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Horder Healthcare

Social Impact Evaluation

HORDERHEALTHCARE

BAKER TILLY

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HORDERHEALTHCARE BAKER TILLY

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List of Abbreviations

Term	Definition
A&E	Accident and Emergency Department
CCG	Clinical Commissioning Group
GP	General Practitioner
GVA	Gross Value Added
IBS	Irritable Bowel Syndrome
JSA	Job Seekers Allowance
LA	Local Authority
MSK	Musculoskeletal
MSD	Musculoskeletal Disorder
NHS	National Health Service
NICE	National Institute for Health & Care Excellence
NSAID	Non-Steroidal Anti-Inflammatory Drugs
ONS	Office for National Statistics
SROI	Social Return on Investment
UK	United Kingdom

1. Executive Summary

Background to this report

1.0 Horder Healthcare is a registered charity and healthcare organisation, originally founded in 1954 with a view to providing care and support to those suffering from arthritis. This ethos has been continued and at present the Charity provides outstanding orthopaedic and musculoskeletal (MSK) services from its hospital in Crowborough (The Horder Centre) and physiotherapy and MSK treatments from its sites situated in the South East.

1.1 The Charity Horder Healthcare has been improving the health of patients since 1954. Horder Healthcare seeks to improve the health and wellbeing of patients with musculoskeletal disorders, and prevent the development of poor musculoskeletal health for those at risk. This is done through preventative approaches such as specially designed Pilates classes through to orthopaedic surgery. Horder Healthcare has a number of outreach sites across three counties in the South East.

1.2 Additionally as a charity Horder Healthcare plays a significant role in the community, supporting patient education, clinician education, as well as opening up its facilities for use by the community. It has a well-managed volunteer programme that enables volunteers to engage in meaningful and useful work in its centres.

1.3 MSK conditions can significantly limit patient participation in everyday life including work, cooking, taking care of themselves and others, engagement in healthy pursuits – and with an ageing population the presence of musculoskeletal disorders is set to grow. What is the cost of this to society?

1.4 This study evaluated the effect of some of Horder Healthcare's treatments on selected patient groups during 2013. This included evaluating the impact of hip and knee replacements upon patients, and some of the effects of physiotherapy based treatment for musculoskeletal problems. During 2013 Horder Healthcare performed 844 total knee replacements and 849 total hip replacements, with an additional 4,068 patients given MSK physiotherapy treatments. The study used a Social Return on Investment (SROI) methodology to evaluate the impact of these treatments upon patients.

1.5 SROI is concerned with the immediate impact and wider social effects of an organisation's work and the subsequent impact upon society both financially and emotionally. For example a patient who regains mobility may be returned to a position of better physical health as well as being able to work and take care of their family. This creates gain for patients, but also for their families, the community, and the State.

1.6 To understand the value of the work of an organisation a counterfactual question is always proposed, 'What would be the value in the absence of Horder Healthcare?' We looked at this question in two parts:

- The effect on patients' lives if they were unable to receive a hip or knee replacement.
- Secondly, the value that would be lost if patients were unable to receive treatment from Horder Healthcare.

In asking this question we assume that the NHS would absorb the additional patients. It should be noted that whilst we compare Horder Healthcare's activities to the NHS, this is not intended as a benchmarking exercise, but rather as a means to identify the intrinsic value in the way in which the Charity goes about its activities.

Key Findings

1.7 The evaluation found that the impact of Horder Healthcare's work with the evaluated patient groups, during 2013, was over £33.5 million. This primarily arises from the impact upon hip and knee patients. The work with MSK patients is also likely to bring significant gains, however at this stage a data collection framework needs to be established to gather information on social outcomes experienced by this patient group so that their value can be more fully articulated in future evaluations.

1.8 The social outcomes were modelled using a process of action research with patients and staff, Horder Healthcare data, external secondary research and developing reasoned assumptions. (Section 3 contains more detail on the methodology and the Appendices contain the models themselves.)

1.9 The research found that social outcomes for patients unfold during three different periods of time:

- Treatment period, including pre-operative appointments
- Recovery period immediately after the operation and in the months that follow
- In the long-term once recovered and re-engaging in life

1.10 During the treatment and recovery period the research identified a number of gain areas when comparing patient experience to national averages; together these outcomes represent £2.1m of gains.

- Reduced average wait for hip and knee operations
- Reduced cancellation of operations
- Reduced patient readmission within 28 days of discharge
- Reduction in the average number of bed days
- Reduction of infection during inpatient stay
- Reduced cost per episode for MSK physiotherapy patients

1.11 The evaluation found that a strong culture of care, patient centricity, use of volunteers, high staff satisfaction, the therapeutic environment, and well-designed processes – from pre-admission to discharge contributed towards these outcomes. More can be read on all these factors in Section 4.

1.12 The longer term outcomes related to a change in physical health and social health. For physical health these include:

- Reduced costs from a reduction in primary care and specialists appointments
- Reduction of poor outcomes from the use of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)
- Long-term reduction in falls

1.13 A patient who is back on their feet will require less care and management once recovered, reducing costs to the NHS and State. The research also raised the question of whether patients who undergo hip and knee replacements (and some MSK treatments) are less likely to experience falls later in life due to improved stability and gait. There is little research here and so this has been conservatively modelled – with a recommendation for further research.

1.14 Longer term outcomes are wider than physical wellbeing and also relate to a patient's ability to reintegrate back into life. The value of being able to return to, or take up, productive roles, such as employment and volunteering, combined with the extremely important social roles that our older generation fulfil, is significant. The research found that the outcomes here included:

- Being able to return to employment, reduction in absenteeism and improvements in productivity
- An ability to return to or take up volunteering
- An ability to provide care for the family – such as childcare for grandchildren, or taking care of a physically dependent spouse without the need for support services from the State
- Improved mobility also makes patients with co-morbidities easier to care for – such as those with poor mobility and dementia - and this can lead to reduced reliance on State support.

1.15 These important social roles are often out of sight to society and yet present significant value in terms of financial value and societal wellbeing. Together these gains represent over £31.2 million. One of the factors here is the length of time over which these gains are felt – such as caring for grandchildren for 5 years enabling parents to work, or volunteering for an additional three years - than might otherwise have been the case in the absence of a joint replacement.

1.16 There are other outcomes that arise from the impact of Horder Healthcare's volunteering programme and the benefits of high wellbeing upon the retention and satisfaction of staff.

1.17 The gains can be seen in the table below; these are net gains and have taken into account a number of deductions.

- Deadweight – changes which might have been expected to happen anyway despite the Centre's work
- Displacement – where treatment increases other costs in some way – such as dependent spouses requiring respite care during the treatment period
- Alternative Attribution – where the evaluation acknowledges the work of others in the gains experienced, such as family or other forms of support.

Period	Outcomes Evaluated	Net Gains
Treatment & Recovery	Quicker treatment time from referral	£78,836
	Reduced cancellation of operations (reportable on day of surgery)	£89,183
	Reduced readmissions within 28 days of discharge	£219,619
	Reduction in hospital bed days	£1,396,902
	Reduced incidence of infection during in-patient stay	£258,639
	Reduced cost per episode for MSK physiotherapy treatment	£80,117
	Total for Treatment & Recovery Period	**£2,123,296**

Continued over...

Longer term outcomes	Reduced primary care need	£2,244,396
	Reduced NSAID use – reduced complications	£44,139
	Long-term reduction in falls	£45,200
	Increased employment and productivity	£1,964,547
	Improved ability to fulfil social roles: care for grandchildren, spousal care, volunteering	£26,917,862
	Improved ability to care by patients' carers	£12,751
	Total for Longer Term Outcomes	**£31,228,895**
Cultural gains	Increased staff wellbeing	£82,406
	Value of volunteering programme	£112,878
	Total for Cultural Gains	**£195,284**
	Total Gain in 2013 for Selected Patients	**£33,547,473**

Conclusion and Recommendations

1.18 The benefits of high quality care before, during and immediately after treatment are clear, and lead to improved outcomes for patients, families and the State – these arise both from Horder Healthcare's approach to patient care and the benefits of the treatments itself.

1.19 A wider look however reveals that treatments are particularly valuable in enabling patients to take care of themselves and others around them and remain engaged in society – these types of social outcomes are not typically measured in medicine and yet represent significant areas of gain, and provide a compelling case for timely and effective treatment of patients. The majority of these gains reflect savings for the State.

1.20 There remain some very interesting areas for follow-up:

1.21 **MSK physiotherapy patients** – This patient group will have very different limitations as a result of their MSK condition; some will be acute, some long-term, some will be very limiting and significantly reduce a patient's ability to participate in everyday life and society, while some conditions will be less limiting. A challenge now remains for Horder Healthcare to gather more data on these patients and understand the range of experiences and the impact that treatment has from a social impact perspective. There are signs that the outcomes are similar to those for hip and knee patients.

1.22 **Improvement in physical health** – Another area of potential gain is the reduction in risk of developing other health conditions, such as poor cardiovascular health or diabetes, as a result of improved mobility. The research heard from staff about patients who become more mobile, confident and motivated to take charge of their health – including exercise and weight loss. Yet the research literature is mixed on whether recovered patients are more likely to improve health habits

and reduce their risk of negative health conditions. Follow-up research is recommended with Horder patients to understand how patients change their health habits following their operations and whether this leads to measurable changes, and if they do not change their habits, how can Horder Healthcare help support this change.

1.23 **Reduced risk of falls** – Falls are a costly and distressing outcome for all those involved. The available research on whether hip and knee replacements reduce the long-term risk of falls is contradictory and thin – other interventions have received much more research attention. Some research suggests that patients may not necessarily change their movement and walking patterns, or regain lost muscle strength following joint replacement, therefore not reducing the long-term risk of a fall. There is an interesting opportunity for further research with Horder Healthcare patients here, to follow patients beyond the six week check-up and examine outcomes related to their physical rehabilitation following joint replacement, as well as other patients – such as those receiving MSK treatments and those coming to exercise classes designed to reduce the risk of falls.

1.24 **Social inclusion** – Secondary research conducted to support the development of the models revealed that patients from lower socio-economic groups are less likely to be referred for treatment in as timely a manner than for higher socio-economic groups. Yet it is likely that the social impact of treatment would be high for these groups as they often suffer from higher levels of poor mental wellbeing, and isolation. The ability to access work and opportunities is vital for these groups. As a charity Horder Healthcare may wish to identify ways of making its services as accessible as possible to allow referring organisations, such as GPs, to refer these patients, as well as track the social outcomes for these groups in society.

1.25 Further research in each of these four areas would provide the ability to understand more about the wider social impact of Horder Healthcare's work, as well as presenting opportunities for service innovation and the continued ability for Horder Healthcare to meet its charitable aim of advancing health.

2. Background to the project

Background in brief

2.1 Horder Healthcare is a registered charity and healthcare organisation whose mission is to advance health. The Charity's specific health focus is on orthopaedic and musculoskeletal conditions through the provision of services. These range from targeted preventative classes and one-to-one treatments at clinics in the South East to major and day-case surgery at the Charity's hospital, The Horder Centre, in Crowborough.

2.2 Patients can receive treatment from Horder Healthcare through a number of different avenues: GP referral, through 'Patient Choice', self-pay or insurance for elective orthopaedic and specialist care, and through GP or self-referral for physiotherapy and wellness classes, or via neighbouring NHS Trusts through capacity work. Surplus money generated from Horder Healthcare's services is reinvested into the Charity in order to further meet its mission of advancing health. Reinvestment may be in the form of responding to needs and developing new services, or by sharing knowledge and resources with the wider community such as through programmes of talks given to practitioners and the general public.

2.3 Horder Healthcare has a strong focus on impact reporting both to trustees and to a wider audience. As a charity it has engaged in and adopted new methods of reporting on patient outcomes in recent years. More recently, Horder Healthcare wanted to understand the social impact that is created as a result of its work and to begin to build a data collection strategy in order to support reporting of social outcomes.

This report is the first step in the direction of evaluating the social outcomes that result from their work, specifically with hip and knee replacements and MSK (musculoskeletal) treatments.

Background to musculoskeletal health

2.4 According to a report by the Department of Health[A] there are over 200 musculoskeletal conditions affecting those of all ages. These include osteo and rheumatoid arthritis, as well as back pain and other musculoskeletal conditions. A report by The Work Foundation states that there are more than 6.5 million cases of musculoskeletal disorders in the working population and that this is predicted to grow to greater than 7 million cases by 2030.[B]

2.5 The conditions arise in different ways; some are congenital, or are a result of injury, strain, ageing, or due to inactivity or poor posture and loss of strength in supporting muscles. As a result there are many different treatment approaches that are needed to treat patients.

2.6 Many of these conditions are progressive and without treatment frequently cause pain and disability. The symptoms can be resolved or alleviated through treatment and some treatments will offer a more limited degree of resolution of both the symptoms and the underlying condition.

2.7 As a result of the painful and disabling nature, and the prevalence of many MSK conditions, there is a large socio-economic impact. The Work Foundation claims that it costs the U.K. economy £7billion a year.

[A] Department of Health, 'The Musculoskeletal Services Framework', 2006
[B] Bevan, S., et al., 'Adding Value: The Economic and Societal Benefits of Medical Technology', The Work Foundation, November 2011

2.8 The Department of Health reports that MSK conditions are the most common reason for repeat consultations with a GP, taking up some 30% of primary care consultations,[C] with 2 million visits being made by osteoarthritis patients.

2.9 Osteoarthritis patients represent over 90% of those undergoing hip or knee replacements.[D]

Impact upon productivity

2.10 The Work Foundation reports that MSK conditions reduce a patient's ability to perform in the workplace, and that those with musculoskeletal disorders (MSD) represent 18.2% of those receiving incapacity benefit (November 2009) – the second largest group. The chronic nature of these conditions means that this impact happens over a long period of time. It also impacts those in work. Those with MSK conditions, particularly those with back pain and rheumatoid arthritis, have high levels of absenteeism. In 1999/2000, MSK problems made up 55% of work related illness and 36 million working days were lost as a result of the effects of osteoarthritis, at an estimated productivity cost of £3.2 billion. The effect is marked with manual workers where acute back-pain is the second most common cause of short term absence after seasonal colds.[EF] This reduction in productivity due to MSK conditions is set to grow beyond current levels due to an ageing population and an increase in obesity.

2.11 As well as impacting the UK economy the inability to work impacts upon individuals and families. 52% of those surveyed by The Work Foundation reported that their MSD condition had impacted upon their earnings, and led to reduced living standards. Of those no longer in employment 57% had been the primary earners in the household. Their research also showed that a significant number of those suffering from MSDs had no option but to take early retirement from work. Many of these faced increased reliance on welfare as well as friends and family.

2.12 Work is not only important for finance and living standards but the research showed that work was also important for mental wellbeing and social interactions.

2.13 Those who were employed had concerns over their ability to retain their job, particularly where employers lack supportive approaches to employee care.[G]

Co-morbidities

2.14 In addition a significant number of those with long-term conditions, such as MSK disorders, also have poor mental wellbeing.[H]

2.15 Poor mental wellbeing is not the only co-morbid condition to be found with MSK disorders; The Work Foundation study, 'Taking the Strain', found that other co-morbid conditions were prevalent, with 53% of survey participants having another health condition;

[C] Department of Health, 'The Musculoskeletal Services Framework', 2006
[D] Bevan, S., et al., 'Adding Value: The Economic and Societal Benefits of Medical Technology', The Work Foundation, November 2011
[E] Bevan, S., et al., 'Adding Value: The Economic and Societal Benefits of Medical Technology', The Work Foundation, November 2011
[F] Zheltoukhova, K., et al., 'Taking the Strain: The impact of musculoskeletal disorders on work and home life', The Work Foundation, December 2012
[G] Zheltoukhova, K., et al., 'Taking the Strain: The impact of musculoskeletal disorders on work and home life', The Work Foundation, December 2012
[H] Naylor, C., et al., 'Long-term conditions and mental health: The cost of co-morbidities', The King's Fund, February 2012

Co-morbid conditions with MSD	% of those suffering
Named mental health condition	36.6%
Respiratory condition	21.1%
Diabetes, Crohn's, IBS	25.5%
Cardiovascular conditions	8.8%
Neurological conditions	3.2%
Immune deficiency	1.9%

2.16 Arthritis is a common cause of disability in the UK and limits activities of daily living with sufferers often unable to dress themselves, walk with ease or climb stairs.[I]

Care of family

2.17 The older segments of our society also provide important and often unrecognised roles in care – such as care of spouses or family members, child-care for grandchildren, as well as time for volunteering and charity.

2.18 Research by TUC[J] and Grandparents Plus[K] shows that the amount of childcare provided by grandparents is increasing, with 58% doing so to enable their grown children to work. 1.6 million children receive informal childcare from grandparents, and according to research by insurers RIAS[L] 75% of grandparents provide some form of childcare.

2.19 The number of hours of caring has increased over time too, up by 35% since 2004. The estimated value to the economy of grandparental care is £7.3 billion and a reduction in availability of grandparents is likely to lead to mothers leaving the labour market.[M]

2.20 The older population also provide important support to charity. A poll[N] by the Royal Voluntary Service found that one in five - around 2.2 million people over the age of 60 - help out with at least two different charities, with 11% volunteering for three or more charities.

2.21 Many of those in their 50s and beyond also act as carers for ageing parents or ailing partners. There are an estimated 6.5 million carers[O] in the UK with a significant percentage of these being older. Caring while suffering from a MSK condition can bring about additional challenges for physical care. Furthermore, caring for those with an MSK condition, in addition to conditions such as dementia can stretch carers beyond the ability to cope.

2.22 The case for managing and treating MSK conditions is strong. Less well researched are the wider social impacts of treating MSK disorders, or indeed the consequences of delay in treatment. This

[I] Kauppi, M., et al., 'Capability for daily activities in old people with rheumatoid arthritis: a population based study', 2004
[J] TUC YouGov survey, December 2013
[K] Grandparents Plus Policy Briefing, May 2013
[L] RIAS, '21st Century Grandparenting', November 2013
[M] Grandparents Plus Policy Briefing, May 2013
[N] Royal Voluntary Service, 'Out of Sight Out of Mind', August 2013
[O] http://www.carersuk.org/

evaluation aims to provide a start point in this important area with a view to building upon this work as further research and data is produced.

3. Methodology and approach to evaluation

Social Return on Investment ("SROI")

3.1 Horder Healthcare chose to work with Baker Tilly to understand further the impact that its work has on society, and evaluating this using SROI methodology.

3.2 The SROI methodology has been developed in order to help organisations to "… [measure and quantify] the benefits they are generating" (per Lawlor, Neizert & Nicholls writing in the SROI guide, 2008[P]). This approach was piloted in the UK through the Measuring What Matters programme during 2002 and has evolved since then as further work has been done to develop the framework around it.

3.3 It is increasingly being seen as an "incredibly useful tool"[Q] by a number of organisations and key commentators within the Third and Public sectors in the push to measure and evaluate social impact.

3.4 There are three 'bottom line' aspects of social return that the Charity wanted to understand to inform their activities:

- **Economic:** the financial and other effects on the economy, either macro or micro;
- **Social:** the effects on individuals' or communities' lives that affect their relationships with each other; and
- **Environmental:** the effects on the physical environment, both short and long term.

3.5 For this study the primary focus has been on economic and social benefits, rather than environmental benefits, which are considered, for the most part, to be minimal from Horder Healthcare's work.

3.6 The benefits of using SROI include:

- **Accountability:** The Charity will be able to give both the numbers and the story that supports them;
- **Planning:** SROI provides a change management tool to assist in the direction of resources towards developing the Charity's services, and in particular to support its strategic partnerships;
- **Cost and time effectiveness:** the measures produce an analysis of the most cost and time effective activities, such as revealing the gains of working in different ways with clients to support the development of financial capabilities; and
- **Simplicity:** impacts can be reduced to a simple comparison of the cost of funding the Charity and the benefits that flow from its core activities to facilitate analysis and give a clear indicator of types and ranges of success.

