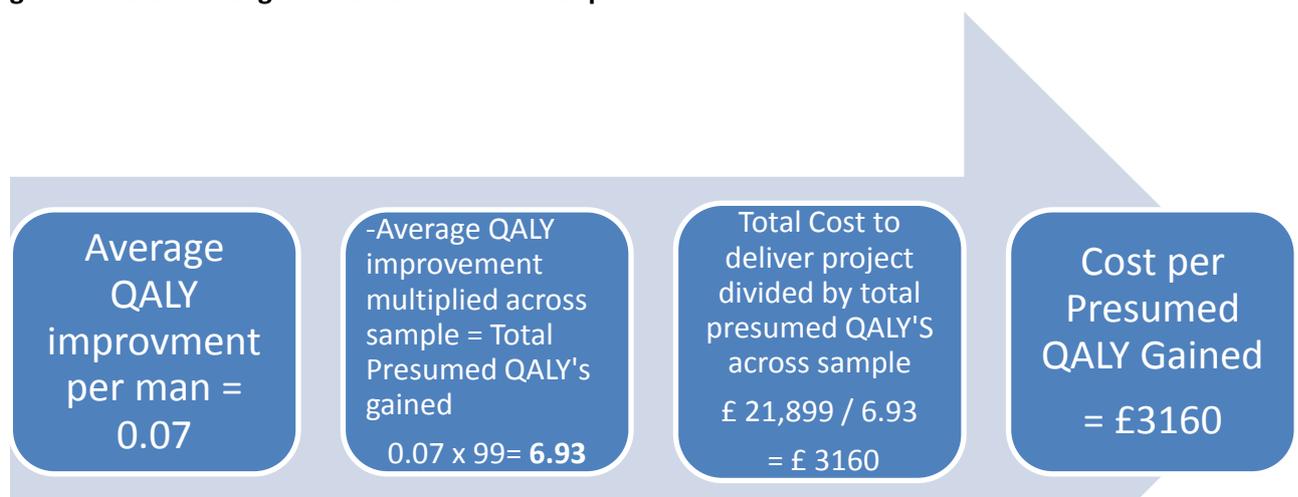
Cost-Analysis Ratios

Cost–utility ratios result from the costs of providing the interventions divided by how many complete QALY's are generated by the intervention. Commissioning, comparing and prioritising can then be established based on those interventions that are relatively inexpensive (low cost per QALY) and those that are relatively expensive (high cost per QALY), NICE considers a cost of £20,000-£30,000 per QALY gained cost-effective.

Table below showing the Project Costings for 6 months one to one Physiotherapy Service:

Description of out-going cost	£ Costings Over 6 months
3 days a week clinical Band 7 Physiotherapist	£ 13,800 (1.0 WTE Band 7 £46,000 per annum)
3 days admin support	£ 6400 (1.0 WTE Band 4 £32,00)
Out-goings (Courses/IT etc.)	£ 299
In-Kind Costings (supervision/steering groups/free training	£ 1400
Total	£ 21,899

Diagram showing Specialist Physiotherapy service costs divided by how many complete QALY's generated and then generalised across the sample:



Findings

- The trending cost for this intervention is £3160 per QALY gained.
- A trending cost of £ 3160 is very low and consequently cost efficient when benchmarked against the NICE guidance of £20,000 - £30,000 per QALY being deemed cost-effective.
- The sample for 6 month EQ-5D comparison is small but can be applied across the sample of 99 men with an initial data set as the sample was not specifically selected to represent the sample

Conclusion

→ The project takes into consideration that the EQ-5D results were over 6 months using a small sample, however the trend clearly speaks for itself as a very cost-effective intervention (specialist Physiotherapy) impacting on improved quality of life and consequent financial value (assigned by NICE and used by the NHS).

→ To maximise the robustness of the findings the calculation of the larger sample size of 49 individuals at initial assessment and 3 months post intervention was undertaken and showed a greater improvement in QALY's per person. Therefore the project is utilising the more modest outcome which supports using the smaller sample size over a larger period of time and generalising across the sample of 99.

→ The cost-utility analysis is often used in healthcare to compare one intervention with another but as described earlier in the report this project has filled a rehabilitative gap; therefore there is no other rehabilitative support to compare the specialist Physiotherapy intervention with.

Recommendations

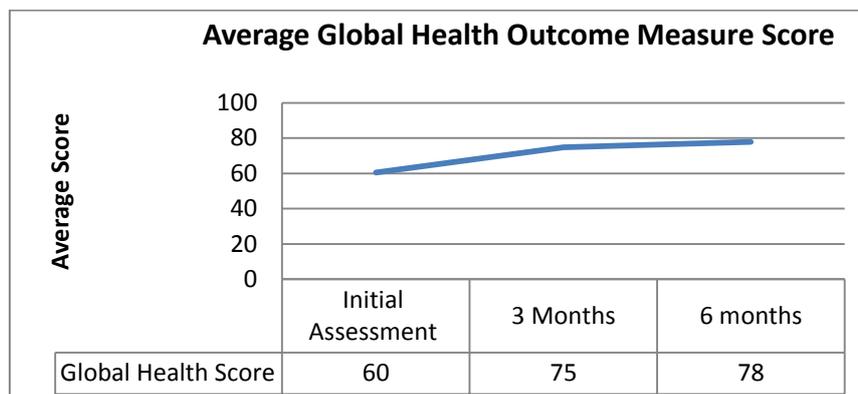
→ EQ-5D is a simple and useful outcome measure to use and should be continued within the Physiotherapy department, to ensure a larger sample and time-frame of data collected.

→ This data should be utilised within the business case for a dedicated specialised Oncology Out-patient Physiotherapist.

