

MENTAL HEALTH BENEFITS OF WATERWAYS
THE CENTRE FOR SUSTAINABLE HEALTHCARE
FOR THE CANAL & RIVER TRUST

THE CENTRE FOR SUSTAINABLE
HEALTHCARE
Cranbrook House, 287-291 Banbury
Road, Oxford OX2 7JQ
t: +44 (0)1865 515811
www.sustainablehealthcare.org.uk
July 2016

MENTAL HEALTH BENEFITS OF WATERWAYS – FINAL REPORT

Contents

Introduction.....	3
Literature Review	3
Evidence summary by psychiatric disorder	3
Which interventions were found to be most effective?	4
What are the key health issues at each of the case study areas?	4
Key differentiating elements of the waterside environment.....	7
Interventions	8
Existing projects at each case study area	12
Recommended interventions at each case study area	15
Conclusion	19
Appendix 1: Table of Evidence by psychiatric disorder.....	20
Appendix 2: Social Prescribing.....	21

Appendix 3: Natural Health Evidence by Psychiatric Disorder – Provided separately

Appendix 4: Intervention Matrix – Provided separately

Introduction

In January 2016 the Canal & River Trust (CRT) commissioned the Centre for Sustainable Healthcare (CSH) to carry out the scoping phase of a project to research the benefits of waterways for mental health. This report summarises the work that has been carried out and uses the findings of each element to inform the main output for this phase: a set of recommended pilot projects to test the mental health benefits of different interventions at 6 case study canal sites in England and Wales.

CSH has reviewed the existing literature and evidence base around blue and green space, social prescribing and the methodology used to assess mental and physical outcomes from nature interventions. CSH has also undertaken a review of the health priorities of each of the case study areas, summarised the amount of evidence available determining the benefits of different interventions for specific psychiatric disorders and identified which interventions are happening locally at each of the case study areas. All these factors have informed the choice of which interventions would be most appropriate to meet stated local health priorities.

Literature Review

Included as a separate document alongside this report this shows that there is very little research specifically on mental health outcomes of interventions in blue space but there is a considerable amount in green space which is relevant.

It should also be noted that there is a strong link between benefits to mental health and increased level of physical activity in general. A number of the studies, particularly for anxiety and depression, have been of participants engaging in physical activity such as health walks with positive mental health benefits being measured as a result. The choice of interventions for the CRT has sought to prioritise those where the specific elements of the waterway environment can deliver benefits over and above generic physical activity interventions.

Within the literature review are sections on methodology and social prescribing. There are also some examples of social prescribing in Appendix 2.

Evidence summary by psychiatric disorder

A comprehensive survey of the evidence relating interventions in blue and green space to specific and more general psychiatric disorders has been carried out, with evidence categorised by disorder, See Appendix 1 and the separate table of 'Natural health evidence by psychiatric disorder'. This taxonomy is from the top level of The International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD10) and contains eleven main psychiatric disorder categories¹. These include schizophrenia, learning disabilities and bipolar to mixed mental health, self-reported mental health and the mental health of the general population. The interventions researched most widely are social and therapeutic horticulture, care farming, conservation activities and physical activity in green space.

¹ https://en.wikipedia.org/wiki/ICD-10_Chapter_V:_Mental_and_behavioural_disorders

Which interventions were found to be most effective?

The interventions of social and horticultural therapy, walking, and conservation activities are fairly mainstream, all have a reasonable evidence base for mental health outcomes and would be relevant for consideration at each of the Canal & River Trust case study sites. However, some other, less researched interventions, such as gardening for dementia patients, which engage with fewer participants but in a more detailed manner, as evidenced in research such as Hewitt et al (2013) might also be relevant².

This work adds to the conclusions by researchers that the evidence base for particular interventions is not yet sufficiently researched, with Lovell et al (2015) suggesting that many of the data are based on evaluation rather than data from defined methodologies, and the latest Natural England report³ suggesting that more standardised outcomes measures and use of methodologies is needed.

The number of studies undertaken does not always give an accurate idea of the number of people assessed. Some of the walking and physical activity studies assessed much greater numbers of participants whereas interventions such as care farming and conservation activities tend to provide more detailed observations and assessments of fewer participants.

What are the key health issues at each of the case study areas?