3.7 SROI takes total measurable outcomes, discounted to present value where the benefits occur in the future or are recurring over a period of time, and deducts:

[P] Lawlor, E., Neitzer, E. & Nicholls, J.. 2008. Measuring Value: a guide to social return on investment. London. New Economics Foundation
[Q] Copps, J. and Heady, L. 2010. *Social Return on Investment: Position Paper, April 2010.* London. NPC. From www.philanthropycapital.org

- **Deadweight:** gains that would have happened anyway regardless of the charity's intervention
- **Alternative attribution:** where part of the gain is more reasonably attributable to a partner or third party; for example where other people or organisations play a role in a patient's recovery
- **Displacement:** where the gain is tempered by a lesser dis-benefit, such as the cost of respite care while a carer is receiving a hip or knee replacement.

3.8 A review of academic work and practical examples of SROI in use by the non-profit sector suggests that the measures fall into three patterns, which have been used in this work:

- **Economic benefit created:** where there is an impact on earning capacity or productivity, for example one of the areas of gain identified by the research was an increased ability to maintain or gain employment as a result of improved mobility
- **Costs saved or not wasted:** where the intervention results in a saving, either in the cost of another intervention or in a consequential cost. These types of gain figure strongly in the outcomes generated from the Charity's work, in particular health and social care from reduced need.
- **Alternative or cheaper sourcing:** where one intervention directly replaces another more expensive one, for example costs of surgical or physiotherapy treatments.

3.9 In identifying these benefits, a key underlying requirement is to consider not only the positive contribution that the Charity makes, but also the economic damage that is avoided by having it in place. Much of our report involves the quantification of the damage to stakeholders that would result based on these implications. By avoiding this damage, the Charity contributes to the economy just as meaningfully as where the effect is an incremental benefit.

3.10 Appendix A contains further notes on the validity and usefulness of the SROI methodology

Approach to the evaluation

3.11 A group, including representatives of Horder Healthcare and Baker Tilly, was formed to oversee the work of the SROI evaluation, under the guidance of Baker Tilly. The group applied an action research methodology for gathering information on the projects in scope of this evaluation and for testing the data assumptions. Action research has been used as it:

- Enables the research to stay close to the data;
- Enables the theory – that is the answer to the research – to emerge from the data as it is gathered;
- Promotes a cyclical revisiting of the data through the research process which promotes internal validity and triangulation of the results: thus the data gathered and the conclusions drawn are better tested;
- Through encouraging the organisation, and the individuals within it, to learn from the process of the research, staff are better able to embed the results and benefit from them in developing future strategy: the work can be more useful.

3.12 An evaluation of social impact can be approached in different ways; often specific services are evaluated to understand the benefit these services bring. For this study we selected three main areas of Horder Healthcare's activities;

- Total hip replacements
- Total knee replacements
- MSK physiotherapy

3.13 An action research group was formed of Horder Healthcare staff and patients who could bring experience of these activities and outcomes to the research.

3.14 During the action research process, each group member was assigned one case study to consider. The participants discussed these case studies with staff within their area of work and fed back to the group on the perceived probability that the clients would suffer outcomes without the procedures, and to establish the role that Horder Healthcare play in the changed outcomes. The findings were discussed, tested and challenged by the group to confirm that they were consistent with the views of others.

3.15 The view on each of these probabilities was then discussed by the participants in light of external research into each of the outcomes to ensure that their view on the likelihood of each outcome for a primary beneficiary of the service was in line with the conclusions of that research.

3.16 Further research was carried out into financial proxies that may be used for each of the outcomes used in the life course analyses. The financial proxies derived from this research were shared with the group and adjustments were made to ensure that they present a prudent reflection of the likely costs of each outcome, and then further tested with the Steering Group. A list of the members of the Action Research Group and Steering Group can be found in the Appendices.

3.17 Where estimates were needed to be made (for assumptions that could not be under-pinned by empirical evidence) by the group, they:

- Considered the factors affecting that assumption;
- Established boundaries beyond which the assumption could not lie (from the experience of the group and other evidence);
- Made an assumption that lay towards the conservative end of the resultant range; and
- Tested the sensitivity of the results to the accuracy of these assumptions.

3.18 Finally the whole evaluation was subject to review to re-assess its fit with the originating research and the group's discussions.

3.19 Through the process of Action Research, the working group have produced:

- An overview of social impact and other methodologies used in this work;
- An analysis of the activities and outcomes of the above areas of work;
- An overview of how those outcomes may be measured using financial proxies;
- An overview of the results of the evaluation; and

- A detailed presentation of the models and assumptions used in the evaluation.

Reliance on work by Horder Healthcare

3.20 The work has relied upon information and explanations from the Charity, including:

- The nature, outcomes and beneficiaries of their activities;
- The assumptions used in evaluating the impact of their services; and
- Data from the Charity on their activities.

3.21 Where possible, assumptions from the Charity have been validated based on independent data or data extracted from their management information systems. Nevertheless, Horder Healthcare is responsible for making the assumptions used in this report and has confirmed that it is, to the best of its knowledge and belief, accurate and reasonable.

3.22 A detailed analysis of the evaluation models used and the assumptions and inputs to them is included as an Appendix to this report.

Avoidance of double-counting

3.23 The projects selected for analysis are felt to be sufficiently distinct as to avoid the risk of double counting of benefits.

Sensitivity analysis

3.24 Various assumptions have been made in the course of preparing this analysis, some relate to estimates made by Horder Healthcare's working group in coming to the views of outcomes, and some relate to the interpretation of information arising from other research work and statistical analysis referenced in this work.

3.25 In order to assess the extent to which these assumptions are material, potentially key assumptions have been identified. Each has been subject to sensitivity analysis (variation within what appears to be a reasonable range), and the effect on the total valued outcomes under the study has been recast.

3.26 The conclusion from this analysis is that even if certain key assumptions are subjected to a material change, the overall conclusion from this study (i.e. that the social return generated by the evaluated projects is significantly greater than their cost) is correct.

4. The impact of Horder Healthcare

Theory of Change – How Horder Healthcare influences outcomes

Pillars of care

4.0 When Cecelia Bochenek founded the charity Horder Healthcare some 60 years ago, the NHS was just a fledgling at only six years old and still finding its feet. Many of the sick and disabled were still underserved and outcomes for those with disabling arthritis were particularly poor.

4.1 Cecelia, herself disabled by arthritis, set out to change this and develop a patient-centred approach to enable patients to maximise their health and manage their symptoms through supported residential care as she recognised the poor social outcomes for those with these conditions.

4.2 Since that time advances in medical innovation and techniques for surgery and physiotherapy have transformed treatments and possible outlooks for patients with musculoskeletal conditions. Arthroplasty (joint replacement surgery), still experimental during the 1950s, required a long stay in hospital during the 1970s to the1980s and has evolved so that patients now only need to stay in hospital for a few days and are able to return to much more productive lives.

4.3 This trend is set to continue with the development of minimally invasive surgery, increased life-time of prostheses and computer assisted surgery. While these innovations clearly influence patient outcomes, there are other important factors which also influence outcomes; patient care, the hospital environment in which care is delivered and social support.

4.4 While the treatment methods have changed since Horder Healthcare's inception, patient-centred care and the creation of an optimal healing environment has continued to be at the heart of its work as a charity. This creates outcomes for those receiving care as well as for those engaged in the delivery of care. Horder Healthcare's operating model as a charity plays an important role in how it sets out and achieves its mission.

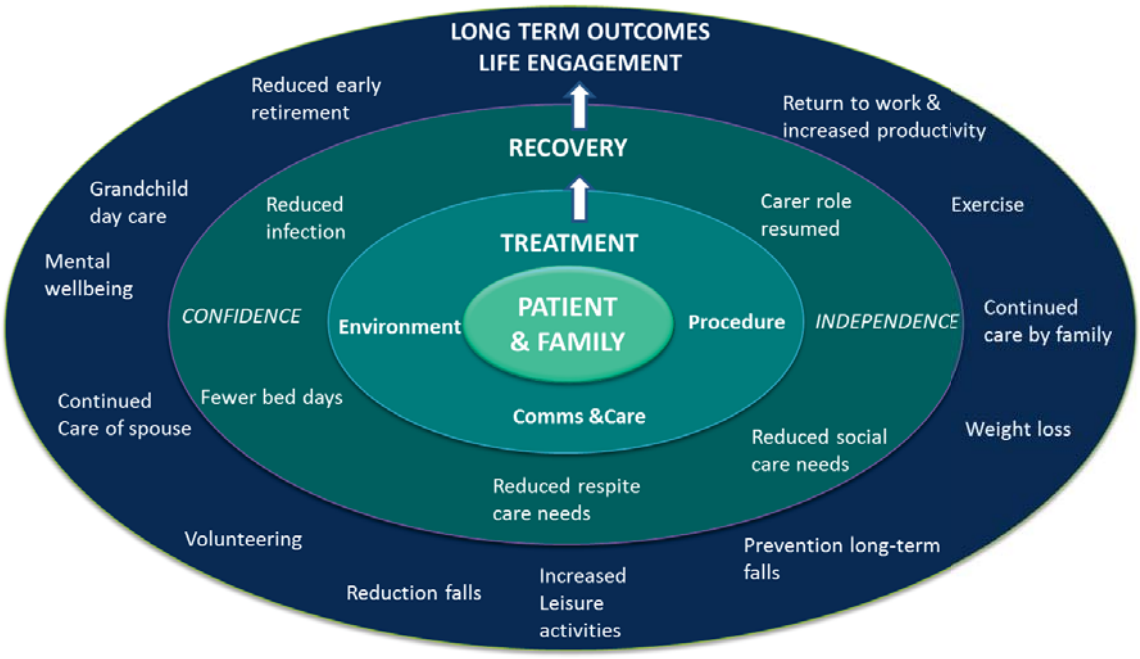
- **For those receiving care** social outcomes such as mental wellbeing and employment are strongly influenced by physical mobility and as a result are impacted upon by Horder Healthcare's work. These outcomes include social roles that patients and their families play including acting as carers. As such this evaluation considers the social gains for patients, their families and the communities around them.
- **For those engaged in the delivery of care** a consistent focus on creating a positive healing environment and a strong democratic culture results in volunteer engagement, staff satisfaction, and improved wellbeing and retention. The literature shows that there is a relationship between staff satisfaction and patient outcomes.

4.5 Horder Healthcare has also evolved care from a centralised model and has recently established a number of outreach centres throughout the Southeast of England, offering a diverse range of services. This allows patients to see consultants for outpatient appointments and post-surgical physiotherapy closer to home. For an ageing and less mobile population accessing care closer to home is likely to reduce stress and travel costs.

4.6 Additional health and wellbeing services have been developed at these centres and these include modified Pilates, acupuncture, yoga, and physiotherapy. Horder Healthcare aims to make these affordable and they are often 20% cheaper than other providers.

4.7 The classes and services provide an important approach to self-managing conditions including pain. Though not evaluated as part of this study it is likely that they contribute to social outcomes by enabling patients to self-manage conditions, as well as by preventing the development of more serious conditions and incidents – such as falls. It is recommended that service users' outcomes are tracked and they are included in future social impact evaluations.

4.8 The diagram below describes the link between the treatment period, recovery and re-engagement in everyday life, with distinct outcomes in each. As well as outcomes for the patient and family, staff, volunteers, and the wider community are also beneficiaries of Horder Healthcare's work.



4.9 On evaluation of the activities taking place at Horder Healthcare sites, this evaluation found that there are three core themes which relate to improved social outcomes for patients, staff and their families. These are:

- **Communications and Care**: the way in which Horder Healthcare communicates with patients, family, carers and their GPs from a patient's initial visit, through their treatment process, and follow-up
- **The Care Environment**: the environment in which patients receive their care, from staff, to physical facilities, comfort, and cleanliness
- **The Procedure**: The impact of the procedure on a patient's wellbeing and their ability to participate in life

4.10 This section explores these three core themes – it describes how Horder Healthcare's activities contribute to social outcomes within each of these areas for patients and their families.

Theme One: Communication and Care

Hip and Knee operations

4.11 One of the notable features of Horder Healthcare's work is how the culture, people and systems enable patient-centred care to be delivered from the first appointment.

Pre-assessment

4.12 All patients who are due to receive an arthroplasty come into Horder Healthcare, either to The Horder Centre or one of the outreach centres, for a pre-assessment. The main aim of the appointment, which is around three hours long, is for staff to assess the readiness of the patient for the operation. The patient will see a nurse, occupational therapist, and an anaesthetist for complex cases. Medical tests are run to identify any problems that may interfere with surgery, such as infection or low haemoglobin levels.

4.13 This process in itself can be useful for surfacing previously unidentified conditions for which The Horder Centre will refer back to GPs if necessary. This is in itself a useful gain area for identifying health problems before they escalate in nature.

4.14 An unidentified health problem can cause worry for patients who are in urgent need for the operation to relieve pain, or because of social roles they need to fulfil such as caring. Due to their patient-centricity and processes, Horder Healthcare is able to be responsive to anomalies such as new health problems and focus on resolution of problems – such as low haemoglobin – to try and ensure patients are still able to receive a timely operation without coming off the waiting list and going back into the system.

"They [patients] can be very distressed….they can be very frightened - we've got patients who are coming in who are not just caring for themselves but who are main carers for family… and there's nobody to look after them." Eve, Pre-admission

4.15 As well as assessing the physical health readiness of the patient, their social and emotional readiness is taken into account during this assessment. This is critical for later outcomes and enables staff to start putting support in place or planning ahead for support later in the process where state support will be needed for the patient.

"Because you see them individually it gives them a chance to tell you more personal things...such as if recently bereaved and they don't want to share that in a group scenario. If we were just working from a form we might not pick up how distressed that person is about it… if they're in floods of tears and not coping… As once they're on a ward it can be a big shock."

"They may want to talk about other things, we suggest other ways to support them – other services, seeing their GP, bereavement services… make sure there's a robust plan for when they have their operation." Michelle, Occupational Therapy

4.16 Some older patients who live alone can have poorer mental wellbeing, and suffer from anxiety, although the operation is necessary the prospect is frightening and these patients need 'a lot of input to get them through'.

"Someone who had a mental health issue I went and saw at home prior to the op, and then I took her home afterwards, and she stayed here longer as well. It's not the norm, but if that's what the patient needs, then we try to meet it… I think with this particular patient she probably would have cancelled her operation (without support)... now she's motivated to do other things, to try and deal with mental health issues as her physical issues were improved." Michelle, Occupational Therapy.

4.17 Many of the patients are older and retired from the workplace but performing important and often unrecognised social roles within the economy such as caring for family.

"You've got patients who are looking after their husbands, or wives, who have dementia. Dementia is not just about being forgetful; if they fall down and they can't get up, the patient can't lift them up because of their hip, so they've got to ring the emergency services to come out to get their relative up off the floor." Eve, Pre-admission

4.18 During the appointment staff will check for the social support at home, and their home set up, building up a picture of what they will need to do to help a person through the operation, including factors such as whether they live alone, have extended family, and may be at risk of social isolation.

4.19 Staff are starting at this stage to think of the care plan that this patient is likely to need and whether they will need to coordinate care on discharge with local health and social services. Due to external processes local social care can only be booked post-operatively, which seems to be a missed opportunity for capitalising on the insight that the pre-assessment team capture at this stage and the delays that the social care system often faces.

4.20 Internally, socially important information is shared with other teams such as nursing staff who will be caring for the patient as they come out of recovery. The pre-assessment nurse may make notes in nursing staff diaries to set up a room in a specific way or flag up social care needs, that need tending to during their stay or at discharge.

4.21 Equipment may be given by the Occupational Therapist in advance to help patients cope better for the operation or in readiness for the operation. Horder Healthcare keep their own stores of equipment rather than having to order it in from a central resource, which many general hospitals have to do, which means they are able to give equipment as and when it is needed.

"I might give equipment at that stage, if they're having a real tough time at home." Michelle, Occupational Therapy

4.22 One of the advantages of this is that it allows patients to try the equipment out a home and then to resolve any challenges they may be having with it once they are admitted for their operation.

4.23 Patients can be reassured at this stage, as they are able to find out more about the operation, what to expect day-by-day, what support and equipment they'll have and rough goals that they can look forward to. It is also an important opportunity to help a patient's social support network to plan support at home.

4.24 This stage in the process can be important for carers of those who will be coming in for an operation, so that they can plan support around the family member. This is particularly important for patients affected by dementia – an increasing trend noted by Horder Healthcare. Enabling family carers to care effectively can then prevent issues and events developing after discharge.

"I had a patient in recently with dementia and talked at length about everything with her son, as he needed to know… the expectations of what his mum could do or not do. He was in the process of moving into her home to care for her from a dementia point of view, he was heartened by the fact that she would go home and have some form of independence, as her independence would give him independence…" Eve, Pre-admission

4.25 Horder Healthcare has produced two patient guide books for patients and their families as a guide throughout their journey; these are valued and often stimulate calls or follow-up questions.

4.26 In between the pre-admission appointment and their next appointment patients and their families will often call with questions, having digested information from the appointment and the patient guides. Horder Healthcare has capacity to manage and respond to these calls, which is important as this helps patients and their families to prepare and cope.

"Patients will ring and say 'We're staying [for a few days]; what will happen after that?'… you might advise that they'll need help with shopping and check what support they can provide… you quite often get anxious relatives from afar, as they feel detached and a bit hopeless. Or they might be sourcing a suitable chair, getting their home set up and want a bit of advice on what they should be doing." Eve, Pre-admission

Admission

4.27 As The Horder Centre is an elective hospital, surgery is rarely rescheduled. Upon admission patients are prepared for surgery. Patients or their relatives are able to park at the hospital and do not have to pay for parking. Hip patients are booked in for two nights, and knee patients for three nights as knee arthroplasty requires more physiotherapy sessions.

4.28 Surgery is a three stage process where patients are prepared for theatre, operated upon and then taken to recovery. They will then be taken back to their rooms by porters, who are involved in the care of patients, attending to aspects such as warmth and comfort.

4.29 The Horder Centre, following NICE guidance, switched to providing duvets instead of blankets for patients, and warms the bed before patients are transferred from the operating theatre. As well as providing additional comfort, when patients awake from an operation cues such as warmth or cold can be interpreted as a sign of how they have fared during the operation.

4.30 The warmth also helps to ensure that patients are able to respond to the physiotherapy and exercises later. The Horder Centre trialled different approaches - thermal blankets were warm, but didn't provide an emotional function - patients weren't cosy so they switched to duvets instead, which patients enjoy.

4.31 Volunteers also play a vital role in enabling the patient experience, during preadmission, and care of social needs in and around the wards, and in the coffee shop.

4.32 Each patient is told who their allocated nurse and care assistant will be for each shift, who will observe the patient regularly to check good recovery. Additionally the anaesthetist will check the patient, and if needs be the pharmacist and surgeon too.

4.33 The Horder Centre formerly had a traditional ward set up, but invested in individual rooms, which opened in July/August 2011 resulting in better outcomes for patients, who have privacy, their own bathroom and benefit from better quality sleep.

4.34 The physiotherapists and occupational therapists will see patients fairly quickly after recovery and have a range of goals to achieve each day of the patients' stay. It is the contact with care staff – day and night nurses, and therapists that plays a key role in the patient experience.

"Most people's hospital stay is made or broken by nurses, as that's who they will have the most continual contact with, as we're providing patients with 24 hour care." Tracey, Night Nurse

4.35 The focus on patient care is still notable during this experience, and research shows that the patient experience is closely linked to their experience of care staff. This is elaborated upon in the next section 'Caring Environment'.