Results for the EQ-D5 Global Health Score

The Pilot utilised The Godin Global health score (a visual analogue scale from 0 to 100- poorest health to greatest health) which is the subjective part of the EQ-5D 3L , which was measured at initial, 3 and 6 months as shown below:

The below graph represents an overall improvement over three and six months:



Findings

- 9 men had a complete set of data covering a 6-month period, from a sample of 83 men.
- In total there was a reduction in severity of anxiety and depression, an increased ability to carry out usual activities and self-care.
- Self-reported **global health score increased by 17%** from initial session to 6 months post physiotherapy intervention.
- The EQ-5D global health score is deemed a more subjective outcome but compliments the findings from the descriptive aspect of the EQ-5D.

Conclusion

- Self-reported global health score increased by 17%
- The global health score is easy to use because of the visual scale, however there are variables particularly for the men who have been seen, during or straight after radiotherapy who are suffering with the associated symptoms

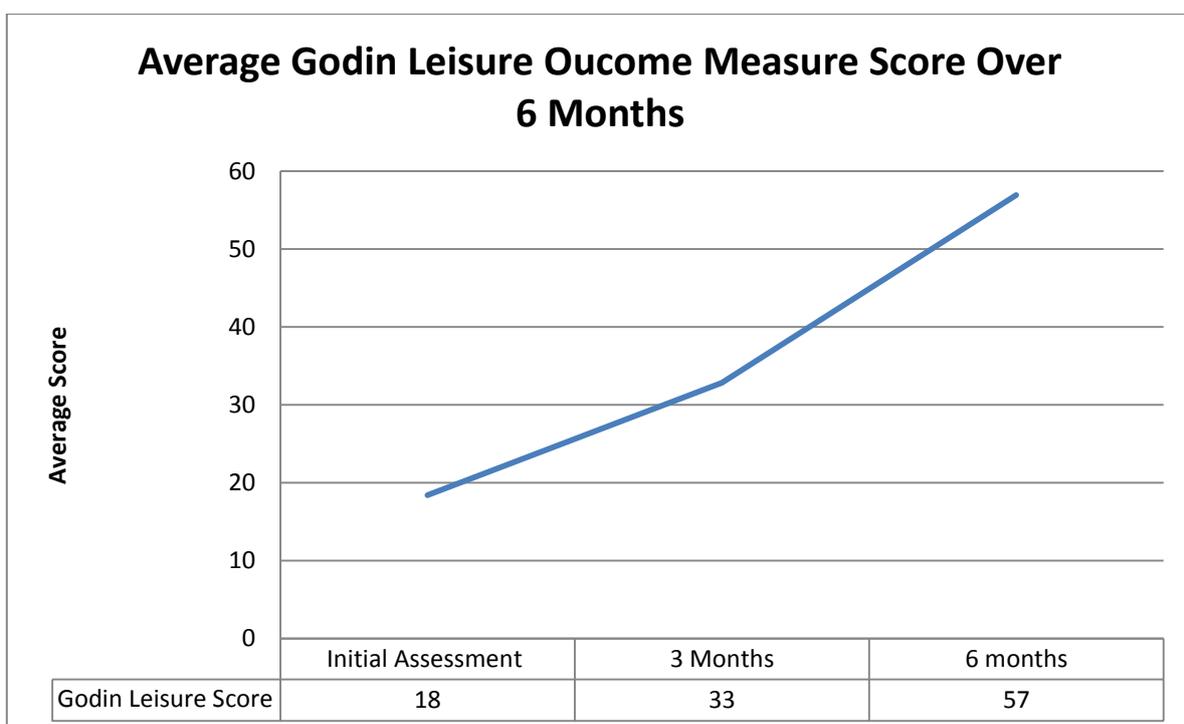
Recommendations

- The EQ-5D global health score is deemed a more subjective outcome but compliments the findings from the descriptive aspect of the EQ-5D

Physiotherapy Impact on physical activity Levels

The Pilot utilised The Godin Global health score as a measure of weekly physical activity which was measured at initial, 3 and 6 months as shown below:

Graph below showing overall improvement in Physical Activity six months Post Physiotherapy Intervention:



Findings

- Individual physical activity increased by [209%](#) six months after face to face session with the specialist prostate cancer Physiotherapist.

Conclusion

- Most improved metric measured which links with one of the main drivers to implement this project in order to get more men exercising.
- This outcome is an incredibly powerful result supporting the impetus behind the strong body of evidence indicating that exercise reduces the risk of prostate cancer disease progression by 57%^{xxxii} and recurrence and mortality by 30%^{xxxii}.

Recommendation

- This is invaluable information which requires dissemination to Barts Health NHS Trust in support of the impact a specialist Physiotherapist has on levels of physical activity.

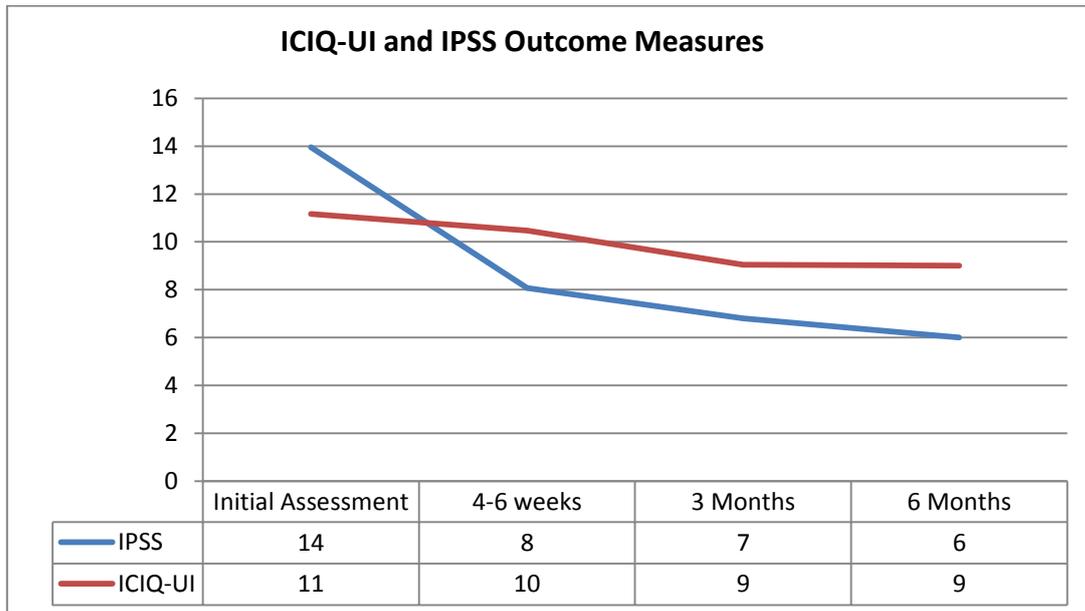
Symptom specific outcome measure at 6 months