The Canal & River Trust have chosen six case study areas representing a broad geographical area of England and Wales. Each of the areas has slightly different demography and health priorities but all are part of an urban area with the communities in the area living close to the canals.

As part of the process of identifying an intervention for each of the case study areas the health needs of the local populations were researched. This involved a review of the JSNA, Public Health Director's report, Mental Health Strategy, Public Health Outcomes and other related health documents applicable to the case study area. Health priorities were similar in a number of the areas and can be seen below. The public health outcomes framework (PHOF) for each case study area was one of the most detailed and important data sheets used as it focuses on specific health issues and whether they were above the national or regional average. This provided more of an insight into the health priorities of the local area than, for example, the OS data maps, which provided an overview based on general health, deprivation, childhood obesity and access to GPs.

²Hewitt et al (2013) *Does a structured gardening programme improve well-being in young-onset dementia? A preliminary study. British Journal of Occupational Therapy*

³ <http://publications.naturalengland.org.uk/publication/4513819616346112>

Understanding the Needs of an Area

CRT also requested a guide on how to help their team understand the specific priorities in a given area. Again this is a fairly subjective area of investigation, as different areas will present their priorities in different ways. However there are a number of core documents which will allow operatives to gain a broad understanding of the mental health needs of an area.

The following are suggested for research purposes:

- Census data – very high level but consistent across all areas. Life expectancy vs national average, child obesity, and access to GP are all captured in this survey
- Indices of multiple deprivation – give a general indication of levels of deprivation in an area, including employment, health and disability, access to services, and the living environment, all of which can give an indication of mental health pressures facing a population,
- Health Profiles – Public Health England regularly publishes a health profile on each local authority area. This gives an overview of the health of an area, and also includes comparators with national averages and a summary of inequalities within the area,
- Local Strategies, including the Joint Strategic Needs Assessment, and the Health and Wellbeing Strategy. These documents vary significantly between areas, but can help to drill down on specific identified areas of concern in a given area. These documents typically combine an assessment of the above datasets, combined with bespoke local research, to give a headline picture of key health issues, often accompanied by a delivery or commissioning strategy outlining how they are addressed.

Desk-based research can give an overview of priorities within an area, both in terms of conditions and geographical hotspots. These are best used in combination with face to face discussions with the local public health team, which will be able to flesh out the data and give proper insight into local priorities.

Table 1: Key health priorities for each of the case study areas in 2016

Case study area	Health Priorities			
Stoke on Trent	Obesity	Mental health, particularly anxiety and depression		
Milton Keynes	Generally a healthy population but there are great health inequalities	Healthy workplace		
Islington	Drugs and alcohol (Highest alcohol admission to hospital in London)	Skill building and raising profile of physical health		
Blackburn	High alcohol admission	High level of obesity	High level of self-harm	High number of obesity and crack users (addiction issues are the highest per size of the populations compared to all the other case studies in this project)
Wakefield	Physical inactivity	Self-harm and addiction issues		
Wrexham	Highest number of adults being treated for mental health issues in North Wales	Highest number of children with mental health issues in North Wales	Physical inactivity	

Mental health issues for each of the case study areas are often linked to addiction issues, physical inactivity and the stresses of living in a deprived environment, leading to anxiety and depression and other disorders. Research into the suitability of green/blue space interventions for tackling these health issues is detailed in CSH's *Evidence summary by psychiatric disorder* – see Appendix 1.

Key differentiating elements of the waterside environment

When considering potential interventions, we have considered aspects of the CRT estate which could potentially differentiate waterway interventions from other more general outdoor activities.

These key aspects are:

- Access to water, demonstrated as having a therapeutic impact
- Potential to include “on-water” activities in the provision
- Ecology, with the waterside environment hosting a large range of habitat types and species not commonly found in other areas,
- Heritage, with canals forming an integral part of the industrial development of Britain’s towns and cities, and a significant connection to local cultural identity,
- Topography, with the majority of canal side environments being characterised by shallow if any gradients and good quality footpaths,
- Accessibility, with many canals passing through urban centres, and frequently intersecting with roads and other transport links,
- Links to communities, with canals often passing through post-industrial areas linked to deprivation and an increased prevalence of mental ill health,
- Access for all, with CRT having consciously opened up their towpaths to all users,
- Logistics, with CRT maintaining the whole of their estate, and a strong network of stores and depots meaning that tools and materials for conservation tasks can be readily made available on work locations.