Therapy

4.36 All patients will be seen by the physiotherapist team twice a day. The benefit of this is that it enables the promotion of independence and progression of the patient's mobility, activities of daily living and increases confidence. Exercises are taught by the physiotherapists to ensure they are completed in the correct way. This is supported by the healthcare assistant team who may practice the exercises with the patient especially in the evenings.

4.37 Another benefit is that an afternoon visit may mean that the patient has recovered more fully from the effects of the anaesthetic, has eaten and received pain medication and is more able to respond to the physiotherapy.

4.38 This approach also allows the team to pick up on problems more quickly.

4.39 If a patient is medically fit they are assisted to rise on the day of surgery. As well as reducing venous thromboembolic (VTE) risk it also helps to start to build patients' confidence in the new joint. Much of the progress patients make will be down to confidence in the new joint. Building trust as well as physical capabilities is important for patients to be able to successfully navigate their everyday environment once discharged. As a result confidence building is a key focus for the

physiotherapy team; many patients with MSK conditions such as arthritis will have suffered with confidence in trusting their joint.

4.40 Each patient is provided with their own set of physiotherapy equipment and their own walking aids, rather than having to share equipment with other patients on the ward, and having to ring the bell for the nurse to bring a zimmer-frame for use. This also ensures patient comfort as they are able to get to the bathroom when they need to, as well as reduced risk of infection that can arise from shared equipment.

4.41 Each of the rooms is also furnished with appropriate chairs, one high backed chair for patient use and a visitor chair. Chair risers are kept available to enable chairs to be raised to a suitable height for patients if required. Patients also have electric beds which help them to be more independent during their stay.

4.42 Hip patients have a one-to-one session in the morning and afternoon of the first day, where exercises are taught, as well as a class in the physiotherapy gym.

4.43 Knee patients also have one-to-one sessions in the morning to help them get in and out of bed, and then they will have a physiotherapy class twice a day. Classes include plinth based exercises, and use of parallel bars to improve mobility, bending and to build up to using the stairs. These sessions also provide an opportunity to work on the patients' gait and walking patterns, which have often changed to accommodate the effects of arthritis, pain and poor stability.

4.44 Knee replacement patients attend Home Exercise Plan classes in the afternoon. Physiotherapy exercises are geared to a patient's specific home environment, including the layout of their home, steps and stairs, furniture and other practicalities.

4.45 Physical restrictions in some general hospitals could mean that there is not the space to accommodate a specially equipped physiotherapy gym, and often the set-up of general hospitals can mean that there are patients spread across wards, meaning the physiotherapist requires more time to visit each patient (if the patients are available) which could mean less time spent on physiotherapy and building skills for the home environment. Outlying patients, further away from the main patient group, may not always be seen by the orthopaedic physiotherapy team but by a more general physiotherapy team instead who may not have access to specialist techniques and equipment to ensure that patients use the right methods to sit-up, stand and walk.

4.46 As well as benefiting from the equipment and guided exercise, the classes provide a means of social interaction, which is important for building confidence. Many of the volunteers at The Horder Centre have social contact with the patients through their work there and also provide a source of peer support and encouragement for patients.

4.47 Patients will practice getting in and out of the bath with a bath board in an equipped occupational therapy room. Bath-boards are issued to patients before their operation so that they can practice at home prior to the operation. Bath-boards are highly valued by patients and give them confidence to care for themselves without concern for slippage or using inappropriate equipment such as home chairs in the shower.

4.48 At The Horder Centre an outdoor therapy garden lies within the heart of the building. The garden provides a scented retreat for patients and staff as well as serving as an extension of the physiotherapy gym. The garden paths have been designed to have three different surfaces; gravel, pebble and paving, all of differing gradients. Patients are assisted to navigate these so that they can build skills and confidence appropriate for the outdoor environment. The mental wellbeing

derived from the garden is apparent with patients contributing to the garden on their return by sending bird feeders and other decorative items, or returning to volunteer and help tend the garden.

4.49 Family will often play an important role in a patient's recovery, and helping the physiotherapy team get the patient ready for the home environment - particularly if a patient is confused about the set-up of their home environment or if they're going to spend a couple of weeks with a son or daughter.

4.50 If family are present for physio sessions then the team will liaise with family to understand the home environment in more detail – location of stairs, how many sets of stairs, location of the bathroom etc. Also family can be overly anxious and time with the physio team can help provide guidance on how they can best support the patient. Family members can usefully assist people with their exercises and using the equipment appropriately. This approach also avoids well-meaning but inappropriate support – such as using incorrect methods to help patients rise out of chairs or baths, or making appropriate progress so that recovery isn't hindered through a lack of support or too much support from carers.

4.51 The ability to climb stairs is an important goal to be fit for the general environment. On the final day therapists work with patients to help them climb a set of stairs. Some patients may not have used a set of stairs in 10 years, so building confidence and skills are critical. If there is no easily accessible set of stairs in a general hospital, patients can miss out on this aspect of therapy.

4.52 Before discharge, on days two or three of the patient's stay, they are assessed to see how on track they are to achieving goals for week six of their journey. For example they need to be well on their way to achieving a good knee bend at 80-85 degrees. Patients also need to be performing exercises well, and be medically fit.

Discharge – home ready

4.53 If patients are not achieving their mobilisation goals and adherence to required home exercise plans, they will be referred for outpatient physiotherapy at The Horder Centre or one of the local outreach centres. This could be referral for one-to-one support or a physiotherapy class with their own tailored programme of exercise on a weekly or bi-weekly basis. Some patients will have both one-to-one and classes to ensure that they meet their mobility and functional goals. All hospitals structure their post-op rehab differently with different levels of support. However, overall, following comparison of other similar services, the percentage of total knee replacement and total hip replacement patients receiving routine post-op physiotherapy at Horder Healthcare is low, a process supported by the discharge telephone follow-ups and 6 week consultant review to capture any struggling patients.

4.54 NHS patients not progressing successfully with home exercise, who are not directly referred for MSK physiotherapy on discharge from hospital, are actively encouraged to ring a member of the physiotherapy team before their 6 week follow-up appointment. If it is identified that they require some physiotherapy prior to this appointment this is arranged urgently at a Horder Healthcare site or if the patient insists, through their local NHS provider, via their GP.

4.55 Patients may be medically fit to return home, but may not have all the skills or the emotional confidence to cope in their home. Sometimes this necessitates liaison with community services to support health and social needs for discharge. This may mean patients staying longer until there is available support in the community. One of the values of an operation at Horder Healthcare is that a patient is not occupying a bed in a general hospital which can become bottle-necked with patients who are not yet able to be discharged.

4.56 There are some patients who fall into a more grey area. They lack the confidence to go home, but are probably able to cope if given a helping hand to do so. The team will occasionally take these patients back home and assist them to settle and get about the house. It is likely that this saves the use of community support teams where just a small confidence boost was needed, particularly for patients who live alone or who are more fragile.

Timely discharge

4.57 The physiotherapy team work with patients seven days a week. One of the results of this is that patients are able to be discharged in a timely way, ensuring that additional unnecessary bed days are not incurred, including that of a spouse or family member who may be in respite care during the patient's operation.

4.58 After discharge patients (and non-patients) are able to use online resources and information such as interactive videos in order to aid their recovery.

Care and Communication Outcomes

4.59 From this we can see several outcomes for patients:

a) Reduced cancellation of operation by patients due to increased confidence;

b) Reduction in the number of bed days due to timely discharge;

c) Reduction in number of days of respite care that patients' family members require – such as those with cancer, dementia or other serious conditions;

d) Reduction in emergency readmission and use of local community services due to increased level of physiotherapy, enhanced equipment and exercises geared to the home environment, as well as support of patients' carers. This may be through the prevention of falls, or lack of skills and confidence and the need for increased support.

Communication and sharing of assets

4.60 There is a broader area of communication and care from which others benefit. Under the remit of its charitable purposes Horder Healthcare shares its expertise, and resources with professionals, the general public and the local community. Horder Healthcare:

- Shares knowledge of surgical set up and processes to help other hospitals and professionals learn;
- Gives regular programmes of talks for professionals;
- Gives regular programmes of talks for the public aimed at helping those with MSK conditions self-manage and identify options for treatment;
- Shares space and resources with the local community – local school and school play, local associations; and
- Provides a well-managed volunteer programme ranging from younger to older volunteers. The areas that volunteers engage in mean that volunteers are able to develop their skills and capabilities and increase future employment prospects.

Theme Two: The Care Environment

4.61 The environment in which patients receive their care has a well documented relationship with the outcomes they experience.[R] The environment is a product of a number of factors which can either create a therapeutic or stressful experience for the patient. This environment is shared, and is the one within which staff and volunteers both create and deliver care. Important environmental factors identified by research are:

- **The natural environment**; in and around the hospital, and patient access to it
- **The built environment**; the physical spaces and how these influence factors such as privacy, noise, sleep, how spaces facilitate social support and care, as well as the core job of physical rehabilitation
- **The care environment**; how care is delivered, the nature of staff, the systems and processes and the patient's degree of autonomy within those.

The natural environment

4.62 The Horder Centre is set within woodland and on arrival at the hospital it feels rather like a retreat setting. During the action research patients and staff would say:

"It doesn't feel like a hospital" *or* ***"I was surprised when I was allowed to come here". Patients***

4.63 The majority of the patient rooms have large windows and views to outside. Many of the staff areas such as the dining areas, meeting rooms and corridors also have access to pleasant views.

[R] Enhancing the healing environment: A guide for NHS Trusts, Kings Fund, 2004

4.64 As described earlier, within the heart of the building is a therapeutic garden built for both physical and mental wellbeing of patients and staff. Research shows that patient outcomes improve if you can increase a patient's connection to nature.[S]

The built environment

4.65 The built environment at The Horder Centre is calm and uncluttered, and warm but neutral colours are used throughout. Studies have shown that bland approaches to colour in hospitals as well as other factors contribute to patient stress.[T] Reception areas, the cafe, corridors, and waiting areas feel more akin to a well-run hotel, creating a beneficial effect on patients' families as well as patients and staff.

4.66 Going into hospital often means a loss of important social time, such as sharing a meal with family. A recent introduction is a new kitchen and dining area where patients and visitors can eat together, and staff and patients are also able to mix.

4.67 Patients have their own rooms; as described earlier, this means that while they demand more nursing time, they afford patients much greater privacy levels, reduced noise for the patients, and sleep becomes less interrupted due to noise. Patient support networks can still flourish through patients visiting the dining room for their meals and using the physiotherapy gym. Patients have their own equipment meaning that shared spaces such as corridors remain clutter-free.

4.68 Purpose built therapy rooms allow rehabilitation classes to take place during patients' stay.

4.69 Stairs and their proximity to the patients' rooms mean that the physiotherapy team can easily access these to support rehabilitation for the home environment.

4.70 The garden's textured surfaces, kerbs and sloping paths provide outdoor facilities that reflect garden or outdoor environments. Equipping patients with skills and confidence to tackle different environments is a key part in enabling independence on their return home.

4.71 The building and equipment is well looked after; this has facilitated a culture of shared responsibility for care and cleanliness across the whole organisation. Horder Healthcare started recording all avoidable damage; last year the damage totalled just £517.

The Care environment

4.72 As an elective hospital with a strong focus on patient outcomes The Horder Centre is able to orient around the patient. Underpinning this is a culture of support for staff who deliver care.

4.73 The culture within which staff operate at Horder Healthcare plays a key role in how staff deliver day to day care, as well as how they contribute to helping to advance care.

4.74 Research[U] shows that there is a close relationship between the staff experience and patient experience. The way in which staff deliver care is influenced by the way in which staff are engaged. Research from the Kings Fund[V] shows that staff who do not feel engaged burn out; when staff are engaged however performance rises, and they are less likely to make mistakes. West and

[S] Ulrich, R., 'Effects of gardens on health outcomes: theory and scientific research'. Healing Gardens, 1999
[T] Ulrich, R., et al. 'The Role of the Physical Environment in the 21st Century Hospital, Robert Wood Johnson Foundation
[U] 'Health and Wellbeing of NHS staff – A Benefit Evaluation Model, The Work Foundation, Aston Business School, and RAND Europe, June 2009
[V] West, M.A., and Dawson, J.F., 'Employee engagement and NHS performance', University of Sheffield for The King's Fund, 2012

Dawson's research [W] shows where there is strong staff engagement the patient experience improves, inspection scores (NHS) rise, and infection and mortality rates are lower.

4.75 West and Dawson also showed that healthcare settings need to give staff autonomy, and enable them to use a wide range of skills within satisfying jobs in order to perform well. Having control over how they do their jobs is one of the best predictors of engagement. Higher staff engagement is also correlated with lower turnover. Consistency and expertise in staffing is an important facet of care.

4.76 This evaluation showed that there is a considerable degree of autonomy within Horder Healthcare. Decision making is participatory and staff are given responsibility to resolve challenges.

4.77 This point is supported by Horder Healthcare's staff engagement scores which have remained high over the last two years. This score is the average of everyone's responses to the question "how satisfied are you with Horder Healthcare", where 1 is extremely dissatisfied and 5 is extremely satisfied. Typical organisations could expect to score 3.3 to 3.5, with top organisations scoring in the region of 3.7 to 3.9. Overall satisfaction in Horder Healthcare is 3.9. The overall engagement scores were 4.1; a typical UK company would expect a score of between 3.3 to 3.6, whilst a world Class company would score greater than 4.0.[X]

4.78 The way in which Horder Healthcare staff orient around a patient goes beyond staff satisfaction, and rather seems to be in the DNA of the organisation. How organisations respond to anomalies are often a useful way of testing patient care. Many examples were described where patients were visited at home by staff to ensure they were ready for their operation, were taken back home to ensure they settle, and where staff rang GPs to help resolve a health condition that might otherwise prevent or delay an operation.

4.79 The culture created amongst staff also influences approaches to safety and infection – which are described in the next section ('Impact of the Procedure').

4.80 Other aspects of care are well attended to, for example menus have been designed by a nutritionist to offer pleasing food which is also beneficial for healing. This extends to staff too, to whom food is provided for free.

4.81 These factors are highly likely to contribute to overall outcomes such as:

- Reduced readmission rates – from falls, or infection
- Timely discharge – resulting in reduced bed days, reduced respite care
- Reduced infection rates
- Increased staff retention
- Increased staff mental wellbeing
- Volunteering – Horder Healthcare has a strong volunteering programme, many are former patients, and retention and satisfaction of volunteers is good
- Volunteering – Horder Healthcare also provide the right conditions for volunteers to develop their skills for employment

[W] West, M.A., and Dawson, J.F., 'Employee engagement and NHS performance', University of Sheffield for The King's Fund, 2012
[X] Horder Healthcare/Unipart Expert Practices Employee Engagement Survey Report 2013

Theme Three: The impact of the procedure

4.82 This section describes two areas of gains related to the hip or knee arthroplasty:

- It considers which outcomes result from the way in which The Horder Centre perform the operation
- As well as the social gains that result from the patients changed life as a result of arthroplasty.

Supportive culture

4.83 Theatre management is geared around ensuring staff are happy and have everything they need at their disposal in order to operate well and productively. This includes working in a highly attractive environment and attending to the details – such as free parking, and meals.

4.84 ***"We've all had jobs where you go 'I wish I wasn't going' - you don't perform as well – you shouldn't have to come to work and worry about the rubbish that's going on, but just focus on what you're doing. The therapeutic environment is very important. Having staff who feel they've got the right equipment, at the right time, with the right amount of resources to do their job… is enough of a motivation for most people."***

4.85 The impact of this is that people perform better and this results in safer environments.

4.86 ***"Very quickly if you're in a hospital under pressure, people will say I don't feel like I'm doing my job very well. That's the first thing a nurse will say to you, and that's massively destructive, and doing everything to avoid that happening is very important. In a risk packed environment like this people will only work effectively when they are being valued and when they think that their input to something is being acknowledged."***

4.87 Another aspect of safety influenced by culture is lack of hierarchy as this gives all staff equal voice to speak out and question one another regardless of job title.

"We don't have hierarchy, the whole organisation is on first name terms, consultants aren't gods, so anyone can say hang on a minute why are you doing that? That's the key to safety in surgery, and any surgical intervention. The reason behind most surgical disasters is 'I didn't feel I could say anything'. It all adds up to a culture of safety."

4.88 This non-hierarchical culture means that everyone takes ownership of cleanliness.

"…another cultural difference here is that it's everybody's job to clean the operating theatre. Lots of hospitals you go to now, you do an operation and you walk out and the porters come and clean the theatres…. Cleaning is part of care, just as it is for a parent, it's not something that's below anybody. That culture is very strong. That's why infection control is very strong here."

Tapping into idling capacity

4.89 Horder Healthcare has examined where there is idling capacity in the clinical pathways that could be put to use without sacrificing quality or patient care. As a result, by national standards, operating utilisation stands at around 107%.

4.90 Each theatre has two operating tables so that during the last 15-20 minutes of the operation, providing all is on track, the anaesthetic assistant who has provided oversight during the operation can send for the next patient and have them prepared ready for their operation.

4.91 Other professionals engaged in the operation are trained across two roles so that they are able to be more productive and not simply engaged for just 10 minutes of the operation. There are also members of staff who work in other areas of the patient pathway and this ensures that the patient pathway is joined up; as each member of staff understands the needs of both the patients and the processes within the Centre. Porters, for example, are trained so they have the social skills to take care of patients; recovery staff also perform pre-assessment and pre-admission.

4.92 The benefit of this is that there is also cross fertilisation and enhanced communications between departments instead of working in silos, which results in a more joined up approach for patients.

Patient focused

4.93 As with other areas the operating teams are very patient focussed. Processes, new methods are all analysed for patient benefit.

"We're acutely patient focused… if you go down to theatre to talk about something it will quickly come down to, what's the point of that to the patient, what are we adding? People talk in that language."

"Culturally we consider the cancellation of a patient a catastrophic event, it very rarely happens." Joe, Theatre Manager

4.94 The Horder Centre is well known for its surgical outcomes and other practitioners visit to learn more about its processes.

4.95 The likely outcomes that result for patients are:

- Lower infection rates
- Reduction of the average length of stay in hospital
- Preventing readmission due to improved safety and lower infection

- For commissioners Horder Healthcare's focus on quality and efficiency means that they are able to keep costs down and quality high.

Procedure specific outcomes

4.96 The outcomes of hip and knee arthroplasty operations are tracked nationally via the nationally collected Patient Reported Outcome Measures (PROMs) data. The Horder Centre has been a 99.8% positive outlier for hip replacements for the last 3 consecutive years.

4.97 As well as those outcomes shown in PROMs a wider set of outcomes – social outcomes - can be considered; that is the degree to which patients are able to engage in life again as a result of their treatment.

4.98 As described in Section 2 (Background), when patients suffer from limited mobility and pain as a result of poor musculoskeletal health their engagement in life is reduced. This includes work, family and relationships, communities, and social participation and leisure. All of which further impact upon physical and mental wellbeing to varying degrees.

Work and societal roles

4.99 As a result of their treatment patients are able to return to or remain in work. The research with the action research group and further desk research shows that patients who are still of working age, leave or reduce their hours of work or take early retirement as a result of musculoskeletal conditions.[Y] Without effective treatment methods many more patients would be forced to leave the work place, change roles or reduce their hours. This also includes family who may have taken on a caring role either for the patient or for other family members.

4.100 As an example, one of Horder Healthcare's recent patients, a mother of three, had a congenital hip condition which severely limited her mobility, which meant her partner had to take on a caring role for her and their three children. As a result of increased mobility from her hip operation, the patient was much more able to take care of her own and her children's daily needs and her partner was able to return to work.