When assessed face to face by a Physiotherapist men were questioned regarding the main issue/symptom they were suffering from. The charts and descriptions below compare the symptom specific outcome measure from initial physiotherapy session to 3 and 6 month review.

Initially the umbrella term of urinary incontinence was used to describe all lower urinary tract symptoms, however, as the project progressed and this physical symptom became the most commonly referred with a proportion suffering from urgency and frequency of urine there was a need to specify the type of urinary symptoms being reported as it became the foremost physical symptom reported.

The number of men reviewed at three and six months was an understandably small number of 13 (as the pilot is 6 months long). The symptom reported for all these men was incontinence; therefore either the ICIQ-UI (International Consultation of Incontinence modular Questionnaire- urinary incontinence) or IPSS (International Prostate Symptom Score) was used.

Chart showing improvement of the ICIQ-UI short form and IPSS score between initial Physiotherapy intervention and 6 months:



Findings

- A reduction in ICIQ and IPSS score six months post Physiotherapy intervention has been achieved which includes an individual reduction for each outcome measure.
- 19% improvement achieved with the ICIQ over 6 months.
- 57% IPSS improvement achieved over 6 months.
- 37 patients were assessed using ICIQ-UI and 46 patients were assessed using the IPSS tool on initial assessment
- The IPSS average **at initial assessment** scored 14 which the American Urological Association categorises the urinary symptoms as **moderate severity**.
- **6 months** following Physiotherapy intervention the average score had dropped to a **mild** category of urinary symptoms.

Conclusion

- The symptom specific outcome measures indicate that the Specialist Prostate Cancer Physiotherapist has had a significant impact on men’s clinical urinary symptoms 6 months following initial intervention.
- The Specialist Prostate Cancer Physiotherapist treated more men because of issues with urinary urgency and frequency (using the IPSS) compared with men with stress incontinence (using the ICIQ).
- An association could be drawn between the improved urinary symptoms and increased physical activity. Therefore the initial barrier to health promoting behaviours is improving urinary consequences of prostate cancer and its treatment.

Recommendations

→ This project has set out to engage a significant number of men and improve physical symptoms caused by Prostate cancer and its treatment. This role has been a resounding success with excellent patient feedback.

Onward Referrals made during the 6 months pilot analysis

Table showing how many onward referrals made by the Specialist Physiotherapist:

Onward Referrals To:	Number of Referrals
Continence Services	8
Erectile Dysfunction	4
Exercise On Prescription	7
Health and wellbeing clinic	7
St Joseph's Hospice	5
Barts Cancer Transitions Group	6
Local Activities	4
Other	7
Total Referrals made	48

Conclusion

→ Out of 105 men reviewed by the physiotherapy service **48 onward referrals** have been made to other appropriate services in order to improve symptoms, physical activity and quality of life. Some of these men will have been sign-posted to local exercise schemes also but this data has not been collected.

→ Two key services which had very low prostate cancer access was St Joseph's hospice out-patient Physiotherapy and the Barts cancer transitions group. Following the pilot access/referrals to both these services **has tripled**.

Recommendation

→ Again this is strong evidence to support the instatement of a specialised out-patient Physiotherapist, as men obviously have needs that previously are not being met. Once their physical symptoms are improved or managed in order to improve confidence; there has been a vast increase in engagement of men with other rehabilitative services.

2.3 Role in St Joseph's Hospice

The preliminary mapping and scoping report uncovered that despite the high prevalence of prostate cancer in North East London; over the last financial year very few men accessed palliative rehabilitation at St Joseph's Hospice, as shown in the data collected below:

- The hospice covers a population with an average mortality rate of 5.5% by prostate cancer and 6% by breast cancer.
- However 7% more women with breast cancer (11.5%) access hospice services compared with men with prostate cancer (4.5%).
- 1% of the physiotherapy out-patient service in 2014/2015 was men with Prostate Cancer.

Table showing St Joseph’s Hospice Patient Data 2013-2014 showing the number of men with prostate cancer who received services at St Joseph’s Hospice:

Service	City & Hackney	Newham	Tower Hamlets	Grand Total
CPCT	6	9	8	23
Day Hospice	4	3		7
IPU	5	5	2	12
Physiotherapy		2		2
Occupational Therapy				3
Social Work		2		2
Grand Total	15	21	10	46

The Hospice offers an extensive range of palliative rehabilitative services which support and rehabilitate men and their partners/carers; however men’s health behaviours and a lack of referrals to palliative exercise have created a gender gap. This is concerning because of the growing incidence of Prostate Cancer nationally, the higher than national average of prostate cancer in north east London and the financial burden that will have on health and social care. Therefore if exercise and rehabilitation can improve symptom severity and confidence in managing these symptoms, physiotherapy is an essential area to invest.

As concluded from the mapping and scoping work, there is a need for information and advice earlier in the pathway, increased engagement of palliative rehabilitation through face to face contact and professional education for those working with men with prostate cancer is required.

The 6 month pilot project has focused on engaging and educating men, partners/carers, clinicians and professionals about palliative rehabilitation and the services available at St Joseph’s Hospice was integrated into the 3 project interventions:

1. Health and Wellbeing Clinics to provide face to face exercise and health promotion for all men referred in Prostate clinics
2. Individual, one to one physiotherapy sessions for men with prostate cancer experiencing physical impairment
3. Engaging and training men’s health beliefs to increase uptake of men into appropriate rehabilitative programmes.