Interventions

There are a number of different interventions worthy of consideration for mental health benefits from waterways, many of which have been assessed in the Ecominds report 2013⁴ and Bragg et al 2016⁵. Table 2 lists the advantages and disadvantages of each intervention with the additional benefits that could be derived from waterways.

Table 2: Advantages, constraints, and waterway benefits of interventions

Intervention	Advantages	Constraints	Waterway Benefits
Health Walk	<ul style="list-style-type: none"> -Run by volunteers -All abilities can join in -Majority of tow paths are suitable for use -Lots of research as to benefits of organised health walks including social cohesion 	<ul style="list-style-type: none"> -Need to find a volunteer -Promotion of walk 	<p>Canal towpaths are generally relatively flat, well surfaced, and accessible from a range of urban centres. Additionally the waterside environment, ecology and heritage provide points of interest around which to structure a walk.</p>
Green Gym	<ul style="list-style-type: none"> -Supported by national programme Could be linked in to existing work run by volunteers -Can be mixed ability -Learning new skills -Meeting regularly -Extensive research into green gyms and methodology used to demonstrate benefits 	<ul style="list-style-type: none"> -Higher cost of an outside TCV/ ecotherapy professional running these events -Can be difficult to differentiate activities 	<p>Canal towpaths consistently require maintenance and a diverse and year round programme of vegetation management. CRT infrastructure means that depots, tools and materials are frequently located close to the point of delivery.</p>
Cycling group	<ul style="list-style-type: none"> -Run by volunteers - teaches skills and routes which are useful for life - bike maintenance workshops to support - cheap transport 	<ul style="list-style-type: none"> -Not all people can ride bikes -Cost factor of owning a bike -Need trained instructor? -Not all tow paths suitable 	<p>Flat towpaths are particularly well suited to cycling, and towpaths provide an excellent cycle link between urban centres and the countryside.</p>

⁴ Ecominds (2013), Ecominds effects on wellbeing: An evaluation for Mind: Rachel Bragg, Carly Wood & Jo Barton Essex Sustainability institute and School of Biological Sciences - University of Essex

⁵ Natural England Commissioned Report NECR204. A review of Nature Based Interventions for Health Care file:///C:/Users/Sarah/Downloads/NECR204_edition_1.pdf

Intervention	Advantages	Constraints	Waterway Advantage
Tree planting and activities at healthcare centre close to canal	<ul style="list-style-type: none"> -Restorative effects of trees -Learning new skills -Working in a team -Direct links with health organisation -Lots of health benefits, some studies found tree planting as beneficial as going to the gym! 	<ul style="list-style-type: none"> -Need financial resources to enable project -Need someone with capacity to be able to manage -Is there a healthcare estate with space to take part in this near to the canal? -Benefits of undertaking these activities directly on a healthcare estate still need to be assessed. 	The spread of the waterway network brings it into close proximity with a number of healthcare venues, meaning that a large range of potential beneficiaries are on the doorstep. Activities can be targeted at these assets as well as the immediate waterside environment.
Water sports	<ul style="list-style-type: none"> -Engaging directly with the water - benefits of e.g canoeing are social as well as direct health: team building, self-esteem etc 	<ul style="list-style-type: none"> -Need equipment -Need trained professional to run the events -Cost of equipment and instructor -Not suitable for people of all abilities 	A unique aspect of waterways is the ability to undertake water sports including kayaking. Flat water, an absence of tides or currents, and easy access from the highway network make this an ideal therapeutic activity.
Gardening and practical conservation activities	<ul style="list-style-type: none"> -Suitable for all ages and abilities -Proven health benefits -Ecotherapy assessment by MIND (lots of gardening activities) so methodology for assessment clear -Could be run by volunteers - explore floating allotments 	<ul style="list-style-type: none"> -May need trained professionals -Cost of tools -Is there enough and appropriate space alongside the canal? 	<ul style="list-style-type: none"> - Accessible - Logistics - Ecology - Water environment
Guided walks often with an educational element	<ul style="list-style-type: none"> -Effective way in which to re-engage people with nature and the canals 	<ul style="list-style-type: none"> -Can be costly in terms of involving trainer/ behaviour change expert in focus groups 	As well as traditional health walks, the waterway network also offers the potential to explore local ecology and heritage, developing understanding and connectedness with local communities