4.101 Impact on family life is also created when a patient is unable to fulfil their caring role. A Horder Healthcare patient was fulfilling a caring role for her daughter who suffered from cancer, however her reduced mobility had meant that her adult granddaughter had to reduce work hours in order to provide care for her mother. As a result of her operation the patient was able to resume caring for the daughter allowing the granddaughter to return to work and her young family.

4.102 Many patients fulfil caring roles, often for spouses, and rely on mobility, strength and being pain free in order to perform these roles, which frequently include lifting. Without the physical ability to care, many of those cared for would require extra support, in the form of emergency support – such as help after a fall, or would need to have health and social care needs supported by the state. Some have needs that would require an early move to residential care. As dementia increases in incidence Horder Healthcare is seeing more cases of patients who care for spouses with dementia, or patients who have dementia.

4.103 As described in Section 2, co-morbidities are common and patients with dementia can also present with musculoskeletal problems. This can significantly increase the burden for carers of trying to manage the symptoms of dementia as well as the challenge that reduced mobility and pain brings. Treatment to help manage musculoskeletal conditions for these patients can mean that they are

[Y] Zheltoukhova, K., et al., 'Taking the Strain: The impact of musculoskeletal disorders on work and home life', The Work Foundation, December 2012

still able to be cared for by a spouse or family member, rather than needing increased support from the state as described above.

4.104 Grandparents are also an important lynch pin in the economy through their provision of informal childcare for parents. Our work with the action research group showed that as a result of increased mobility grandparents were more able to take on part time caring roles for grandchildren enabling children to remain or enter the workplace. Many families are reliant on informal childcare through family in order to work.

Community & Volunteering

4.105 The retired and semi-retired also perform other important societal roles in the form of volunteering and community support, which rely on mobility. As a result of treatment patients are more able to perform volunteering roles in the community and for charity. At The Horder Centre many patients who have received treatment come back to volunteer.

Family and Relationships

4.106 Reduced mobility and the need to be cared for can also alter the dynamic of relationships, physical intimacy may be reduced, or taking on a caring role can alter relationships.

4.107 The degree of impact is influenced by the degree of disability created as a result of musculoskeletal conditions. For many the impact on family and relationships will be lower, requiring extra help with tasks such as food preparation, house care, or driving. Some patients however will require considerably more support with daily living and self-care, such as the mum of three described above. Helping these patients achieve a better level of health can have an important impact on the health of relationships.

Social participation and leisure

4.108 Achieving better mobility can mean that patients are able to engage in social and leisure activities which they have been forced to give up or reduce, such as walking, using the car to shop or see friends and family. For some patients this restriction can lead to social isolation, particularly those already facing poor mental health and other problematic social issues.

4.109 A series of undesirable habits can build up as a result of poor mobility; patients go out and about less as mobility and confidence in their own bodies declines. Stairs, crowded places, slopes, different surfaces can all present different challenges to those with an unsteady gait and pain. As a result patients restrict their activities, activities which are known to be vital for physical and mental wellbeing.

4.110 As is often the case this restricted life can particularly impact those on the margins. Fear has potent effects. One patient at The Horder Centre, with poor mental wellbeing, had stopped participating in the outside world and as a result had developed agoraphobia. Increasing mobility can help patients to re-engage and participate within their social networks, which research shows are vital to wider health outcomes, particularly for the elderly.[Z]

Mental and Physical Wellbeing

4.111 It can be seen from this that these effects create a knock-on impact on mental and physical wellbeing. Reduced participation in leisure and social activities reduces physical activity, which

[Z] Berkman L.F., Syme, L., 'Social networks, host resistance, and mortality: A nine-year follow-up study of Alameda County residents', American Journal of Epidemiology 1979; 109 (2)186-204

plays a role in overall health outcomes such as cardiovascular disease, diabetes, obesity and musculoskeletal disorders. Many of these conditions are co-morbid.

4.112 There is little research in the literature examining the wider impact of hip and knee arthroplasty and MSK treatments on physical health. Horder Healthcare's experience is that as patients become more mobile, suffer from less pain and develop an exercise habit stimulated by physiotherapy exercises, they start to experience weight loss.

4.113 As pain is reduced patients will need less primary care support in the form of GP appointments and pain relief. Over-use of non-steroidal anti-inflammatory medication (NSAIDs) in particular is problematic for gastrointestinal health, a problem that many GPs and patients are acutely aware of, however only around 20% of patients who come to Horder Healthcare use NSAIDs for pain relief. Reducing pain through treatment can reduce NSAID use and the undesirable and costly side-effects that this medication brings.

4.114 Physical activity and social participation, and the ability to lead meaningful lives are also important for overall mental wellbeing. The research with the action research group showed that patients experience an uplift in mental wellbeing as a result of increased mobility.

4.115 For those patients at the margins this impact may be significant; one patient with poor mental wellbeing, who had developed coping habits such as hoarding, was initially fearful of her operation, so the team put increased support around her to ensure the operation went through and took her back home to build confidence in her return home. The very rapid improvement that resulted from the joint operation gave the patient the emotional capacity to start to tackle her mental wellbeing.

4.116 Going forward, and in line with its charitable mission, an area of focus for Horder Healthcare might be to consider the wider social recovery for those patients at the margins where the impact of poor mobility and the gains from recovery may be much greater. This may include partnerships with other socially oriented organisations such as The Royal Voluntary Service.

4.117 Overall the social impacts created as a result of receiving treatment include:

- Maintaining or gaining employment, reducing early retirement, maintaining hours
- Maintaining caring roles for spouses or grandchildren
- Enabling family to continue to care for co-morbid patients
- Maintaining or gaining volunteering roles
- Reduction in primary care need
- Increase in physical wellbeing
- And as a result reduction in falls in the long term
- Increase in mental wellbeing

4.118 The next section evaluates the financial impacts of the outcomes that arise from Horder Healthcare's work.

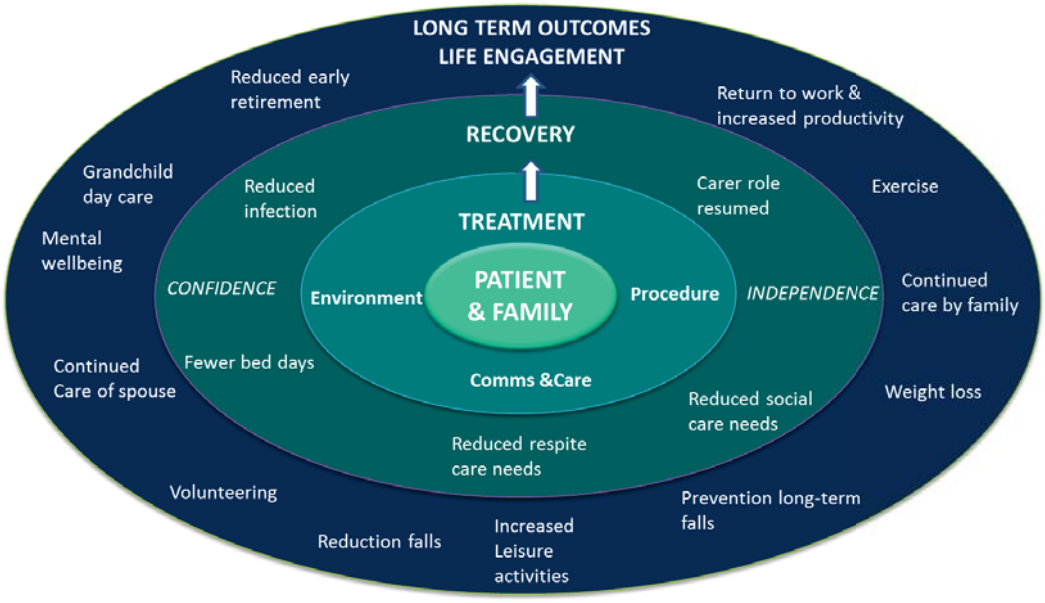
5. Results of the evaluation

Modelling the impacts

5.0 Section 4 has identified how Horder Healthcare's approach to treating patients leads to outcomes not just for patients, but also staff and volunteers. These core areas of work were identified as:

- The approach to patient communication and care
- The caring environment itself; and
- The direct impact of the operation.

5.1 As a result of these approaches to patient care a number of gain areas have been identified and evaluated. As set out in the diagram below these gains unfold through time; during treatment, the recovery period and then later when patients are able to re-engage with life.



5.2 Traditionally research and measurement of patient outcomes has focussed around the more immediate effects of the operation on the physical and sometimes mental wellbeing of the patient. What this research shows is that there are much wider outcomes that arise that can be understood. The value of returning a patient to good or better health not only improves a physical condition but improves a patient's ability to engage in life. This has an important effect on society. We have seen that the patient groups treated by Horder Healthcare are often older and have important social roles which they fulfil. If left unfulfilled these result in increased costs to society – such as acting as a carer for spouses. Putting a patient back into better health also allows new habits to be developed and unhelpful or damaging habits to be reduced or stopped – such as increasing exercise, reducing pain medication, or improved productivity at work.

5.3 Additionally in striving to provide the best model of care for patients, Horder Healthcare has also provided a supportive environment for staff and volunteers to work within, which results in a greater ability to focus on patients, as well as having a knock on effect on the wellbeing and satisfaction of staff.

5.4 These ripple effects can be measured as gains.

5.5 These gains are experienced by patients and their families, by the State – including the NHS, social services and the Department of Work and Pensions - as well as by others such as employers, staff and Horder Healthcare itself.

5.6 Some of the gain areas identified have been evaluated in this study and are set out below; others need further research for future evaluation.

5.7 The gains arise for two principal reasons: some directly as a result of Horder Healthcare's approach to their activities, for example Horder Healthcare has lower infection rates compared to the national average for general hospitals; other gains arise directly as a result of the procedure – such as improved productivity in the workplace due to a new joint. As a result the research proposed two counter-factual questions:

- What would be the impact in the absence of Horder Healthcare – if patients instead received treatment in a general hospital?
- What would be the impact in the absence of the treatment itself – in this case hip and knee replacements, and MSK treatment?

5.8 The action research groups and secondary research explored these questions and resulted in the following gain areas being evaluated. The models developed are set out more fully in Appendix B, here we briefly summarise the gains.

5.9 As a note - as the famous maxim goes, not everything that is important can be directly measured – such as the value to a patient of the garden, or sharing mealtimes with a spouse during their hospital stay, or the total value of improved mental wellbeing. But we hope that we have collectively reflected these in areas such as improved recovery, or reduced infection, or volunteering, however it is important that the story of change set out in Section 4 has equal weight to the figures produced here.

Treatment

5.10 Gain areas compare Horder Healthcare data to national statistics to consider the impact on costs in the absence of Horder Healthcare. The gains here are in the nature of costs saved and include:

- Reduced cancellations on the day or surgery
- Reduced treatment cost (per episode) for MSK therapy
- Reduced waiting time for an operation

5.11 There are also other potential gain areas that have not been evaluated here. Horder Healthcare has a thorough pre-admission process; the research found that in preparing a patient for admission previously unidentified health problems may be discovered and are referred for treatment. Earlier identification of health problems has the potential to reduce the escalation of a condition and the cost of treating these. There was insufficient data at the time of the evaluation to model this however it would present an interesting area of follow up for future evaluations.

Recovery

5.12 The gain areas relate to improved patient recovery using proxies in several key areas and compared to national averages:

- Reduced readmission rates within 28 days
- Reduced number of bed days
- Reduced infection rates

5.13 Reduction in unplanned readmission takes into account; physiotherapy care, the use of equipment, being ready to encounter the home environment and family and carers being able to provide appropriate support.

5.14 Additionally there is also a gain assumed as a result of joint replacement relating to reduced NSAID use for pain management. The costs saved here are for the minority of patients who would develop health complications as a result of NSAID use.

Life-engagement

5.15 This set of gains considers the impact of a patient's ability to engage in life, for patients receiving hip and knee replacements, as a result of improved mobility and reduced pain. We have not evaluated MSK patients here as at the time of the evaluation there was a lack of data, or ability to infer reliable assumptions from the data, on the nature of the social limitations that MSK patients presented with – for example the impact on work, or home life, as well as data on what position of ability patients had been returned to, such as the ability to take care of children or return to work. This is however an interesting area for future data collection and evaluation as Horder Healthcare treats a significant number of MSK patients.

5.16 For hip and knee patients the gain areas evaluated include the increased ability to perform social support roles, these include;

- Caring for grandchildren enabling parents to work
- Caring for spouses/family members and reducing demand on social and health services
- Improving the ability to volunteer in the community
- Improved ability to be cared for by spouses or family – for example patients with co-morbidities such as dementia who are looked after at home – reducing social care costs
- Ability to re-enter employment or improved productivity at work
- Reduced risk of future falls

5.17 The last of these points – reduced risk of future falls – has been conservatively modelled as there is insufficient evidence to show the impact of hip and knee replacement on falls later in life. However the research found that the joint replacement and the physiotherapy to support it addressed many areas that are known to be factors in falls such as unsteady gait and balance. Further long-term research is recommended with patients at Horder Healthcare to understand if there is a reduced risk of falls as a result of joint replacement and whether the post-operative support given to help recover mobility is also sufficient to positively alter the risk of falls in later years.

5.18 Improved long-term health also results in a reduction in the use of primary care and specialists for pain relief and management of conditions.

5.19 The action research group discussed the ability for patients to become more mobile and engage in activities such as walking or other physical activities, and the knock on effect of this on weight and other areas of health such as cardiovascular health. However the research literature didn't provide additional evidence to support this, so we haven't modelled this here. Intuitively it seems right that some patients will improve their physical activities but further follow-up research is recommended with patients to see whether old habits have remained entrenched or whether new joints lead to healthy new habits.

5.20 Staff report that they experience improved wellbeing, compared to working in a general hospital, from the work environment created by Horder Healthcare, the proxies used to evaluate this are;

- Reduction in absenteeism – and costs of absenteeism
- Reduction in staff turnover – and costs of recruitment and lost productivity

5.21 Ultimately Horder Healthcare benefits from this wellbeing gain through reduced management costs and better outcomes for patients.

5.22 Volunteers too bring gains for Horder Healthcare in the value of the work that they bring, as well as improved wellbeing for volunteers.

Alternative attribution, displacement and deadweight

5.23 In developing the models the evaluation has sought to use Horder Healthcare data or triangulate with external data sources. Where there is a lack of available data, prudent assumptions have been made.

5.24 Attribution – The gains identified also arise as a result of other contributions. For this reason the models make deductions to recognise other people's role in the outcomes. For example a reduction in need for local social services may also occur in part due to neighbours who provide support to the patients on return to their home.

5.25 Some outcomes may have happened in any case without the input from Horder Healthcare; this is known as deadweight and is also factored into the models.

5.26 In some cases costs are incurred (displacement) as a result of Horder Healthcare's work, such as arranging support for social care for the patient, or expenses for volunteers. Ultimately these often reduce costs, due to the preventative nature of the support. These aspects are also reflected in the models.

5.27 To view the models and detailed assumptions please refer to Appendix B.

Summary results

5.28 The gains arising in 2013 from patient outcomes as a result of hip or knee replacements and some gains for MSK physiotherapy patients are £33,547,473. The breakdown of these outcomes can be seen by each of the gain areas in the table below.

Period	Outcomes Evaluated	Net Gains
Treatment & Recovery	Quicker treatment time from referral	£78,836
	Reduced cancellation of operations (reportable on day of surgery)	£89,183
	Reduced readmissions within 28 days of discharge	£219,619
	Reduction in hospital bed days	£1,396,902
	Reduced incidence of infection during in-patient stay	£258,639
	Reduced cost per episode for MSK physiotherapy treatment	£80,117
	Total for Treatment & Recovery period	**£2,123,296**
Longer term outcomes	Reduced primary care need	£2,244,396
	Reduced NSAID use – reduced complications	£44,139
	Long-term reduction in falls	£45,200
	Increased employment and productivity	£1,964,547
	Improved ability to fulfil social roles: care for grandchildren,, spousal care, volunteering	£26,917,862
	Improved ability to care by patients' carers	£12,751
	Total for Longer term outcomes	**£31,228,895**
Cultural gains	Increased staff wellbeing	£82,406
	Value of volunteering programme	£112,878
	Total for cultural gains	**£195,284**
	Total Gain in 2013 for selected patients	**£33,547,473**

5.29 In can be seen that Horder Healthcare's work generates value in all phases – the value of efficient processes, a participatory staff culture, and a strong culture of patient care. As a result there are a number of beneficiaries who see significant gains. The patient and their families clearly benefit from improved wellbeing, and an ability to function in everyday life. But there is a wider gain too; society benefits from patients continuing to bring their time and skills to society whether in the home, the community or the workplace. As a result the State is a key beneficiary gaining from each of the time periods shown in the table above. They gain in the form of savings, either linked to savings in costs from the procedure or as a result of reducing poorer health outcomes. These savings are not limited to health budgets but social care budgets too. There are also gains for the State in the form of increased income, from increased employment and productivity from patients and their families.

5.30 The value of looking beyond narrow cashable savings to wider savings as a result of enabling improved social outcomes is clear here.

6. Conclusions and Recommendations

The far reaching effects of treatment

6.1 From this evaluation and description of Horder Healthcare's work, it is clear how the outcomes experienced arise. It is also clear that the benefits extend beyond the patient and costs to the State, NHS, and other funders of healthcare; and into benefits for families, across the generations, and into the community too. Far from being inactive in later life we have seen that patients provide vital social roles that are important for the economy and the outcomes result in contributions to the economy as well as costs saved.

6.2 Recasting the perspective in this way could also enable Horder Healthcare to look at its treatments, or follow-up patient care, or patient research for new opportunities to improve wellbeing and outcomes. These types of social outcomes are not typically measured in medicine and yet represent significant areas of gain.

6.3 During the course of this research there were some distinct lines of enquiry that were felt worthy of further research.

MSK physiotherapy patients

6.4 Horder Healthcare treats a significant number of patients, but unlike hip and knee patients where the limitations of poor mobility (that require hip and knee replacements) can be understood as an average using external research, this patient group will have very different limitations as a result of their MSK condition - some will be acute, some long-term, some will be very limiting, others will still enable patients to engage with life.

6.5 A challenge now remains for Horder Healthcare to gather more data on these patients and understand the range of experience and the impact that treatment has from a social impact perspective. There are signs that the outcomes are similar to those for hip and knee patients.

6.6 This could take the form of an individual quantitative study to establish what types of conditions patients come with, how long they have lived with the condition for, the wider effect upon their lives, and to what degree treatment has impacted key areas, such as: mental wellbeing, physical health, the ability to work, engage in relationships, leisure, healthcare, or social service support they require. Or Horder Healthcare could build these aspects into their data collection – much of this type of information arises informally already due to the quality of time that practitioners give to patients.

Improvement in physical health

6.7 Another area of potential gain is the reduction in the risk of developing other health conditions, such as poor cardiovascular health or diabetes, as a result of improved mobility. The research heard from staff about patients who become more mobile, confident and motivated to take charge of their health – including exercise and weight loss. Yet the research literature is mixed on whether recovered patients are more likely to improve healthy habits and reduce their risk of negative health conditions.

6.8 Follow-up research is recommended with Horder Healthcare patients to understand how patients change their health habits following their operation and whether this leads to measurable change. Areas to explore are: to what degree patients were limited before their treatment – in terms of

exercise, food preparation, and other impacts; and how these change (or don't) after their treatment. If, as the research suggests in some areas, there is no change, why is this, and could Horder Healthcare play a role in helping to change this picture?

Reduced risk of falls

6.9 Falls are a costly and distressing outcome for all involved. The available research on whether hip and knee replacements reduce the long-term risk of falls is contradictory and thin – other interventions have received much more research attention. Some research suggests that patients may not necessarily change their movement and walking patterns, or regain lost muscle strength following joint replacement, therefore not reducing the long-term risk of a fall.