Patient Demographics

Below is the demographic detail of men with palliative prostate cancer who have been seen by the specialist Prostate Cancer Physiotherapist via St Joseph's Hospice during the pilot:

Tables below showing the demographic data of the men seen by the Specialist Prostate Cancer Physiotherapist at St Joseph's Hospice during the 6 month pilot analysis:

Age	Number of Men
49 or under	0
50 – 59	1
60 – 69	3
70 – 79	7
80 and over	1
Total	12

Borough	Number of Individuals
City and Hackney	2
Newham	5
Tower Hamlets	4
Islington	1
Total	12

Ethnicity	Number of Individuals
White	3
Asian/Asian British	2
Black /African / Caribbean / Black British	7
Mixed ethnic groups	0
Other ethnic group	0
Don't know / refused to give	0
Total	12

Gender	Number of Individuals
Female	0
Male	12

Method of Referral

Referrals have been received internally through St Joseph's Hospice and from clinician letters/emails/faxes, or by the Specialist Prostate Cancer Physiotherapist referring appropriate men previously unknown to the Hospice.

Tables below to showing main symptom reported, method of referral and service utilised by the men seen by at St Joseph's Hospice:

Main Symptom Reported:	Number of Individuals
Decreased Mobility	8
Fatigue	3
Lymphoedema	1
Total	12

Method of referral :	Number of Individuals
Known to St Joseph's Hospital	3
Referred by Specialist Prostate Cancer Physiotherapist	5
Total	12

Service/Outcome	Number of men with Prostate Cancer
Outpatient Physiotherapy	5
ELT	2
Complimentary Therapy	4
Gym Group	2
Health and Wellbeing Clinic	2
Declined in-put	1
Death	5

Table showing St Joseph's Hospice Patient Data 2014-2015 showing the number of men with prostate cancer who received services at St Joseph's Hospice:

Service	City & Hackney	Newham	Tower Hamlets	Grand Total
CPCT	12	10	8	30
Day Hospice	2	2	3	7
IPU	3	6	5	14
Physiotherapy	2	2	2	6
Occupational Therapy	2	1	1	4
Social Work	3	3	1	7
Grand Total	24	24	20	68

Annual Hospice date Findings:

- An increase of 22 men engaging with service at St Joseph's Hospice services compared with last year just two men with prostate cancer (1%) were seen by physiotherapy out-patients compared with a total number **of six men** with prostate cancer 2014-2015.

Conclusion

The pilot has successfully engaged men with palliative disease into rehabilitative services within St Joseph's Hospice with overall engagement of men with palliative prostate cancer increased on last year by 22 individuals.

The combination of face to face engagement and clinician education (see section 2.6) has broadened the understanding of the multitude of services available at St Joseph's Hospice and successfully engaging men with palliative prostate cancer.

During the pilot it has emerged that no change in expertise is required within the St Joseph's Hospice therapies team and men are happily engaging with the services on offer once through the door, the challenge is to continue the increased momentum of men into St Joseph's Hospice.

This will depend on the continuation of the health and wellbeing clinics with St Joseph’s Hospice representation present, the carryover of the teaching sessions delivered to healthcare professionals and the investment of a permanent specialist Prostate cancer Physiotherapist.

2.4 Twelve Week Exercise Group

In the original project plan following the mapping and scoping report it was planned to implement a 12 week exercise programme in Waltham Forest. The reason being that exercise on prescription was not available in this Borough and the high incidence and mortality of men with prostate cancer.

However during the project timeline exercise on prescription now accepts those with cancer and it seemed redundant to continue with the 12 week exercise group and instead to focus on referring appropriate men into exercise on prescription.

2.5 Patient Experience and Satisfaction Feedback

A service evaluation card is available to all those who are seen by the physiotherapist face to face. The evaluation card has aimed to be simple with the opportunity for further comments as below:



Feedback Recieved

Number of evaluations cards completed	Percentage who reported Excellent	Percentage who reported Moderate	Percentage who reported Poor
21	100%		

Example of Comments Received

<i>“Very helpful, explains things slowly and very detailed. I am enjoying and finding this very helpful.”</i>
<i>“Brilliant and took her time to explain everything to me, I know what is happening now and what to do”</i>
<i>“wonderful, so much has happened to move me on physically”</i>

Conclusion

- Excellent user feedback and very encouraging comments.
- The service evaluation project is patient led and consequently has received a high level of positive feedback.

Case Study/Patient Interview

Mr K is a 52 year old Black Caribbean man who worked as a key worker with adults suffering from physical and mental disabilities. Mr K was a very active person who used take part in physical activities as part of his work.

4 years ago Mr K was diagnosed with prostate cancer and had a radical prostatectomy. Mr K was consequently incontinent of urine, unable to return to work and went through a phase of emotional and mental health difficulties. As a result his activity levels dropped, he suffered from depression and became isolated. Mr K went to his GP with issues but wasn't followed up with any support.

Mr K was referred to the Prostate Cancer Specialist Physiotherapist, after visiting his Oncologist. Mr K was taught graded pelvic floor exercises, bladder training and invited to a Health and Wellbeing event. The event gave him education on fatigue, physical activity, emotional wellbeing and motivation through a shared experience.

Three months following his initial Physiotherapy assessment, Mr K no longer experiences urinary incontinence, he reports increased confidence to go about his daily activities, decreased fatigue levels and is exercising via his local exercise on prescription service. He has plans to travel to the Caribbean after which he will be looking to get back into work.

Mr K Quotes:

"This service has given me a new lease of life, it has given me the confidence to go out and look for work."

"I felt that after the treatment I wasn't directed or supported much with regards to my rehabilitation"

"I got a lot from talking with guys with prostate cancer"

2.6 Education and Teaching

Since the conception of this project, one of the aims was to disseminate men's health prostate specific rehab education to men and partners/carers living with or beyond prostate cancer and clinicians/professionals who will come into contact with men with prostate cancer in North East London.

Aside from the education delivered by the 1:1 physiotherapy service created by this pilot project; the education and promotion arm has been delivered via three prostate cancer only health and

wellbeing events to patients and carers and formal teaching sessions delivered by the Band 7 project lead to professionals/clinicians.

2.6.1 Health and Wellbeing Clinics

The National Cancer Survivorship Initiative recommends health and wellbeing clinics (HWBC) to help people get support and education to improve quality of life and healthy behaviors.

Therefore to address the lack of HWBC's in North East London and improve face to face engagement, education and sign posting to local services, this project worked in collaboration with Penny Brohn Cancer Care and Prostate Cancer UK to deliver three health and wellbeing events for men with prostate cancer in North East London.

Table below showing the Health and Wellbeing clinic attendee's demographics data:

	HWBC .1	HWBC .2	HWBC .3
	24	15	12
Gender	Male = 18 Female = 6	Male = 12 Female = 3	Male = 10 Female = 2
Age	41-50 = 1 51-60 = 8 61-70 = 8 71-80 = 8 81+ = 2	51-60 = 3 61-70 = 5 71-80 = 6 81+ = 1	41-50 = 0 51-60 = 1 61-70 = 5 71-80 = 5 81+ = 1
Ethnicity	White British = 6 White Irish = 1 White other = 2 Black Caribbean = 9 Black African = 3 Asian Pakistani = 1 Other = 1 Do not wish to state = 1	White British = 8 Black Caribbean = 3 Black African = 3 Asian Indian = 1	White British = 5 Black Caribbean = 1 Black African = 4 Other = 2

Health and wellbeing feedback and evaluation

Below is the attendee's feedback from the health and wellbeing clinic. This data was collected by Penny Brohn and therefore the process and the questions used have been out of this projects control. The data is still useful and provides evidence for future application of the health and wellbeing clinic format.

Table below showing percentage of people who ticked ‘somewhat agree’, ‘agree’ or ‘strongly agree’ on the post HWBC questionnaire:

Questions	HWBC. 1	HWBC 2	HWBC 3
1. Increased knowledge and understanding of impact of prostate cancer diagnosis and treatment (including being more confident to ask questions)	100%	93%	89%
2. Increased awareness of reoccurrence and possible associated symptoms	100%	100%	88%
3. Increased confidence in managing the impact of treatment and the subsequent long term side effects (i.e. fatigue, ED, continence)	100%	89%	100%
4. Increased confidence to make changes towards a healthy lifestyle and understanding the benefits of better physical wellbeing	100%	85%	100%
5. Increase in awareness of other available support services in local community (e.g. signposting to benefit advice and other services)	88%	93%	100%
6. Increased understanding of ways to improve mental wellbeing including managing stress better	88%	86%	80%
7. Increased opportunities for peer support	83%	100%	100%

Qualitative Feedback from Health and Wellbeing Clinic:

<i>“We both thought that the event was very worthwhile”</i>
<i>“Useful to have a dedicated time to think about things and to be able to discuss matters with people in a similar position to yourself.”</i>

Conclusion

→ Overall there was a high percentage (minimum 83%) of self-reported improved knowledge and awareness of symptoms and how to manage them and particularly an increased awareness (84%) on available community support services.

→ The health and wellbeing clinics were funded by prostate cancer UK, organised by Penny Brohn Cancer Care. Dr Tipples Consultant clinical oncologist and Urology CNS Karen Wilkinson who both work for Barts Health NHS Trust delivered their sessions free of charge and giving up their own time.

→ This project delivered the first Health and Wellbeing events to be held for a specific tumour type within Barts Health. This is of national importance as the clinic forms part of the service development and improvement plan for the NHS.

Recommendations

- The successful future of the Health and Wellbeing Clinics requires backing and/or financing from Barts Health NHS Trust, collaboration with local community support services and organisation by the clinicians and professionals involved in the treatment and after care of men with prostate cancer.
- The Health and wellbeing clinics should be mandatory for all newly diagnosed men after they have decided on their management option.
- The Health and Wellbeing Clinics should be added to the Trust commissioning intentions

2.7 Teaching/Education to clinicians and Professionals

To improve awareness of men's health specific rehab needs and prostate cancer an offer of an education session was offered to the clinical therapists at Barts Health NHS Trust and St Joseph's hospice as well as to other clinicians and community support services.

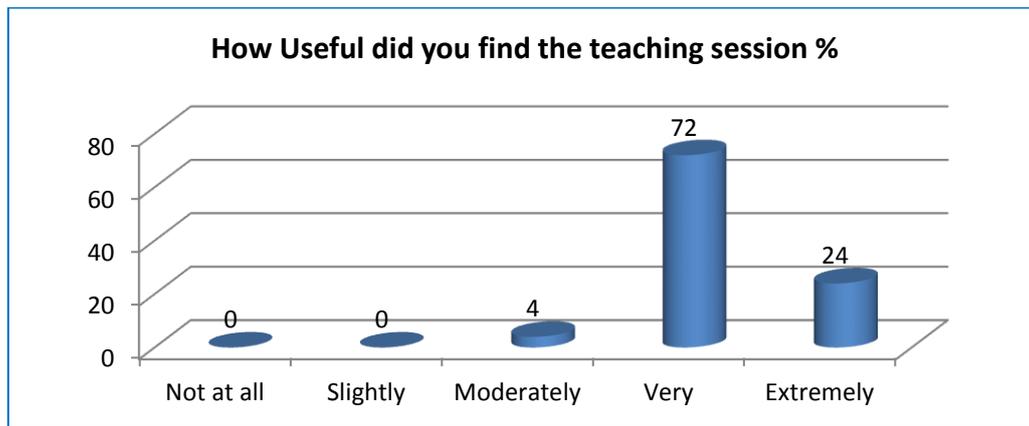
During the six month pilot analysis, six teaching sessions have been organised and delivered, see the table below describing the professionals present and the specific teaching delivered:

	Teaching Subject	Audience	Date Delivered
1.	Improving rehabilitation for men with prostate cancer mapping and scoping research and the NICE Guidelines update	Allied Health professionals from St Joseph's Hospice and the therapists from the neuro-oncology team	August 2014
2.	Prostate cancer rehab needs and rehab project	ARCARE Tower Hamlets community respiratory therapy team	December 2014
3.	Prostate Cancer, Rehabilitation and local support services	Waltham Forest Community therapy team	January 2015
4.	Feedback for Prostate Cancer Session Hackney continence team	Hackney Continence team health professional	March 2015
5.	How to tackle continence, sexuality and exercise for men with Prostate Cancer	All clinicians and Professionals at St Joseph's Hospice	April 2015
6.	Prostate Cancer and Rehabilitation in Waltham Forest	Urology MDT Whipps Cross Hospital	May 2015

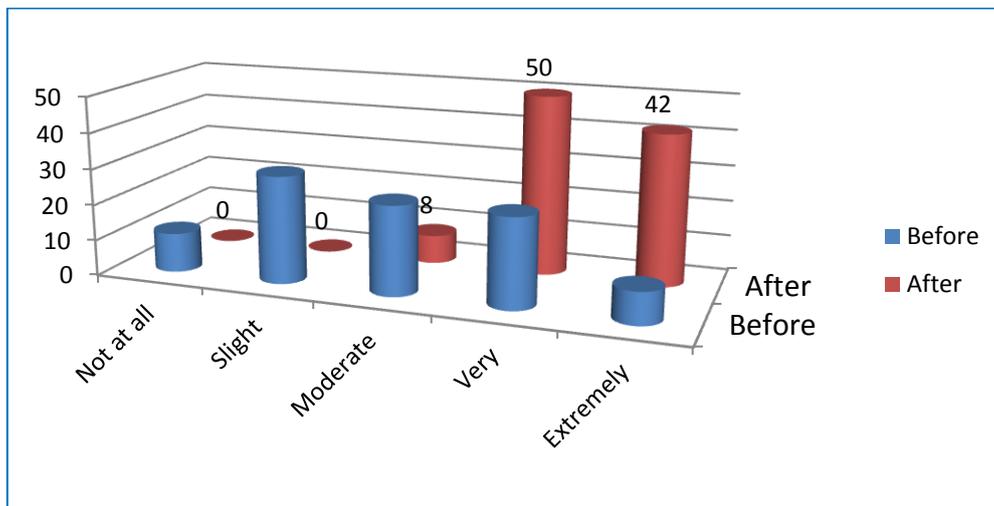
Table showing number of attendance and completed feedback:

	Teaching Session						Total
	1.	2.	3.	4.	5.	6.	
Number of attendees to education sessions	9	15	14	8	16	15	77
Number of attendees who completed online feedback survey	6	5	3	3	11	4	32

Graph showing self-rated impact of the teaching session on individual attendees:



Graph showing self-Rated Awareness of the Rehabilitative needs of men with Prostate Cancer before and after the teaching:



Individual Qualitative Feedback from Teaching sessions

"Very useful session to highlight unmet needs of men with prostate cancer and raise awareness of what we have to offer as physios"

"Well put together presentation, giving background to the project. and useful information about needs of this group"

"Very interesting and a great initiative to help our patients with prostate cancer"

Conclusion

- The feedback from the teachings has been very positive, with an increase in self-rated awareness and knowledge of the impact of prostate cancer and understanding of avenues for onward referral.
- The education work stream has focused on dissemination of information throughout this project, ensuring men with prostate cancer successfully benefit from seeing well-informed practitioners.

Recommendations

→ Continue to deliver teachings and education on rehabilitation needs of men with prostate cancer up to the end of the 18 month project.

3. Dissemination and Recognition

The improving rehabilitation project for men with prostate cancer is gaining interest following a Prostate Cancer UK short film which has been shown at the Health and Social Care Programme annual meeting and is situated on the Prostate Cancer UK website and YouTube (see still below).

Barts Health NHS Trust/St Joseph's Hospice



• Want to learn more about this project? [Register here](#) to join Helen, the lead physiotherapist, in a lunchtime webinar about the project from 12.30-1pm on 15 April 2015.

- The project has presenting at the 'Showcase of Innovative Practice in Cancer Rehabilitation' which was well received, hosted at the Christie in June 2015.
- The project has entered two abstract submissions to Hospice UK.
- The Project lead has hosted a Prostate Cancer UK webinar, accessible to all on their website about the project and key learning points.
- This project lead was asked to present a case study (one of 4) to the NHS England Cancer Strategy Taskforce in order to high-light the need for a focus on men's health and Prostate Cancer.


Health and social care professional programme



4. Summary of Current Challenges and Recommendations for the Future

Challenges and points of learning and consequent recommendations have been highlighted throughout the analysis report. Please find them collected together in order to clearly reason why changes will be made and to build a legacy document and business case.

Patient Engagement

Through engagement and meetings with the Consultants, Registrars and Clinical Nurse Specialists who see men with Prostate Cancer, the Prostate specialist Physiotherapist has successfully seen 142 men with physical impairments and in the one to one sessions and 51 men and their partner/carer through the health and wellbeing clinics.

The majority of men seen by the one to one physiotherapy service, were **undergoing treatment (37%)** or had **finished treatment (41%)**, 9% of the men seen by the specialist Prostate Physiotherapist were palliative and terminal care patients.

The successful engagement has been due to an enthusiastic MDT, the teaching/educational arm of the project and the health and wellbeing clinics. Therefore if they do not continue this will impact negatively on the number of men the project supports.