6.10 There is an interesting opportunity for further research here with Horder Healthcare following patients beyond the 6 week check-up and examine outcomes related to their physical rehabilitation following joint replacement, as well as other patients – such as those receiving MSK treatments and those coming to exercise classes designed to reduce the risk of falls. This type of study is longer-term in nature and could be one conducted with a University partner.

Social inclusion

6.11 Secondary research conducted to support the development of the models revealed that patients from lower-socio economic groups are less likely to be referred for treatment in as timely a manner as those from higher socio-economic groups. Yet it is likely that the social impact of treatment will be high for these groups as they often suffer from higher levels of poor mental wellbeing and isolation; and the ability to access work and opportunities is vital for these groups.

6.12 Although there are many higher socio-economic groups in Horder Healthcare's catchment area, there are also notable areas of income and employment deprivation, such as Hastings and pockets in Tunbridge Wells. An area of enquiry for Horder Healthcare would be to provide this information to GPs and other referring organisations to ensure that lower socio-economic groups are represented at Horder Healthcare. If they are underrepresented is there a need to work with GPs/commissioners to refer these groups and ensure that they receive the treatment and follow up support that they need?

6.13 There is also another consideration here: due to Horder Healthcare's processes, patients' social support needs are identified early. Care could be coordinated earlier as a result and reduce bed day costs. Currently the way in which the social care system is set up means that care cannot be booked before discharge, yet Horder Healthcare has relatively stable patient stay averages.

6.14 Horder Healthcare could look at ways of supporting those that might need social care. It is likely that there are opportunities here for Horder Healthcare to extend its charitable mission by working with the wider healthcare economy on integrating services in such a way that will ensure inclusion of vulnerable patients– particularly those who do not qualify for social care. This could be done by developing a partnership with voluntary organisations such as the Royal Voluntary Service who have insight into patients' needs once home and have developed a home-from-hospital service.

6.15 Horder Healthcare is an organisation which seems to be continually developing its approach to patient care and improving outcomes. Following up on these areas of enquiry and developing its methods for measuring the social outcomes, will further support that aim by identifying opportunities for service innovation, extending the charitable remit of its work and working in partnership with others.

Appendices

Appendix A:
Further notes on SROI methodology

The case for political support for SROI

1.1 Further support for SROI's adoption by the third sector has been seen in the recent report 'Outcome-Based Government', published by the Centre for Social Justice ("CSJ").[AA] This report considers the need to link funding of interventions with the expected outcomes (and their associated value). It suggests that funding should be focused on those interventions that are likely to achieve the highest value outcome: "Improving life outcomes should be the ultimate goal of a government's social policy: if policy makers can better identify failing initiatives, and shift spending toward programmes that effectively deliver sustainable, long-term outcomes, the social and financial returns to society and the public sector will be very great indeed."

1.2 CSJ strongly advocates a shift towards evidence-based government, in which funding decisions are based on clear, high quality evidence of impact value, with SROI cited as a "more rigorous approach to performance management while attempting to capture the social and environmental impacts of public spending."

1.3 The rationale for adopting SROI may be applied equally strongly to local communities, who may rightly expect organisations such as Horder Healthcare to demonstrate that their support is delivering real value to their community and society as a whole.

Addressing issues concerning the use of SROI

1.4 Overall, it is felt that SROI is a vital tool to provide non-profit organsiations such as Horder Healthcare with a means to evaluate its wider contribution to society. However, there are several issues to consider when applying this, that are worthy of mention:

- SROI, as it is typically presented, tends to ignore the risks associated with the benefits generated. In the course of our work with the Charity, the project representatives were encouraged to consider the achievable benefit created, and to build in reductions to assumptions to account for risks, where necessary;
- A robust SROI analysis must consider the proximity of the benefit created to the actions of the organisation that is seeking to claim ownership of that benefit. The project representatives were encouraged to focus only on outcomes that are directly attributable to their activities and, where necessary, obtained evidence of the link between the outcome and the Charity's activities;
- SROI is typically presented as a ratio of the value of the benefits achieved per pound spent to achieve those benefits. This may be useful internally to each organisation as a measure of performance relative to prior periods. However, the use of this ratio to compare organisations is inherently flawed due to sector and organisation-specific factors that reduce the level of comparability between organisations. Hence, the results of this report are not presented in the form of a ratio;

[AA] Brien, S., 2011, Outcome-Based Government, London, Centre for Social Justice

- There is a danger that organisations seeking to evaluate their impact using SROI may create calculations that are extremely granular to the extent that they become open to accusations of 'spurious accuracy'. In this exercise, a smaller number of key assumptions have been identified by the project representatives during discussions facilitated by Baker Tilly to develop a prudent result at a high level. It is considered important to present a more defensible, prudent analysis than one which is overly complicated and risks overstatement; and

- SROI does not take account of the interrelationship of social impact and brand value. By creating greater social impact, the recognition and perceived quality of an organisation's brand is likely to improve, thus increasing the value of that brand. In turn an entity with a stronger brand may use that to enhance the social impact of its project work. Of note is that the Charity believes it has a strong, well-recognised brand in the areas it serves, which augments its ability to deliver positive outcomes.

Appendix B:
Notes on Action Research

Action research, or action science as some, including Gummerson[BB] prefer to call it, is a recognised and respected research approach originating in the social sciences arena, which involves the researcher and the researched jointly learning within and investigating the research area. Whilst primarily a qualitative methodology, it can be constructed in such a way as to gather and test data with levels of validity that would constitute scientific research (as opposed to casual enquiry) whilst retaining the proximity to that data that best comes from working with those who are involved with it.

The researcher works with the researched jointly to investigate an issue of common interest. Together they gather data, test and validate it, and draw interpretations and conclusions from it.

Action research is hence an iterative research methodology that is intended to bridge the gap between theoretical research and the practical realities of the real world. As Gustavsen puts it:

"The point is to understand the world as it is by confronting it directly; by trying to grasp the phenomena as they really are.[CC]*"*

Reason and Bradbury (2001) define action research as *"a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview... It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities."* (2001, p.1).

In simplistic terms, action research is collectively learning from experience by sharing that experience with others and taking action to bring about change by building on that experience.

In our work with the staff at Horder Healthcare, it has been vital that an understanding was gained, not just of how their activities could *theoretically* be benefiting the local area, but of how they create benefit in practice. Theoretical research on SROI methodologies gives us a view on where the benefits may lie, but only through an iterative process of discussing, developing and refining our understanding can a true picture be obtained of where the benefits of the Charity's activities actually lie.

The process of conducting action research may be summarised using the diagram shown overleaf:

[BB] Gummerson, E. 2000, Qualitative Methods in Management Research. 2nd Ed. Thousand Oaks, Ca. Sage Publications
[CC] 'New Forms of Knowledge Production and the Role of Action Research', Bjorn Gustavsen, Action Research 2003; volume 1 at p.153

The diagram shows an iterative five stage approach to Action Research. The way in which our approach fits with this model is described as follows:

1. **Observation:** from our initial discussions with Horder Healthcare, it is clear that a lack of understanding of its social impact may weaken its position when negotiating with funders or demonstrating the value it returns to the communities it serves, thus damaging its ability to continue some aspects of its work. However, it is also clear that by improving awareness of the extent of its impact on the communities it serves, Horder Healthcare can further improve its brand recognition, and therefore, potentially, the breadth of its user bases;
2. **Reflection:** by using social impact measurement tools such as SROI, it is believed that it is possible to begin to increase the understanding of the benefits the Charity generates among key stakeholders;
3. **Data gathering:** the services that the Charity provides were discussed with a team of project representatives, and the outcomes these projects produce and key beneficiaries were identified. A range of possible methods of evaluating these services were discussed using the models described in this report to cover the concept of value from the perspective of all key stakeholders;
4. **Test claims and conclude:** many of the assumptions used in the evaluation models are based on data gathered by Horder Healthcare's management information systems. Copies of the supporting records for such data were obtained. Where an assumption was required, the project team were encouraged to be prudent in order to avoid overstating benefits. In some cases, assumptions have been informed by data from external sources combined with the use of judgement. Copies of records of any research were obtained. The Charity undertook consultations including some guided interviews with internal and external stakeholders in order to validate and test key assumptions or to provide evidence to support the theory of change suggested by the working group; and
5. **Monitor improvements:** it is hoped that this work will result in improved awareness of the Charity's activities among stakeholders (including funders) and therefore address the risks identified at stage 1 of the process.

Having reached a stage where an improvement is expected, the iterative nature of action research allows for further studies to be carried out in future building on the work presented in this report, including on-going measurement of benefits and the use of similar methodologies to assess proposed future projects.

Clearly, wherever data already exists to quantify a benefit, it is to be used. However, with the absence of observed data, action research allows us to gain an accurate perspective on the real benefits that are

generated. In some cases it will be impossible to observe the impact, as to do so would require a comparison between a world in which the charity exists and one in which they do not, all other factors being equal. Clearly such comparison will never be possible, and so reliance must be placed on the common-sense and judgment of the charity, based on their real-world experience.

Where data may be, but is not currently, observed, our work allows us to refine the list of useful data that may be gathered in future as a basis for refining the measurement of the economic benefit that is generated. This project may therefore act as a platform for identifying further action research projects that will develop detailed measurement tools.

Any outline of a research methodology would be incomplete without looking at broader criticisms of it in management science circles. Criticisms of action research are several, but most emanate from proponents of statistical sampling and questionnaire-based research methodologies. In brief, these tend to surround the following areas, each of which is shown with a brief response related both to theory and to this research in particular.

How can you assert validity when all the data is of internal origin?

Bypassing the theoretical debates about the validity of different data sources and the extent to which all are, to some degree, partly objective and partly partisan, the key point here is that the data is not all of internal origin.

Many of the measurement criteria within the financial proxies are:

- from publicly available data sources, often validated Government data;
- from appropriately structured pilot studies;
- from research appropriately undertaken by the subjects' own research team; or
- separately sense-checked or reviewed by the research team.

It is not true research because the researcher influences, and is involved in the outcome....

It is true that the researcher is involved in the sense that "the action researcher... may help clients make more sense of their practical knowledge and experience...".[DD]

This is consistent with the second of the seven principles of SROI: Measurement with people.

If the researcher facilitates the better collection and interpretation of data from the researched and leaves them with an understanding and knowledge to enable them to embed that in future action, then this active involvement must be seen as a virtue and not a weakness. It improves the understanding of data gathered and at the same time, seeks to embed the results in the organisations (the final stage of the SROI process).

Berg[EE] summarises the strengths of action research in these fields as follows:

- "a highly rigorous, yet reflective or interpretative, approach to empirical research;
- the active engagement of individuals...in the research enterprise;
- the integration of some practical outcomes related to the actual lives of participants in this research project;
- a spiralling of steps...".

It has been found, in this study and other similar ones, that action research provides an ideal foundation approach for developing a social impact evaluation and embedding it in the organisation.

[DD] Gill, J. And Johnson, P. 2002. Research Methods for Managers. 3rd Ed. London, Sage. p.92.
[EE] Berg, B. 2009. Qualitative Research Methods for the Social Sciences. 7th Ed. Upper Saddle River, NJ. Pearson. .248.

Appendix C:
Detailed Evaluation Models Used

This section contains the models used to evaluate one year of selected activity (2013) at Horder Healthcare.

Activities evaluated included total hip and knee replacements, and some MSK physiotherapy patients for some models. As this is only a proportion of Horder Healthcare's activity the actual gains arising from Horder Healthcare's work for 2013 would be greater than those stated here. The summary gains are shown in the table below.

Summary Social Value created and costs saved

Area of value/costs savings	Gross Value	Per patient	Deadweight	Displacement	Alternative Attribution	Net Value attributable
Operation cancelled on admission or day of surgery	£ 82,463	£ 15	£ -	£ -	£ -	£ 89,183
Patient readmission within 28 days of discharge	£ 244,021	£ 130	£ -	£ -	£ (24,402)	£ 219,619
Reduction in Bed Days utilised at Horder	£ 1,826,015	£ 825	£ (273,902)	£ -	£ (155,211)	£ 1,396,902
MSK Cost savings	£ 89,019	£ 20	£ -	£ -	£ (8,902)	£ 80,117
Costs saved due to a reduction in primary care need	£ 2,493,773	£ 1,326	£ -	£ -	£ (249,377)	£ 2,244,396
Reduction of infection during in-patient stay	£ 258,639	£ 120	£ -	£ -	£ -	£ 258,639
Reduction in impact of NSAIDs	£ 73,199	£ 31	£ (24,156)	£ -	£ (4,904)	£ 44,139
Impact on patients social roles	£ 62,965,758	£ 18,275	£ (31,482,879)	£ (3,148,288)	£ (1,416,730)	£ 26,917,862
Impact on Carers of patients treated at Horder	£ 15,938	£ 75	£ -	£ -	£ (3,188)	£ 12,751
Ability of patients to enter employment following treatment	£ 2,216,071	£ 341	£ -	£ (33,241)	£ (218,283)	£ 1,964,547
Horders volunteering program	£ 132,704	£ -	£ -	£ (6,556)	£ (13,270)	£ 112,878
Long term reduction in injurious falls	£ 50,222	£ 31	£ -	£ -	£ (5,022)	£ 45,200
Average wait for operation	£ 78,836		£ -	£ -	£ -	£ 78,836
Staff Wellbeing	£ 91,562	£ -	£ -	£ -	£ (9,156)	£ 82,406
Total impact of assessed services	**£ 70,618,221**	**£ 21,188**	**£ (31,780,937)**	**£ (3,188,085)**	**£ (2,108,446)**	**£ 33,547,473**

To understand the value of the work of an organisation a counterfactual question is always proposed, 'What would be the value in the absence of Horder Healthcare?' We looked at this question in two parts;

- The effect on the patients' lives if they were unable to receive a hip or knee replacement.
- Secondly the value that would be lost if patients were unable to receive treatment from Horder Healthcare.

In asking this question we assume that the NHS would absorb the additional patients. It should be noted that whilst we compare Horder Healthcare's activities to the NHS, this is not intended as a benchmarking exercise, but rather as a means to identify the intrinsic value in the way in which the Charity goes about its activities.

Horder Healthcare, the charity, carries out MSK activities at all of its sites; references to inpatient stays and surgical activity relate to work carried out at The Horder Centre in Crowborough.

Cost savings from a reduction in operations cancelled on admission or day of surgery.

From referral through to pre-admission and the management of the in-patient stay itself Horder Healthcare provides a high level of support and care to patients. This is targeted at managing not only the physical health of the patient but also allaying any psychological doubts or fears surrounding the procedure. Horder Healthcare has found that by maintaining a dialogue with the patient from pre-admission up until the evening before the operation, the patient is put at ease and as a result is less likely to cancel an operation at the last minute. Additionally, the management of processes relating to the operating theatre at The Horder Centre mean that non-clinical cancellations are lower than the NHS average. Avoiding these cancellations helps to avoid the costs associated with running an operating theatre that is not in use, which would be a minimum of £28,251 per annum.

Cost savings from a reduction in 'Did not Attends' for MSK treatments

These approaches to patient care are also used with MSK physiotherapy patients. Horder Healthcare's Did Not Attend (DNA) rate for MSK physiotherapy patients, at 4.73% over 2013, is lower than the NHS average, saving costs in lost appointment slots.

Operation cancelled on admission or day of surgery

Number of knee and hip operations planned		1,693		
NHS "last minute" cancellation rate		4.30%		
Horder cancellation rate		0%		
Cancellations avoided by Horder				73
Cost of theatre time (NHS patients 1 hr average):			£	862
Scotland	£ 1,109			
West Herts	£ 495			
Blackpool	£ 1,068			
Wigan	£ 775			
Admin costs for rebooking appointment				£50
PBR fee	£442		£	16,089
Costs avoided			£	82,463
MSK appointments		4,068		
Horder Did Not Attend rate		4.73%		
NHS DNA rate		9.45%		
Cancellations avoided				192
Cost of Physiotherapist time	£ 35			
Costs avoided			£	6,720
Total costs avoided			£	89,183
Net costs avoided			£	89,183
Gain per patient			£	15
Gains by Beneficiary				
NHS			£	89.183

Key assumptions:

- **Number of knee and hip operations carried out** - From the Holder Healthcare data this is the total number of hip and knee operations carried out during the evaluated one year period. This is made up of 844 total knee replacements and 849 total knee replacements.

- **NHS "last minute" cancellation rate** - Figure taken from NHS information detailing the number of cancelled elective procedures[FF] and the total number of elective procedures[GG] carried out.

- **Horder Healthcare non-clinical cancellation rate** - Figure provided from Holder Healthcare data showing the number of cancelled operations in the previous 12 months for non-clinical reasons

- **NHS Did Not Attend rate for MSK physiotherapy appointments** – Figure taken from NHS information detailing number of DNAs for MSK physiotherapy treatment. The range of DNAs was 0 – 39% (2011 data). With the average at 9.45%[HH]

- **Horder Healthcare Did Not Attend (DNA) rate** – Figure provided from Holder Healthcare data showing the number of MSK patients who did not attend their physiotherapy appointment.

- **Cost of theatre time** - This is an average based upon figures from reports detailing the costs per hour of theatre time for; Scotland[II], West Hertfordshire[JJ], Blackpool[KK] and Wigan[LL].

- **Costs avoided** - Calculation based upon the number of operations carried out by Horder Healthcare, the NHS cancellation rate and the average cost of theatre time.

- **Alternative attribution**- A deduction for deadweight has been levied to represent that whilst the project team felt that the actions of Horder Healthcare were the significant element in reducing cancellations the individual themselves is also a contributing factor.

- **Net costs avoided** - Sum of the above.

[FF] http://www.england.nhs.uk/statistics/statistical-work-areas/cancelled-elective-operations/cancelled-ops-data/ (accessed Nov 2013)
[GG] http://www.england.nhs.uk/statistics/statistical-work-areas/hospital-activity/quarterly-hospital-activity/qar-data/ (accessed Nov 2013)
[HH] 'A Survey of NHS Physiotherapy waiting times, workforce and caseloads in the UK 2010 – 2011, Chartered Society of Physiotherapy, 2011
[II] http://www.isdscotland.org/Health-Topics/Finance/Costs/Detailed-Tables/Theatres.asp (Accessed November 2013)
[JJ] http://www.westhertshospitals.nhs.uk/foi_publication_scheme/disclosure_log/2010/december/documents/170%20-%20140111.pdf (Accessed November 2013)
[KK] http://www.bfwh.nhs.uk/about/foi/show_foi.asp?id=319 (Accessed November 2013)
[LL] http://www.wwl.nhs.uk/Library/FOI/Requests/2010/December_2010/0837_Theatre_Operations.pdf (Accessed November 2013)

Patient re-admission within 28 days of discharge for hips and knees

Horder Healthcare provides a high level of care pre and post-operatively and carries out procedures to the highest standards. Significant steps are also taken to avoid infections and as a result Horder Healthcare has extremely low infection rates. Additionally patients are seen by staff and the physiotherapy team frequently throughout their stay and with equipment to make patients ready for the home environment – these are also considered to be a likely factor in lower readmission rates. These factors combine to reduce the number of emergency re-admission post-operatively versus the NHS average.

Patient readmission within 28 days of discharge

Number of hip operations carried out at Horder		849	
Number of knee operations carried out at Horder		844	
Rate of readmission following hip surgery		8.50%	
Rate of readmission following knee surgery		15.00%	
Horder readmission rate following hip surgery		1.10%	
Horder readmission rate following knee surgery		0.96%	
Increase for non-recorded readmissions		200%	
Readmissions avoided			164
Average cost of non-elective inpatient stay	£	1,489	
Costs avoided			£ 244,021
Alternative attribution		10%	-£ 24,402
Costs avoided attributable to Horder			£ 219,619

Key Assumptions:

- **Number of hip and knee operations carried out by Horder Healthcare -** The number of procedures carried out over the evaluated one year period as provided by Horder Healthcare.
- **Rate of readmission following hip surgery -** Approximate figure taken from an applicable report on the outcomes following hip surgery.[MM]
- **Rate of readmission following knee surgery -** Approximate figure taken from an applicable report on the outcomes following knee surgery.[NN]
- **Horder Healthcare's Readmission rates -** From data provided by Horder Healthcare, the number of readmissions during a one year period following surgery by Horder Healthcare.
- **Increase for non-recorded re-admissions –** It is possible that some readmissions are not notified to staff if they are to other hospitals. The project research team felt it was appropriate to uplift the recorded Horder Healthcare's readmission rate by 20% so as not to overestimate the reduction rate provided.

[MM] http://www.eoc.nhs.uk/images/latest_DVQ_path_Hip_and_Knee.pdf (Accessed November 2013)
[NN] http://www.eoc.nhs.uk/images/latest_DVQ_path_Hip_and_Knee.pdf (Accessed November 2013)

- **Costs avoided hips and knees -** Calculation based upon the average NHS cost of a non-elective in patient stay (Department of Health reference costs 12-13[OO]).

- **Alternative attribution -** A deduction for alternative attribution has been applied to recognise the work of others, such as family or other health services in preventing readmission into hospital.

[OO] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215297/dh_131160.pdf

Average cost per episode for MSK patients

Another way in which Horder brings value is the average episode cost for MSK physiotherapy patients when compared to the NHS national average.

MSK cost per episode

Number of patients treated for MSK at Horder			4,068
Average NHS cost per MSK episode	£	133	
Average Horder cost per MSK episode	£	111	
Saving per episode		£	22
Total Cost savings		£	89,019
Alternative Attribution	10%	-£	8,902
Costs attributable to Horder		£	80,117

- **Number of patients treated for MSK at Horder –** Data from Horder Healthcare – those patients who have received MSK physiotherapy only. These numbers do not include those that received physiotherapy as a result of an operation, such as a joint replacement (to avoid double counting) or a revision.

- **Average NHS cost per MSK episode –** Data taken from report setting out average costs for treating MSK patients and average number of appointments per episode.[PP] The Department of Health estimates giving a mean cost per first attendance of £49 and £35 for a follow up appointment, giving a mean total cost per person of £133. This is based on 1.9 million adults with a first appointment and 4.8 million follow-up attendances, and an estimated cost of £260 million

- **MSK average cost per episode** – Horder Healthcare's average costs per episode using new to follow up ratio and costs for new and follow-up appointments. £111.

- **Alternative Attribution** – There is no evidence to suggest that patients' problems are not fully resolved with their treatment by Horder Healthcare, however a prudent 10% alternative attribution has been applied to account for the fact that some patients may return to their GPs and receive additional treatment following the primary problem.

[PP] Hove, R.T., 'Integrated Musculoskeletal Services: Guidance for Physiotherapy Leads – developing a quality service', Chartered Society of Physiotherapy, August 2012

Reduction in Bed-days utilised for hip and knee patients

Due to the high level of care provided by Horder Healthcare, the number of bed-days needed for recovery is lower than that in NHS hospitals. One of the factors identified in the research is the availability of all the teams, seven days a week, to enable the patient to be supported, assessed and considered fit for discharge. This has a number of benefits; it enables costs to be minimised and beds freed up, from a social perspective it also has an impact. Due to their age a number of patients will act as carers for spouse and family and whilst they are in hospital some of those cared for will require alternative family and social or local health services support. Reducing bed days also allows for a reduction in respite care and other associated costs. Individuals are back on their feet and able to carry out any caring responsibilities in a shorter time frame reducing the financial burden.

Reduction in Bed Days utilised at Horder

Number of hip procedures at Horder		849		
Number of knee procedures at Horder		844		
Average length of stay at NHS (Hip)		4		
Average length of stay at NHS (Knee)		8		
Average length of stay at Horder (Hip)		2.6		
Average length of stay at Horder (Knee)		3.6		
Days saved by Horder		4,919		
Cost of excess Bed Day (NHS)	£	273		
Costs saved			£ 1,342,936	
Hip Patients Over 60			739	
Knee Patients over 60			734	
Those expected to be carers		18%		
Hip Patients			133	
Knee Patients			132	
Relevant bed days saved for carers			1,543	
No. of cared for individuals requiring home care		20%		
Hip Patients			27	
Knee Patients			26	
Number of those requiring care who access care		50%	27	
No. of cared for individuals requiring day care		20%		
Hip Patients			27	
Knee Patients			26	
Number of those requiring care who access care		50%	27	
No. of cared for individuals requiring accomdation		10%		
Hip Patients			13	
Knee Patients			13	
Number of those requiring care who access care		50%	13	
Those not requiring forms of support		50%	736	
Average cost of home care				£ 25
Average cost of day care				£ 10
Average cost of accomodation				£ 24
Costs of additional care accessed				£ 483,079
Total Costs saved				£ 1,826,015
Deadweight			15%	-£ 273,902
Alternative Attribution			10%	-£ 155,211
Cost savings attributable to Horder				£ 1,396,902

Key assumptions:

- **Number of procedures at The Horder Centre** - The number of hip and knee procedures carried out at The Horder Centre over the evaluated year.
- **Average length of stay at NHS** - Average data of the typical in-patient stay for the NHS following a hip or knee replacement from NHS data.[QQ]
- **Average length of stay at The Horder Centre** - Average data for in-patient stays at The Horder Centre, for Knee or Hip replacements.
- **Days saved by Horder Healthcare** - Calculation based upon the average saving in bed days a patient would experience at The Horder Centre versus at a NHS hospital.
- **Cost of excess bed day** - Data from the NHS[RR] of the cost of additional bed days.
- **Costs saved** - Calculation of the total bed days saved multiplied by the cost of an excess bed day.
- **Patients over 60** - The number of hip and knee replacement patients over the age of 60 seen by Horder Healthcare during the evaluated year.
- **Those expected to be carers** - Assumption of the percentage of the over sixty patients seen who would be expected to be caring for another individual. Based upon research from the Carers Trust which shows that 18% of those over 60 act as carers for family members, most often providing spousal care.[SS]
- **Number of cared-for individuals requiring respite care** - This is an assumption made by the project research team of the number of cared-for individuals who would require respite care whilst their carer is unable to care for them following a joint replacement. The assumption is that 50% of patients would have family step-in to help, while 50% would apply for some form of assistance from the State. Additionally we have assumed that 50% of those applying would be unable to access care due to strict eligibility criteria. For those who qualify for care we have assumed that a small percent (10%) would require accommodation. It was felt that some carers are looking after spouses, or family members, who would probably qualify for residential care ordinarily, but that the patient has ensured their spouse remains at home; 20% were assumed to need home care, with 20% requiring day care. Little data is published on those who apply for care but fail to meet criteria so this is based on a group assumption. Data on those accessing different types of care is available in the PSSRU (Personal Social Services Research Unit)[TT] data and the ratios used here reflect these.
- **Cost of respite care per day** - An average of costs per day for respite care – these figures are blended averages based on PSSRU unit costs data, the blended average being made up of costs for accommodation, day care and home care.
- **Total costs saved** - Sum of the savings from respite care and NHS excess bed days.
- **Deadweight** - A deduction of 15% has been made to recognise that Horder Healthcare cannot treat patients with certain complications due to the lack of access to other medical services; it is assumed that these patients would typically require longer stays in hospital due to their background level of health.
- **Alternative Attribution** - A deduction of 10% has also been made to recognise that the actions of the patients, their friends and families also impacts on the outcomes experienced.

[QQ] http://www.nhs.uk/Conditions/Hip-replacement/Pages/Recovery.aspx (Accessed November 2013)
[RR] Department of Health Reference Costs 12-13
[SS] http://www.carers.org/sites/default/files/always_on_call_always_concerned.pdf (Accessed November 2013)
[TT] Curtis, L., 'Unit Costs of Health & Social Care 2013, PSSRU

- **Displacement** – A deduction has been made to reflect the fact that patients require respite care as a result of the operation. These deductions have been applied to the summary gains.

Costs saved due to a reduction in primary care need post-operatively for hip and knee patients

Many individuals who receive a joint replacement do so because of underlying conditions such as arthritis, which often require a significant element of primary care from GPs and specialists. Following a successful joint replacement many individuals are able to reduce their utilisation of these services. This can represent a significant saving for healthcare bodies. The model here is based on the counterfactual question of what would be the result for the patient and society if the patient was unable to receive their operation. To consider the length of gain period the evaluation looked at the length of time for which joint replacements remain viable. One study[UU] shows that of total hip replacements 90-95% can expect to be functioning at 10 years and 85% at 20 years. For this model we have used the data prudently and assumed a reduction in healthcare use attributed to the specific joint problem over a five year period.

Costs saved due to a reduction in primary care need

Number of Hip operations at Horder		849	
Number of Knee operations at Horder		844	
Average number of GP visits per person for condition pa		3.58	
Average number of Specialist visits for condition pa		1.78	
Length of improvement in condition (years)		5.00	
Discount Factor		3.50%	
Annuity Rate			4.52
Cost per GP visit	£	25	
Cost of specialist visit	£	133	
Net costs saved		£	2,493,773
Alternative attribution		10%	-£ 249,377
Cost savings attributable to Horder		£	2,244,396

Key assumptions:

- **Number of operations/procedures** - Total numbers of hip and knee replacements at Horder Healthcare and MSK procedures carried out over the course of the evaluated year.
- **Average number of GP and specialist visits for condition pa** - Using data from Arthritis Care[VV] as a basis for the assumption of the number of GP and specialist visits each patient would require per year for knee and hip replacement patients.
- **Cost per GP visit** - Figure for the cost to the NHS[WW] of a GP visit.

[UU] Berry et al, 2002, Johnson et al 2003
[VV] Arthritis Care, 'OA Nation 2012',

- **Cost per specialist visit** - Figure for the cost of a specialist appointment within the NHS - Consultant led outpatient visit used as a proxy.[xx]

- **Net Costs saved** - Calculation based upon the avoidance of GP and specialist visits related to arthritis post-operatively for patients treated by Horder Healthcare. Also includes the cost for NHS treatment for the MSK patients seen by Horder Healthcare.

- **Period of gain** – Five years being a prudent period of time based on length of time that a joint remains viable as referenced in the introduction.

- **Alternative Attribution** - A deduction has also been made to recognise that the actions of patients, their friends and families also impacts on the wider health outcomes for patients.

[ww] NHS "Choose Well" factsheet
[xx] Department of health reference costs 12/13

Reduction in the infection rate at Horder Healthcare's surgical treatment centre during in-patient stay for hip and knee replacements

Horder Healthcare has lower infection rates, compared to NHS hospitals' infection rates. This is attributed to the processes, procedures, the use of separate rooms for patients and a strong culture of care and cleanliness that is owned by all staff, including consultants.

Reduction in infection rate at Horder

Number of inpatients treated			2,164		
NHS level of infection in hospitals			6%		
Horder level of MRSA infections			0%		
Average cost of NHS treatment for equivalent to MRSA etc.					
Code	**Quantity**		**Cost**		
WA07Z	550	£	1,433,437		
WA09A	600	£	2,138,327		
WA09B	2,601	£	5,710,808		
WA09C	3,386	£	4,934,229		
Total	7,137	£	14,216,801	Average: £	1,992
Costs avoided due to infection control				£	258,639
Alternative attribution				0% £	-
Cost savings attributable to Horder				£	258,639

Key assumptions:

- **Number of inpatients treated -** Total number of patients spending at least one night at The Horder Centre during the evaluated year (2013).
- **NHS level of infection in hospitals** - Expected rate of serious infections in NHS hospitals.[YY]
- **Horder Healthcare level of MRSA infection** - Number of serious infections following a stay at The Horder Centre.
- **Average cost of NHS treatment for infections equivalent to MRSA** - From the Department of Health reference cost 12/13 the unit costs of treating complex infectious diseases and other non-viral infections.
- **Costs avoided due to infection control** - Calculation based upon the above figures.
- **Alternative attribution** - No deduction for the work of other entities has been made as the reduction is felt to be solely down to the interventions and controls in place within The Horder Centre.

[YY] http://www.nhs.uk/news/2012/05may/Pages/mrsa-hospital-acquired-infection-rates.aspx (Accessed November 2013) and The Royal Orthopaedic Hospital NHS Foundation Trust, Annual Report and Accounts for the year ended 31 March 2013

Reduction in the impact of NSAID use for hip and knee replacements

Studies have shown that being on Non-Steroidal Anti-Inflammatory Drugs (NSAID) for over 90 days can lead to serious complications, including intestinal damage and death. A Canadian study[ZZ] of 12,082 new NSAID users (prescribed) with no prior gastrointestinal (GI) events showed 1.8% were hospitalised with GI problems, of these 60% had hospitalisation as their first GI episode. 5.5% of the patient group died.

In replacing hips and knees Horder Healthcare enables patients to cease or reduce pain control medications, including NSAIDs, and thus avoid these complications.

Reduction in impact of NSAIDs

Horder Patients on anti-inflammatory medication	1,440		
No. expected to develop intestinal issues after 90 day usage	77%		1,109
Cost of medications to combat intestinal issues	£40		
Number requireing prescriptions	25%	£	11,090
Admissions to hospital based on NSAID complications	2%		22
Cost of major gastrointestinal disorders			
Cost £ 16,766,182 Activity 6,836			
Cost of gastrointestinal infections with multiple interventions			
Cost £ 4,229,993 Activity 662			
	Average:	£	2,800
Total costs of damage		£	73,199
Deadweight	33%	-£	24,156
Alternative attribution	10%	-£	4,904
Attributable cost savings to Horder		£	44,139

Key assumptions:

- **Horder Healthcare patients using NSAIDs**– Assumption based on experience of pre-operative clinicians at Horder Healthcare.
- **Number expected to develop intestinal issues after 90 day usage -** Researched figure[AAA] of the percentage of individuals who would expect to develop intestinal problems. The data shows that 77% of NSAID users would expect to develop different functional symptoms. A small percentage of these will develop complications.

[ZZ] Rahme, E., et al., 'Cost of prescribed NSAID-related gastrointestinal adverse events in elderly patients', 2001, Br J Clin Pharmacol, 52, 185-192

[AAA] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1550973/ (Accessed November 2013)

- **No of patients likely to be admitted to hospital as a result of NSAID complications –** A Scottish based study[BBB] tracking NSAID users found that 2% were admitted to hospital following low-grade NSAID use.

- **Costs of intestinal disorders -** Taken from the Department of Health Reference Costs 12/13 as Major gastrointestinal disorders across all CC categories - DOH reference costs 12-13[CCC].

- **Total costs of damage** - Calculation based on the above numbers.

- **Deadweight** - The assumed figure from the project research group of those who will continue to take NSAIDs post operatively due to other joint problems, or other co-morbidities, not addressed by joint replacement.

- **Alternative Attribution** - A deduction has also been applied to recognise the role of others – such as GPs in ceasing to use NSAIDs.

[BBB] Macdonald, T.M. et al., 'Association of upper gastrointestinal toxicity of non-steroidal anti-inflammatory drugs with continued exposure cohort study', British Medical Journal 1997 315: 1333-7
[CCC] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215297/dh_131160.pdf

Impact on patients' social roles for hip and knee patients

The majority of Horder Healthcare patients are over the age of 55. The older generation, whether retired or still in work are known to perform important societal roles which contribute to the economy and wider family wellbeing. Three identified roles are volunteering, care of grandchildren, and acting as a carer - most often for a spouse. These roles save costs for the state in terms of social care, or in productivity as they enable parents of grandchildren to work, or for the third sector and other organisations who benefit from volunteering. By performing hip and knee replacements, Horder Healthcare enables individuals to continue to act in these roles, or in certain cases start fulfilling these roles as a result of the increased quality of life experienced. In the absence of the operation patients would be less able to perform these roles.

Impact on patients social roles						
Number of hip and knee patients				1693		
Number of patients over 60 seen at Horder				1473		
Expected number who care for Grandchildren				58%		
						854
Average hours of care per week				10		
Average cost of day-care in the UK per hour			£	4.26		
Value of childcare per year					£	2,215
Cost saved by Horder patients					**£**	**1,892,418**
Number of years providing care		3.00				
Discount Factor		3.50%				
Annuity Rate				2.80		
Total value over 5 years					**£**	**5,301,869**
Number of parents who wouldn't work if not for grandparent care of children				46%		393
GVA used	£	17,612				
Assumed number of hours worked		16				
Apportioned GVA			£	7,045		
Value enabled by Horder					**£**	**2,768,412**
Number of years providing care		5.00				
Discount Factor		3.50%				
Annuity Rate				4.52		
Total value over 5 years					**£**	**12,499,525**

Expected level of patients over 55 who care		18%		
				265
Value of unpaid carers to UK		£ 119,000,000,000		
Average hourly value		£ 18		
Average caring hours per week		60		
Value of maintaining ability to care			**£**	**14,889,353**
Number of years providing care	3.00			
Discount Factor	3.50%			
Annuity Rate		2.80		
Total value over 3 years			**£**	**41,714,561**
Value of volunteering by patients				
Number of patients over 60 seen by Horder		1,473		
% of over 50's who volunteer		38%		
Volunteer hours per week		5		
Value per volunteer hour		£11		
Value per year (assumed 40 weeks)		£2,200		
Number of years of volunteering	3.00			
Discount Factor	3.50%			
Annuity Rate		2.80		
Total Value over 3 years				**£3,449,803**
Total value created			£	62,965,758
Displacement		5%	-£	3,148,288
Deadweight		50%	-£	31,482,879
Alternative attribution		5%	-£	1,416,730
Value attributable to Horder			£	26,917,862

Key assumptions:

- **Number of patients over 60 seen by Horder Healthcare** - From Holder Healthcare data, the figure for the number of people over the age of sixty treated during the course of the evaluated year.
- **Expected number of patients with grandchildren** – Based on population statistics.[DDD]
- **Expected number of patients over 60 who care for grandchildren –** Based on research showing the percentage of UK grandparents who provide care for grandchildren.[EEE]

[DDD] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/181364/CWRC-00083-2011.pdf (Accessed November 2013)

- **Average hours of childcare per week –** Based on a government report showing the average number of hours of care per week that grandparents provide.[FFF].

- **Average cost of day-care per hour in the UK** - Researched[GGG] assumption of the average cost per hour.

- **Those who would not work without the support of grandparents** – One study highlights that some parents, mostly mothers, would not be able to work without the support of grandparents due to the cost of childcare.[HHH]

- **Productivity cost –** Value of the additional GVA brought about by one parent's ability to work. The GVA has been proportionately valued to be the equivalent of 16 hours of work.

- **Number of years of care –** Using the research for the length of replacement joint health[III] and the research for the length of time for which grandparents provide care,[JJJ] the period of benefit has been set at five years. Care may be for much longer, for example throughout primary school, but it is felt that many other factors will also influence a grandparent's continued role.

- **Costs saved by Horder Healthcare patients** - Calculation of the costs saved as a result of the treated individuals being able to continue/start providing care for grandchildren.

- **Expected number of patients who care for family members** - From the Carers Trust[KKK] the expected level of patients who would provide care for another.

- **Value of unpaid carers to UK** - Value of unpaid carers to UK from Carers UK.[LLL]

- **Average hourly value** - Value of average hour of care provided from Carers UK.[MMM]

- **Average caring hours per week** - Researched[NNN] assumption of the number of hours per week that carers provide.

- **Value of maintaining ability to care** - Calculation based on the hours per week caring, average value per caring hour and expected Horder Healthcare patients acting as a carer.