Recommendations:

- Continue to disseminate the findings that men following a diagnosis of prostate cancer are suffering with physical side-effects both during treatment and many years after treatment.
- Advise for an improved surgical pathway with post-operative advice and continence support at the surgical site, ensuring onward referral to incontinence physio after Clinical Nurse Specialist has checked and optimised pelvic floor muscle training, as trial without catheter and continence follow up at their local has meant the men are receiving an inconsistent rehabilitative support.
- Investigate the possibility of future research to provide a foundation for specialist physiotherapy within the radiotherapy treatment pathway.

EQ-5D Sample Size

The project has a sample of 99 men who have completed an initial EQ-5D 3L assessment, 49 of those men have repeated the outcome measure at three months and 15 men have complete data sets six months after Physiotherapy intervention.

The project decided to use the data from the 15 individual beneficiaries with a complete data set across the 6 months, to best represent the different variables which could impact on an individual's quality of life and the ups and downs of Prostate Cancer. This does make our sample size small so it could be argued that the data should not be generalised across the sample of 99 to calculate the overall QALY impact

To fully explore if the small sample size has generously impacted on the total improvement of QALY's and consequently should not be generalised across the sample of 99; the above calculations have been carried out for the 49 men with initial and 3 months EQ-5D data (tripling the sample size).

Recommendations

- EQ-5D is a simple and useful outcome measure to use and should be continued within the Physiotherapy department, to ensure a larger sample and time-frame of data collected.
- This data should be utilised within the business case for a dedicated specialised Oncology Out-patient Physiotherapist.

Multiple site logistics

Currently the Band 4 and 7 travel across five sites in north-east and east London regularly, this has created challenges with regards to documenting project data, writing notes and accessing our resources. In particular the Specialist Physiotherapist has travelled to Whipps Cross University Hospital due to the higher than national average of men living with or beyond prostate cancer.

Recommendation:

- If a Specialist Oncology Physiotherapy Out-patient post is created it will need to operate a few days from Whipps Cross Hospital.

Low levels of Clinical Nurse Specialists

This project does not negate the issue of very low levels of Clinical Nurse Specialists (CNS) within the pathway who could drive pathway stratification, treatment education and support. Unfortunately nationally the prostate cancer CNS workforce makes up a meagre 2% of the UK specialist cancer nursing population, which is similar to the rare cancers^{xxxiii}. This is particularly concerning in East London as prostate cancer is the most commonly diagnosed cancer across both men and women and is only predicted to rise.

Data recording

A system has been agreed to upload Barts Health patient documentation onto CRS/EPR (local system) and then use the normal procedure for St Joseph's Hospice. Due to covering a number of locations will require multiple data entries but it is obviously necessary in order to comply with documentation legal standards.

Outcome measures

An variety of outcome measures had been trailed and tested in order to be as easy as possible to apply but also to build a picture of how effective improving rehabilitation services for men with prostate cancer has been so far. This has been possible due to the nature of the project.

Recommendations

- Once a fully clinical post is operational there will be less time to collect all of the data but the Project lead will recommend and develop which outcome measures have the most meaning.

Education and Teaching

Health and Wellbeing clinics are recommended as standard care by the National Cancer Survivorship Initiative and through this pilot have been very successful both with engagement and feedback.

Recommendations

- The successful future of the Health and Wellbeing Clinics requires backing and/or financing from Barts Health NHS Trust, collaboration with local community support services and organisation by the clinicians and professionals involved in the treatment and after care of men with prostate cancer.
- The Health and wellbeing clinics should be mandatory for all newly diagnosed men after they have decided on their management option.
- The Health and Wellbeing Clinics should be added to the Trust commissioning intentions
- The HWBC and using the Holistic needs assessment ties in with the Trusts ability to receive payment for excellence therefore continuation of a specialist prostate cancer physiotherapist would income generate and support this initiative.

Patient Information Booklet

Unfortunately due to the issues with branding and manufacturing as this booklet would need to be appropriate across all sites. This project has approached Prostate Cancer UK to help produce a regional rehabilitation specific booklet and the Project lead is currently awaiting an official answer.

However this issue had been overcome but utilising the vast array of patient information booklets provided by Prostate Cancer UK and Macmillan

Standard Operating Procedure

The challenges, recommendations and areas of learning identified during the pilot will help form a standard operating procedure which can guide a health care professional to ensure a man with physical impairments due to prostate cancer will be guided into the most appropriate service

Recommendations

- Plan for the project lead to develop a standard operating procedure to ensure dissemination and a sustained legacy of the findings from the project.

Sustainability and Commissioning

So far the Project lead has met with and engaged the below commissioners, attended and presented at key meetings and presented a business case, so far with no success of a sustained position within Barts Health NHS Trust:

- East London Integrated Cancer Board (representatives and Cancer leads for all Boroughs)
- Macmillan Regional lead
- Cancer Commissioning Manager
- Barts Health Cancer General Manager
- Barts Health Lead Consultant for Cancer Services

Recommendations

- It is an explicit recommendation to establish a dedicated Specialist Oncology out-patient Physiotherapist accessible to men with Prostate Cancer within Barts Health NHS Trust. Consequently expanding the potential to income generate, addressing the inadequacies of the oncology Physiotherapy provision when benchmarked across other tertiary centres and contributing to key aspects of the delivery and consequent commissioning (against the Commission for Quality and

Innovation payment framework) attached to the Recovery Package and being extremely cost effective at £3160 per QALY gained.

Conclusion

The improving rehabilitation for men with prostate cancer service has been highly successful at the difficult task of engaging men with prostate cancer. Six month data trends show the Physiotherapy service is cost-effective, improves urinary symptoms, quality of life, levels of physical activity and confidence in self-managing at 6 months post physiotherapy intervention.

The programme has been evaluated through the rigorous use of outcome measures and subjective feedback to assess acceptability of interventions for men with prostate cancer, enabling us to report with confidence that rehabilitation interventions have significant positive impacts on symptoms.

Onward recommendations include implementation of an improved surgical pathway with post-operative advice and continence support at the surgical site, ensuring onward referral to incontinence physio after Clinical Nurse Specialist has checked and optimised pelvic floor muscle training, as trial without catheter and continence follow up at their local has meant the men are receiving an inconsistent rehabilitative support.