- **Total value created** - Sum of the value of informal spousal care and informal childcare by Horder Healthcare patients.

- **Percentage of over 50s who volunteer -** Researched[OOO] figure applied to all patients seen by Horder Healthcare to indicate an expected number of volunteers.

- **Volunteer hours per week**- Assumption by the project research group of the number of hours per week that each volunteer would contribute.

- **Value per volunteer hour** - Based on research by the Welsh Government[PPP] and Help for Hospices[QQQ] this is the value that each hour of volunteering is expected to contribute.

[EEE] TUC YouGov poll, 'Nearly seven million grandparents provide regular childcare', December 2013
[FFF] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/181364/CWRC-00083-2011.pdf (Accessed November 2013)
[GGG] http://www.daycaretrust.org.uk/data/files/Research/costs_surveys/Childcare_Costs_Survey_2013.pdf (Accessed November 2013)
[HHH] Statham, J., 'Grandparents providing child care: Briefing paper', Childhood Wellbeing Research Centre, November 2011
[III] Berry et al, 2002, Johnson et al 2003
[JJJ] Statham, J., 'Grandparents providing child care: Briefing paper', Childhood Wellbeing Research Centre, November 2011
[KKK] http://www.carers.org/sites/default/files/always_on_call_always_concerned.pdf (Accessed November 2013)
[LLL] http://www.carersuk.org/professionals/resources/research-library/item/2123-valuing-carers-2011 (Accessed November 2013)
[MMM] http://www.carersuk.org/newsroom/item/2121-unpaid-carers-save-%C2%A3119-billion-a-year (Accessed November 2013)
[NNN] http://www.carers.org/sites/default/files/always_on_call_always_concerned.pdf (Accessed November 2013)
[OOO] http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/publications/corporate/statistics/citizenshipsurveyq4200809 (Accessed November 2013)

- **Value of volunteering enabled** - Calculation of the total hours spent volunteering and the value per hour.
- **Displacement** - Assumption by the project research group of those who may be unable to continue caring due to a reduction in mobility after their treatment.
- **Deadweight** - Assumption by the project research group of those who would continue to care, or volunteer, even without surgery or treatment. Deadweight has been set high at 50% as the action research group found that many elders will still strive to care for family members despite pain and poor mobility.
- **Alternative attribution** - Assumption by the project research group of the impact of other parties to enabling Horder Healthcare patients to continue or begin to care for another person.

[PPP] http://www.wcva-ids.org.uk/wcva/1181
[QQQ] Help for Hospices: Volunteer Value, July 2006

Impact on carers of patients treated by Horder Healthcare

Participants of the action research group described that a number of patients are cared for at home by a spouse or family member. The interventions of Horder Healthcare through joint replacement can help to alleviate the dependency needs of the patient and enabling the patient carer relationship to continue for longer before any support is needed from external services, for example increased mobility of the cared for assists the carer in activities such as picking up the spouse after a fall, or assisting bathing and general care.

Impact on Carers of patients treated at Horder				
Number of patients seen at Horder with carers	169			
No. of cared for individuals requiring home care	20%			
Number of those requiring care who access care	20%	7		
No. of cared for individuals requiring day care	20%			
Number of those requiring care who access care	20%	7		
No. of cared for individuals requiring accommodation	10%			
Number of those requiring care who access care	20%	3		
Those not requiring forms of support	50%	85		
Average cost of home care			£	25
Average cost of day care			£	10
Average cost of accomodation			£	24
Costs of additional care accessed			£	319
Number of days accessed per year				50
Total value created			£	15,938
Alternative attribution	20%		-£	3,188
Value attributable to Horder			£	12,751

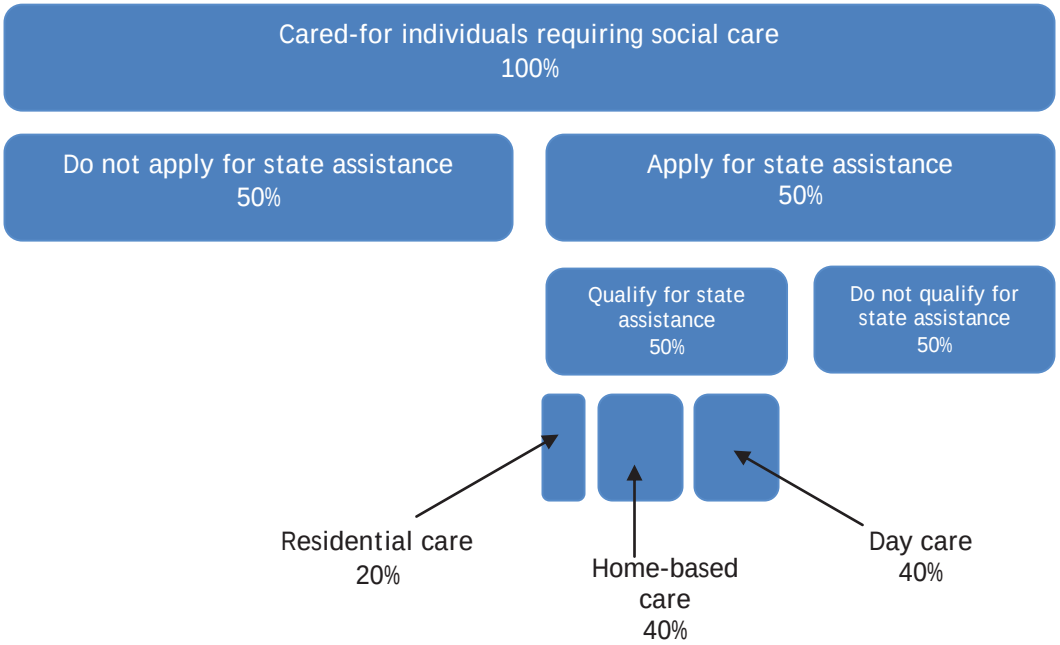
Key assumptions:

- **Number of patients seen with a carer** – Action research group assumption that 10% of Horder Healthcare's patients will have a carer. Around 6.4 million people provide unpaid care in the UK[RRR] and around 2.8 million people over 50 provide unpaid care, with 600,000 acting as carers for those with dementia.[SSS] A Work Foundation study[TTT] found that 54% of participants with a musculoskeletal disorder

[RRR] Carers UK, 'Unpaid carers save £119 billion a year', 11th May 2011
[SSS] Age UK, 'Later Life in the United Kingdom', October 2013
[TTT] Zheltoukhova, K., et al., 'Taking the Strain: The impact of musculoskeletal disorders on work and home life', The Work Foundation, December 2012

also had another health condition: 37% with a named mental health condition; 21% with respiratory conditions; 26% with diabetes, Crohn's or IBS; 8.8% with cardiovascular conditions; 3.2% with neurological conditions such as MS; and 1.9% with HIV or AIDS.

- **Number of cared-for individuals requiring social care** - This is an assumption made by the project research team of the number of cared-for individuals who would require respite care whilst their carer is unable to care for them following a joint replacement. The assumption is that 50% of patients would have family step in to help, while 50% would apply for some form of assistance from the State. Additionally we have assumed that 50% of those applying for state assistance would be unable to access care due to strict eligibility criteria. Little data is published on those who apply for care but fail to meet criteria so this is based on a group assumption. Of those who apply for and qualify for care we have assumed that they receive care in the following ways:
  - 20% receive residential care
  - 40% receive home-based care
  - 40% receive day care
- Data on those accessing different types of care is available in the PSSRU data and the ratios used here reflect these.
- **Cost of care per day** - An average of costs per day for respite care – these figures are blended averages based on PSSRU unit[UUU] costs data, the blended average made up of costs for accommodation, day care and home care.
- **Total value created** - Sum of the above.



- **Alternative attribution** – Family members and other voluntary organisations will also assist in helping the patient to be cared for at home before requiring any state intervention.

[UUU] Curtis, L., Unit Costs of Health & Social Care 2013, PSSRU, The University of Kent

Ability of patients to enter employment following treatment

Joint replacement or the treatment of MSK injuries can enable individuals to re-enter employment, or return to a greater level of productivity, due to the alleviation of pain or an increase in the range of motion, and improved joint strength and stability.

Ability of patients to enter employment following treatment

	Total	Of Working Age
Number of Hip operations at Horder	849	110
Number of Knee operations at Horder	844	110
Number of MSK procedures at Horder	4,068	529
	5,012	749
% of Hip patients able to enter employment post-op	13.50%	
% of Knee patients able to enter employment post-op	0%	
% of MSK patients able to enter employment post-op	13.70%	
Local GVA	£ 17,612	
Reduction in work hours due to sickness per week	4.11	
Average sick hours per year	197	
Assumption on improvement post operation	50%	99
GVA per sick hour	£ 9.17	
Total value avoided		£ 677,644
Value contributed to economy		£ 2,216,071
Displacement	1.5%	- 33,241
Alternative Attribution	10%	- 218,283
Value attributable to Horder		1,964,547
Gain per patient		£ 341
Gain by beneficiary		
State		£ 1,964,547

Key assumptions:

- **Number of hip and knee patients seen at Horder Healthcare of working age** - From Holder Healthcare data, the total figures for each treatment with an assumption that 13% are of working age as 87% are over 60.

- **Percentage able to re-enter employment following operation or treatment -** Researched figures based on the likelihood of an individual gaining employment following a hip replacement[VVV], knee replacement[WWW] or successful MSK procedure[XXX] which reduces pain.

- **Local GVA**- Government figure for the Gross Value Added of an individual in full time employment in the Kent region, used as a proxy for the value of employment, this is considered prudent as the age and profile of patients at Horder Healthcare would suggest that they would be above average in their remuneration.

- **Reduction in work hours due to sickness per week** - Research[YYY] suggesting the average hours taken off per week due to arthritis - used as a proxy.

- **Average sick hours per year** - Calculation of the total hours lost for the individuals of working age.

- **Assumption on improvement post operation** - Assumption by the research group of the improvement and thus reduction in sick hours per individual post treatment. The group assumed that there may not be a 100% improvement in productivity and there may still be other joint limitations, or patients may decide to reduce work hours.

- **GVA per sick hour** - Calculation of yearly GVA per hour assuming a 48 week working year and 37.5 hours per week.

- **Total value created** - Calculation of the above.

- **Displacement** - Average number unable to work due to operation or treatment from research.[ZZZ]

- **Alternative attribution** - Impact of others such as employers in helping to improve access to work and productivity.

[VVV] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1964053/ (Accessed November 2013)
[WWW] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1964053/ (Accessed November 2013)
[XXX] http://www.biomedcentral.com/content/pdf/1472-6882-13-300.pdf - Analysis assuming 2 point decrease in pain experienced (Accessed November 2013)
[YYY] Zheltoukhova, K., et al., 'Taking the Strain: The impact of musculoskeletal disorders on work and home life', The Work Foundation, December 2012
[ZZZ] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1964053/ (Accesssed November 2013)

Value of volunteering with Horder Healthcare

Horder Healthcare has its own volunteer programme which is open to anyone to volunteer in a range of different activities. It is a well organised programme which places people of different ages in various essential roles throughout the organisation.

Volunteers at Horder		58
Volunteer hours per week		4
Value per volunteer hour		£11
Value of volunteering enabled	£	132,704
Cost of transport and other items	-£	6,556
Alternative attribution	10% -£	13,270
Value attributable to Horder	£	112,878

Key assumptions:

- **Volunteers at Horder Healthcare** - From Holder Healthcare data.
- **Volunteer hours per week -** From Holder Healthcare data.
- **Value per volunteer hour** - Based on research by the Welsh Government[AAAA] and Help for Hospices[BBBB] this is the value expected to be contributed due to each hour of volunteering.
- **Value of volunteering enabled** - Calculation of the total hours spent volunteering and the value per hour.
- **Alternative attribution** – Applied on a prudent basis to allow to variability in the value of the each of the volunteering roles.

[AAAA] http://www.wcva-ids.org.uk/wcva/1181
[BBBB] Help for Hospices: Volunteer Value, July 2006

Economic benefit of the long term reduction in injurious falls

This is a model which we feel to be a potential area of important gain, but for which there is little current research to support. It is contained within here with conservative figures to highlight this as an area for further research. The premise of this model is that in the absence of a hip or knee replacement (and some MSK physiotherapy patients) that some patients would be at risk of falls in the short or long term due to poor balance, gait, strength and foot placement. The research shows that a reduction in fall risk also depends upon effective muscle rehabilitation post-operatively. This suggests that longer-term follow-up and support services from Horder Healthcare for those identified as at risk of falls may be both a useful service to provide to commissioners and an important area of research.

Long term reduction in injurious falls				
Horder Hip and Knee patients		1,693		
Horder Patients over 60		1,473		
General risk of fall amongst over 60's		33%		
Expected Incidents (Hips and Knees)				486
Those who require treatment		30%		
% avoided due to Horder intervention (Hips and Knees)		5%		
Total incidents avoided				7
Cost of falls - Population of 421				
Costs experienced by individuals in 12 months pre fall	£	2,500,000		
Direct costs of fall incident	£	1,200,000		
Cost experienced in 12 months after fall	£	4,200,000		
Direct costs of incident + increase in costs experienced			£	2,900,000
Cost per person			£	6,888
Value of falls avoided			£	50,222
Alternative Attribution		10%	-£	5,022
Attributable value of avoided falls to Horder			£	45,200
Gain per patient			£	31
Gain by beneficiary				
NHS			£	45,200

Key assumptions:

- **Horder Healthcare patients over 60** - From Holder Healthcare data.
- **General risk of falls in the over 60's – 33%** - From research DWP data.[CCCC]
- **Those who require treatment –** One report[DDDD] shows that most falls (75-80%) are never reported. We have used this research to assume that 20% of those who fall will require treatment. However it should also be noted that with repeated falls people can develop withdrawal, low confidence, depression and loneliness and so non-injurious fallers represent an important group to be addressed through healthcare, as the social impact of poor wellbeing is likely to be high.
- **Percentage of falls avoided due to joint replacement** – Of those who are at risk of a fall (33%) and those that require treatment following a fall (20%) we have assumed that 5% of this group would be prevented from future falls as a result of a hip or knee replacement. This has been conservatively modelled due to the lack of supporting research, but we would anticipate that the actual amount who avoid falls later in life, is greater.
- **Cost of falls** - Taken from a research study[EEEE] looking at the direct costs of treating a fall and the increase in medical treatment experienced post fall.
- **Direct costs of incident and increase in costs expected** - Taken from the above study.
- **Cost per person** - Calculation of the above costs over the 421 participants in the study.
- **Value of falls avoided** - Calculation of the above average cost over the Horder Healthcare patients.
- **Alternative attribution** - Acknowledging the support of family, friends, other agencies, exercise programmes in the prevention of falls later in life.

[CCCC] http://www.dwp.gov.uk/publications/specialist-guides/medical-conditions/a-z-of-medical-conditions/falls/ (Accessed November 2013)
[DDDD] Douglas, L., NHS Lothian Falls Prevention and Bone Health Strategy 2011-2016, NHS Lothian, January 2011
[EEEE] http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/exploring-system-wide-costs-of-falls-in-torbay-kingsfund-aug13.pdf (Accessed November 2013)

Average wait for operation

Due to efficiencies in how Horder Healthcare operates, it is able to minimise the time from referral to treatment. This has the benefit of allowing the positive value created to be experienced quicker than would otherwise be the case. This would bring forward the gains experienced by patients, such as the ability to return to work, volunteering, or family care. However it was also felt that patients may choose to recuperate for longer and so the gain valued here is a return to work and greater productivity, as it was felt more likely that patients would return to work as soon as they were fit.

Average wait for operation

Other local hospitals - Time from GP referal to operation:

	Hip	Knee
Tunbridge Wells Hospital	7	7
Queen Victoria	7	7
Maidstone	7	7
Oxted	14	14
Princess Royal	13	13
Average	9.6	9.6
Horder	6	6

Average decrease in surgery waiting time	(7.20)

		Annual		Apportioned
Costs saved due to reduced waiting time - quicker return to work	£	2,216,071	£	78,836
Total value due to decreased delay in treatment			£	78,836

Key assumptions:

- **Other local hospitals' waiting times (in weeks)** - From NHS data[FFFF] of the waiting times for knee and hip operations at other hospitals in the vicinity of The Horder Centre. The average of 9.6 also reflects other average waits not shown here such as Brighton (Royal Sussex County Hospital) and Eastbourne (Eastbourne District General Hospital) which have an average of 9 weeks wait from referral to treatment.

- **Horder Healthcare -** From Holder Healthcare data based on their average wait time from referral to treatment.

- **Average decrease in surgery waiting time** - Value of the weeks saved due to being treated at Horder Healthcare based on the above values.

- **Impacts evaluated** - Based on the previous models, the values have been brought in and apportioned over the decreased waiting times to give a total number of weeks over which the impacts are felt. In this case the value of an earlier return to work and full productivity.

- **Total value due to decreased delay in treatment -** Sum of the above apportioned impacts.

[FFFF] http://www.nhs.uk/Service-Search/Hospital/LocationSearch/7/Procedures (Accessed November 2013)

Horder Healthcare staff wellbeing

Due to the therapeutic environment, enablement culture and working conditions, Horder Healthcare employees have high satisfaction (2014 rates: staff satisfaction rate – 3.9, staff engagement – 4.1). They also have a history of low staff turnover rates. A number of people have reached retirement recently however and an unnatural rise in the figures reflects this. The benefit of excellent employee wellbeing is a wider benefit to patients, as well as savings in the form of retention, reduced sickness costs and absenteeism. Other studies[GGGG] correlate staff wellbeing with improvements in patient care and outcomes; we have not quantified this here but would expect there to be additional gains above the amount stated below as a result of good staff wellbeing.

Staff Wellbeing

Absenteeism				
At NHS hospitals days per year	9.5			
At Horder days per year	8			
FTE staff at Horder	100			
Reduced sick days		1.5		
Average GVA in Health and Social Care Sector		£ 26,175		
Saved GVA				**£ 10,757**
Staff Turnover				
Turnover in NHS	26%			
Turnover at Horder	19%			
Reduction in turnover	7%			
Equivalent number of staff		7		
Recruitment costs		£5,000		
Lost GVA - assume 50% reduction for 6 months		£ 6,544		
Total costs				**£ 80,805**
Losses avoided				£ 91,562
Alternative Attribution			10%	-£ 9,156
Attributable value of avoided falls to Horder				£ 82,406

[GGGG] The Work Foundation, RAND Europe, Aston Business School, 'Health and Wellbeing of NHS Staff: A Benefit Evaluation Model', Department of Health, June 2009

Key assumptions:

- **Absenteeism at NHS hospitals days per year –** 9.5 days from NHS data[HHHH] of staffing levels in the South East over the evaluated year.
- **Absenteeism at Horder Healthcare days per year –** 8 days – from Horder Healthcare data.
- **Absenteeism difference days per year –** 1.5 days.
- **GVA saving -** £10,757, based on an average GVA in the healthcare sector of £26,175.[IIII]
- **NHS staff turnover –** 26% NHS staff turnover[JJJJ].
- **Horder Healthcare staff turnover –** 19%. From Holder Healthcare data on their staff turnover
- **Recruitment costs** – £5,000 – based on average recruitment costs in healthcare sector.[KKKK]
- **Lost GVA –** Reduced productivity for the first 6 months as a result of new in post.
- **Alternative attribution –** 10% due to the less intensive nature of Horder Healthcare's work with patients compared to a general hospital.