To explore the possibility of future research to provide a foundation for specialist physiotherapy within the radiotherapy treatment pathway, in particular to support the findings within this document on improving lower urinary tract symptoms.

No change in service delivery or expertise is required within the St Joseph's Hospice therapies team and men are happily engaging with the services on offer once through the door, the challenge is to continue the increased momentum of men into St Joseph's Hospice. This will depend on the continuation of the health and wellbeing clinics with St Joseph's Hospice representation present, the carryover of the teaching sessions delivered to healthcare professionals and the investment of a permanent specialist out-patient Physiotherapist.

It is an explicit recommendation to establish a dedicated Specialist Oncology out-patient Physiotherapist accessible to men with Prostate Cancer within Barts Health NHS Trust. Consequently expanding the potential to in-come generate, address the inadequacies of the oncology Physiotherapy provision when benchmarked across other tertiary centres and contribute to key aspects of the delivery and consequent commissioning (against the Commission for Quality and Innovation payment framework) attached to the Recovery Package and being extremely cost effective at £3160 per QALY gained.

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6. Appendix

Table below show the raw data form the EQ-5D-3L initial and three month follow up data with the Time Trade Off (TTO) calculation and consequent financial value:

Individual	EQ-5D-3L Five Dimensions					TTO	EQ-5D-3L Five Dimensions					TTO	TTO Difference
	M	SC	A	P	An		M	SC	A	P	An		
1.	2	1	2	1	2	0.743	1	1	2	1	1	0.883	0.14
2.	1	1	1	1	1	1	1	1	1	2	2	0.725	-0.275
3.	1	1	1	1	1	1	1	1	1	1	2	0.848	-0.152
4.	2	1	2	2	1	0.691	2	1	2	1	1	0.814	0.123
5.	2	2	2	2	1	0.587	2	1	1	2	1	0.727	0.14
6.	2	2	2	2	2	0.516	2	1	2	1	2	0.743	0.227
7.	2	1	2	3	1	0.159	2	1	1	2	1	0.727	0.568
8.	2	1	1	1	2	0.779	1	1	1	1	2	0.848	0.069
9.	1	1	1	2	1	0.796	1	1	1	2	1	0.796	0
10.	2	1	1	2	2	0.656	2	1	1	2	1	0.727	0.071
11.	1	1	1	1	1	1	1	1	1	1	1	1	0
12.	1	1	1	1	2	0.848	1	1	1	1	1	1	0.152
13.	2	2	2	2	2	0.516	2	2	2	2	2	0.516	0
14.	1	1	1	1	2	0.848	1	1	1	1	1	1	0.152
15.	1	1	1	1	1	1	1	1	1	2	1	0.796	-0.204
16.	1	1	1	2	1	0.796	1	1	1	1	1	1	0.204
17.	1	1	2	2	2	0.689	2	1	2	2	2	0.62	-0.069
18.	1	1	1	1	1	1	1	1	1	1	1	1	0
19.	1	1	1	2	1	0.796	1	1	1	2	1	0.796	0
20.	2	1	2	2	2	0.62	2	1	2	2	1	0.691	0.071
21.	1	1	2	2	1	0.76	1	1	1	1	1	1	0.24
22.	1	1	1	1	1	1	1	1	1	1	1	1	0
23.	1	1	1	2	2	0.725	1	1	1	1	1	1	0.275
24.	2	2	2	2	1	0.587	1	1	1	1	1	1	0.413
25.	2	1	2	1	2	0.743	1	1	1	1	1	1	0.257
26.	3	3	3	2	2	-0.166	2	2	2	2	2	0.516	0.682
27.	2	1	2	1	2	0.743	2	1	1	2	1	0.727	-0.016
28.	1	1	2	1	2	0.812	1	1	1	1	1	1	0.188
29.	2	1	2	2	2	0.62	2	1	1	1	1	0.85	0.23
30.	1	1	1	1	1	1	1	2	1	1	1	0.815	-0.185
31.	1	1	1	1	1	1	1	1	1	1	1	1	0
32.	1	1	1	1	1	1	1	1	1	2	1	0.796	-0.204
33.	2	1	2	3	2	0.088	2	1	2	3	2	0.088	0
34.	1	1	2	2	2	0.689	1	1	1	2	2	0.725	0.036

35.	1	1	1	1	2	0.848	1	1	1	1	1	1	0.152
36.	2	1	2	2	2	0.62	2	1	1	1	1	1	0.23
37.	1	1	1	1	1	1	1	1	1	1	1	1	0
38.	1	1	2	1	2	0.812	1	1	2	1	2	2	0
39.	2	2	2	3	1	0.055	2	2	2	2	2	2	0.461
40.	1	1	1	1	1	1	1	1	1	1	1	1	0
41.	1	1	1	1	1	1	1	1	1	1	1	1	0
42.	1	1	2	2	2	0.689	1	1	2	2	1	1	0.071
43.	1	1	1	1	1	1	1	1	1	1	1	1	0
44.	1	1	1	1	1	1	1	1	1	1	1	1	0
45.	1	1	1	1	1	1	1	1	1	1	1	1	0
46.	1	1	1	1	1	1	1	1	1	1	1	1	0
47.	1	1	1	2	1	0.796	1	1	1	1	1	1	0.204
48.	1	1	1	1	1	1	1	1	1	1	2	2	-0.152
49.	1	1	2	2	2	0.689	1	1	1	2	1	1	0.107
												Total	4.206
												Average	0.08583673
												Indv.savings	£2,575.10
												total savings	£254,935.10

^{xxxiii} Prostate Cancer UK. (2015). *The specialist nursing workforce caring for men with prostate cancer in the UK*. Available: http://prostatecanceruk.org/media/2491517/2631-urology-nurse-workforce-research-report__web.pdf. Last accessed 3rd July 2015.