[HHHH] Bullard, L., 'Sickness absence rates in the NHS: January – March 2013 and Annual Summary 2009-10 to 2012-13', Health & Social Care Information Centre
[IIII] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/34607/12-1140-industrial-strategy-uk-sector-analysis.pdf
[JJJJ] Dolan, S., for the Royal Marsden NHS Foundation Trust, 'Board Report: Assuring Safe Staffing for Care' quoting national average turnover, June 2014
[KKKK] http://www.personneltoday.com/hr/hidden-cost-of-recruitment-tops-5000-per-new-hire/ (accessed November 2013)

Appendix D:
Sensitivity Analysis

Various assumptions have been made in the course of preparing this analysis and the detailed tables of calculations in Appendix C. Some relate to estimates made by the action research group in coming to the views of outcomes, and some relate to the interpretation of information arising from other research work and statistical analysis referenced in this work.

In order to assess the extent to which these assumptions are material, potentially key assumptions have been identified. Each has been subject to variation within what appears to be a reasonable range, and the effect on the total valued outcomes under the study has been recast.

For this evaluation certain key assumptions may be subjected to material change without materially altering the conclusion of this study (that the social impact of Horder Healthcare's work with the selected patients exceeds the cost of funding them).

Appendix E:
Discounted cash flow methodology

Our analysis takes into account, where necessary, the premise that the value of money changes over time. The value of future cash flows is subject to the risk that those cash flows will not in fact occur for any number of reasons.

For the purposes of this report, assumptions provided by Horder Healthcare have been taken to be reflective of any risks associated with the likelihood of benefits actually flowing to the stakeholder concerned. This leaves the risk that the value of the benefit will fluctuate due to economic factors that are beyond the control of the Charity or stakeholders. This can be measured using a long term average rate of inflation. Where necessary a discount rate of 3.5% has been used, which equates to the average rate of inflation in the UK measured over the past twenty years, per the Bank of England. It is also consistent with the discount rate typically used by the UK Government for project appraisal (for projects lasting for between 0 and 30 years).[LLLL]

For benefits only during the year in which they are funded no discounting is used as both the funding and the benefit are released during the year and the timings are therefore already matched.

Where a benefit occurs in a future year, the value of the benefit is multiplied by a discount factor to allow comparison with the cost of funding. The discount factor is calculated using the formula below:

$$DF = \left(\frac{1}{1+r}\right)^{t}$$

Where:

- 'DF' is the discount factor by which a future benefit is multiplied to restate it in current terms;
- 'r' is the discount rate used; and
- 't' is the time, stated in years, between the date at which value is measured and the date at which the benefit is achieved.

To measure benefits that occur at a fixed value over a period of time, Horder Healthcare were asked to assume that any future benefits occur in the form of a constant annuity over a fixed period. The expected annual cash flow is then multiplied by an annuity factor to give the value in present day terms of the benefit. The annuity factor is calculated using a modified discount formula, as shown below:

$$AF = \left(\frac{1}{r}\right) \times \left[1 - \left(\frac{1}{1+r}\right)^{t}\right]$$

Where:

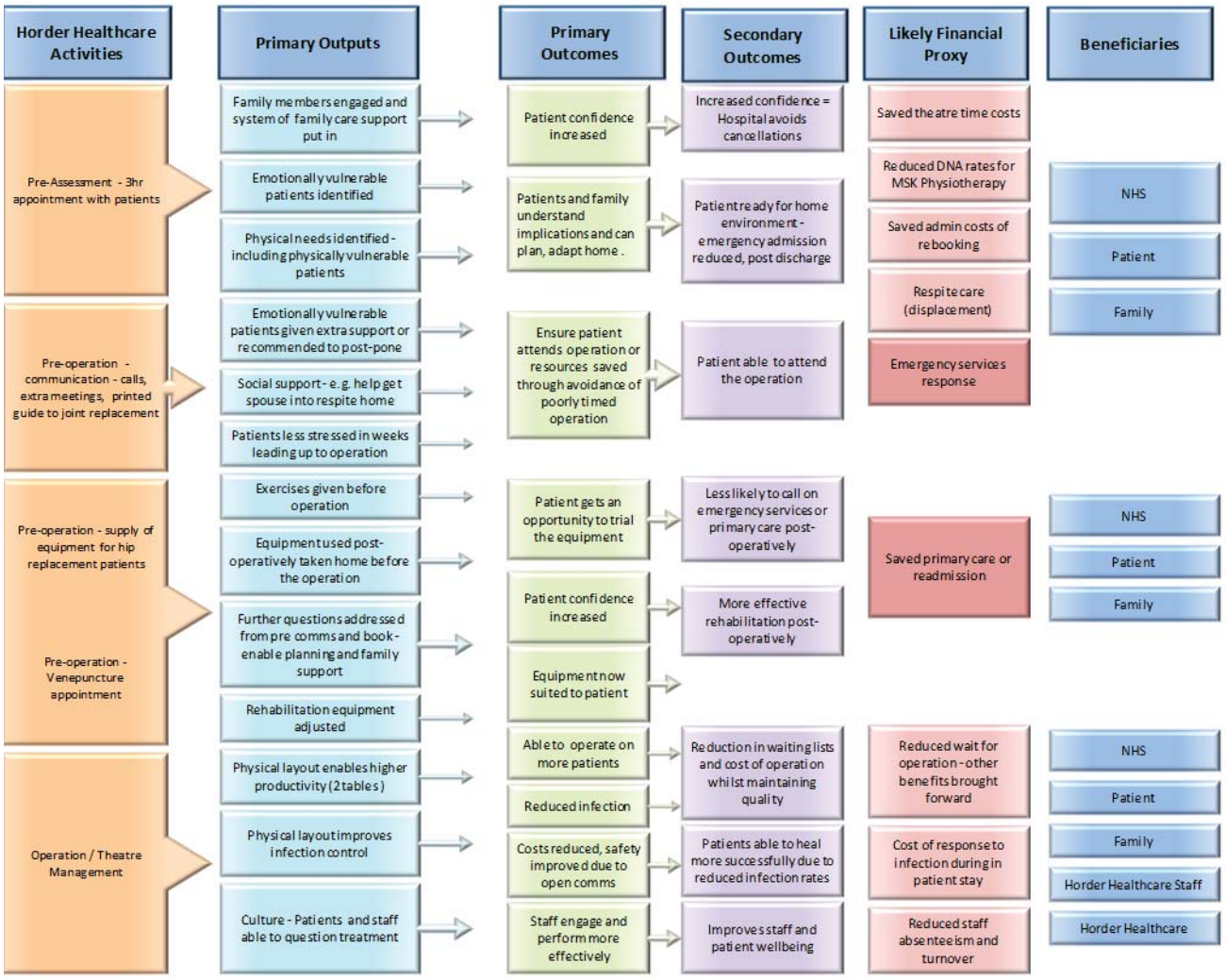
- 'AF' is the factor by which a constant annuity is multiplied in order to obtain the present value of that annuity over a given period of time;
- 'r' is the discount rate used; and
- 't' is the number of years the annuity is expected to occur over.

[LLLL] Lowe, J., 2008, Intergenerational wealth transfers and social discounting: Supplementary Green Book guidance, London, HM Treasury

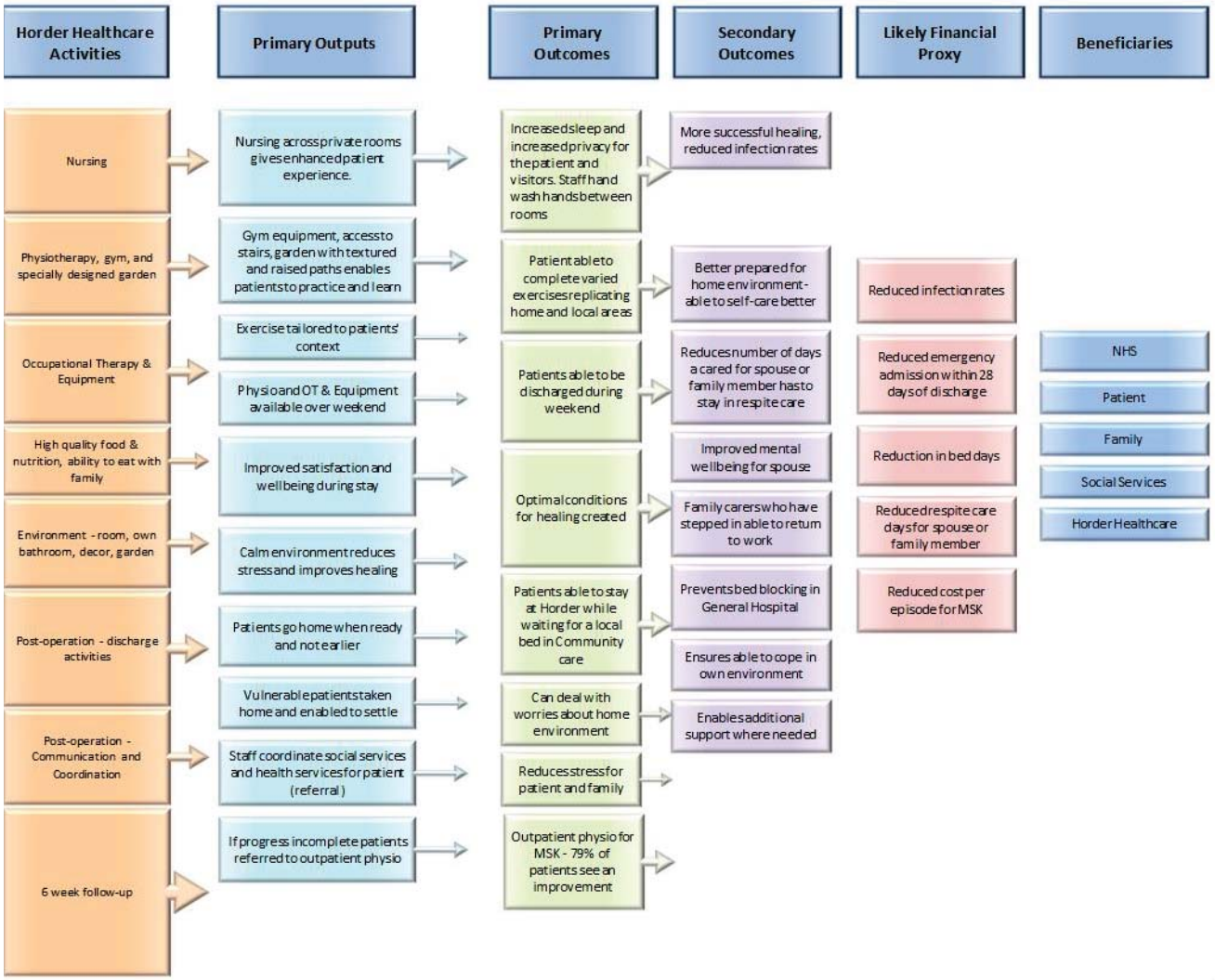
Where an annuity is to be deferred for a number of years (e.g. a project is being developed now but the savings will not be realised for several years), an annuity factor is used to calculate the present value of the incremental benefits in the future which is then multiplied by a discount factor to restate it in present day terms.

Appendix F: Outcomes maps

Outcomes Map One



Outcomes Map Two

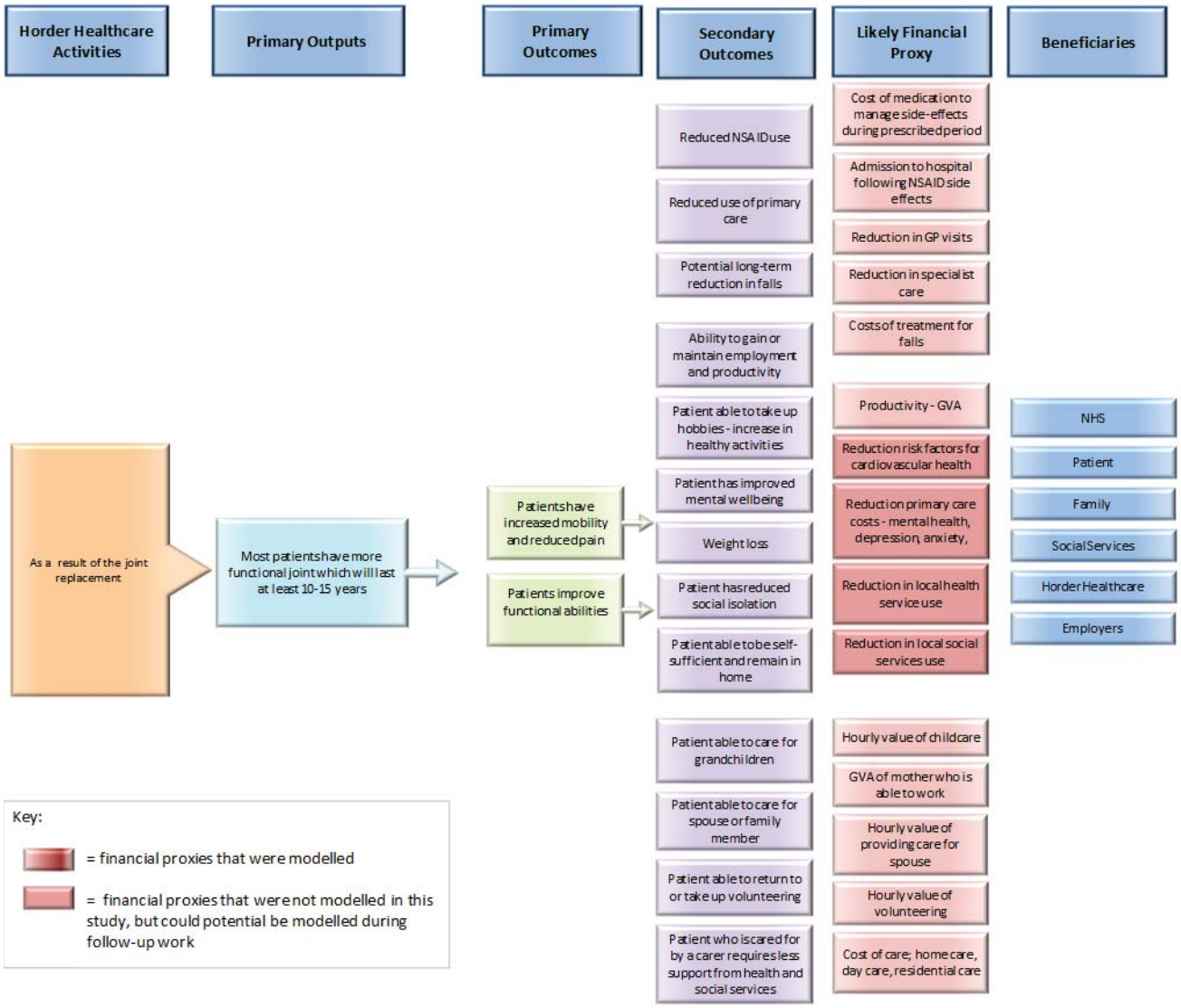


Key:

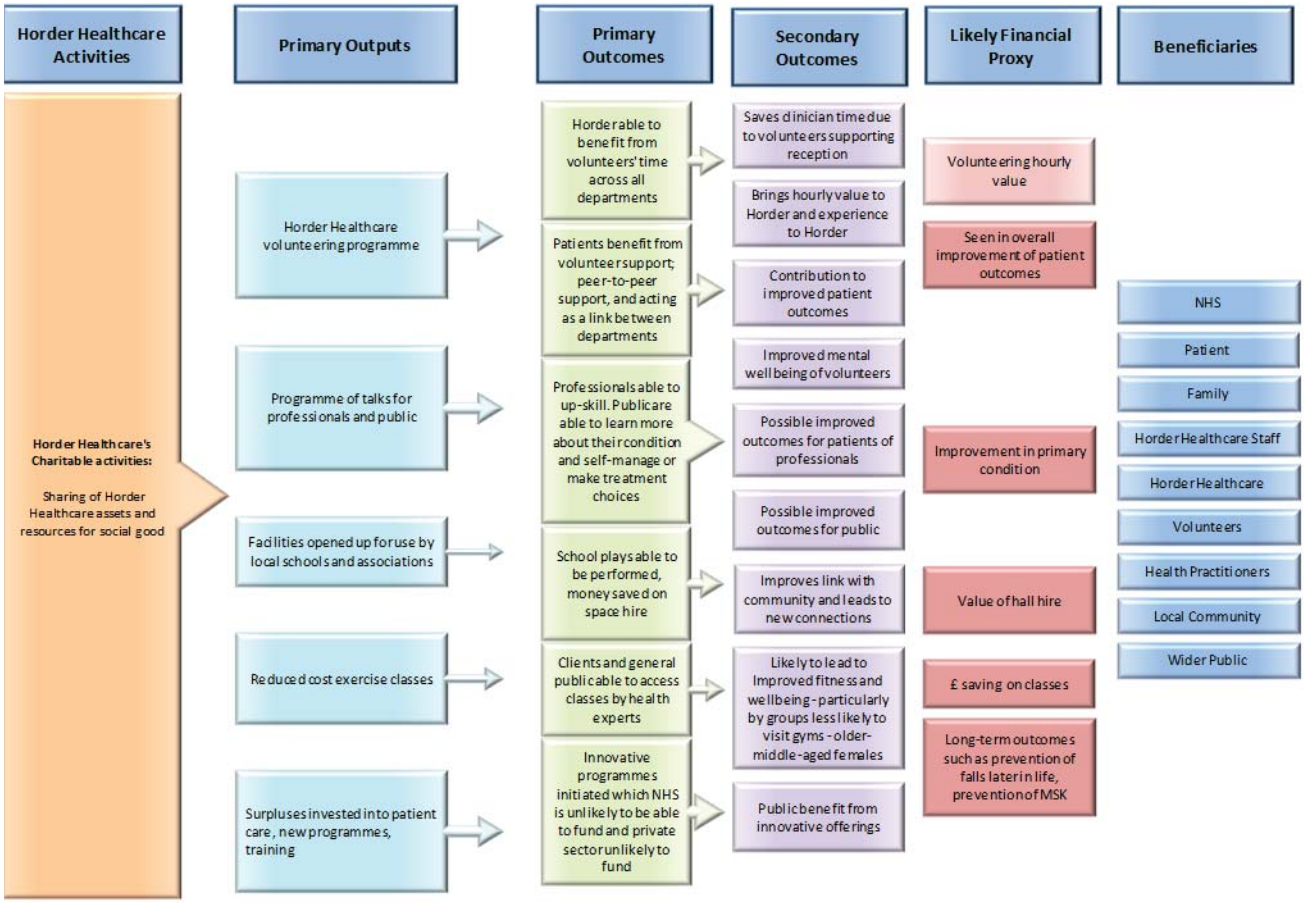
= financial proxies that were modelled

= financial proxies that were not modelled in this study, but could potential be modelled during follow-up work

Outcomes Map Three



Outcomes Map Four



Key:

= financial proxies that were modelled

= financial proxies that were not modelled in this study, but could potential be modelled during follow-up work

Appendix G:
Action research group

Horder Healthcare

Beverley Asprey - Project Lead, Clinical Governance Manager

Joe Christmas – Theatre Manager

Tracey Whitehead – Registered Nurse, Nights

Sylvia Cass – Care Assistant

Eve Prentice – Pre-assessment Lead

Hannah Cottingham – Senior Physiotherapist, Outpatients

Rachel England – Physiotherapist, Inpatients

Will Thomas – Fundraising Assistant

Rod Keable – Volunteer and former knee patient

Iris Doorbar – MSK physiotherapy patient

Baker Tilly

Keith Ward – Director Social Impact Services

Carla Ross – Manager Social Impact Services

Richard Coram – Analyst Social Impact Services

Horder Healthcare Project Steering Group

Diane Thomas – Chief Executive

Alison Green – Assistant to the Chief Executive

Beverley Asprey – Clinical Governance Manager

Claire Powell – Marketing Manager

Jennifer Ebert – Commercial Manager

Appendix H
SROI methodology bibliography

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