Intervention	Advantages	Constraints	Waterway Advantage
Dog walking	<ul style="list-style-type: none"> -24% people in UK own a dog -Dog walking has same health benefits as walking e.g. lowers blood pressure, reduces anxiety, increases social connections -Can be accessed independently or in a group 	<ul style="list-style-type: none"> - Need for a dog - Continued motivation if not walking at a regular time and day - Waste disposal 	Canal towpaths are accessible, generally flat, well surfaced and accessible from many urban centres and communities. Canalside infrastructure means that disposal facilities are often readily available.
Animal assisted therapy	<ul style="list-style-type: none"> -Suitable for all ages and abilities -Could be run by volunteers 	<ul style="list-style-type: none"> -Need an animal -Specialist therapy so need to link in with organisation that can run animal assisted therapy programmes. -Can be costly in terms of trainer programs and regular sessions -Need a reasonable sized area to run the session, unclear as to whether there would be an added benefits of being near canal. 	Canal towpaths are accessible, generally flat, well surfaced and accessible from many urban centres and communities. Canalside infrastructure means that disposal facilities are often readily available.
Arts and Cultural Interventions	<ul style="list-style-type: none"> -Suitable for all ages, in particular children -Great range of inspiration -Create artefacts/ sculptures that encourage further people in the community to engage with the canal 	<ul style="list-style-type: none"> -Costly (professional, resources), -Need art/ health professional to run events -Is there space/ capacity at the canal to run the event? 	The ecology, heritage, and landscape of the waterside environment provides inspiration for a diverse and inclusive range of creative activities, and the proximity of the network to towns and communities means that these are accessible to a broad range of potential participants and offer a broad spectrum of benefits.

Indication of Potential Volumes

While we acknowledge that bottom line volumes will be dependent on the capacity of the delivery infrastructure in any given area, we are able to apply indicative categories against each of the proposed interventions. These are:

- 1 – Individual interventions – in depth work with one or two individuals per session
- 2 – Small groups – intervention with between two and ten individuals per session
- 3 – Mass participation – intervention with over ten individuals per session

All these classifications are dependent on the availability of proper supervision, acknowledging that in the case of some mental health conditions there may be constraints around vulnerability of participants and the need for proper safeguarding provision to be in place.

Table 3: Indication of potential volumes by intervention

Intervention	Volume	Notes
Health Walk	Mass participation	
Green Gym	Small groups/mass participation	Tasks being undertaken will determine supervision ratios and overall numbers
Cycling group	Mass participation	
Tree planting and activities at healthcare centre close to canal	Mass participation	
Water sports	Individual/small groups	Immediate proximity to water requires enhanced supervision
Gardening and practical conservation activities	Small groups/mass participation	Nature of tasks will determine need for supervision
Guided walks often with an educational element	Mass participation	
Dog walking	Individual/small groups	Limited by dogs as well as participants
Animal assisted therapy	Individual/small groups	
Arts and Cultural Interventions	All sizes	Highly flexible intervention and can be tailored to suit any group size

Existing projects at each case study area

A review of the interventions and green space activities taking place in the case study areas has included research into activities by a number of key organisations such as the Wildlife Trust, TCV, Groundwork and the local authorities' physical activity information.

Table 4: Relevant activities taking place at each case study area

Case study area	Activity already taking place			
Stoke on Trent	Health walks including the canal (Walking for Health)	Canal conservation days (Ground work)		
Milton Keynes	Arts on prescription particularly those suffering from staff, anxiety and depression (Arts for health MK). Project ran in 2013	Independent and active green gym (TCV)		
Islington	Camley Nature Park, activities with school children, regular volunteer group that collect waste from the canal (London Wildlife Trust)			
Blackburn	Canal Festival (run by independent organisation)	Green Gym (TCV)	Towpath task force (CRT)	Health walks (Walking for Health) Cycling and walking paths near to canal
Wakefield	Waterfront has art gallery	Training/ skills opportunity (TCV) – Aspire to Work	http://www.westwakefieldhealthandwellbeing.nhs.uk/blogs/more-than-medicine-how-social-prescribing-supports-our-health-part-one/ Social prescribing project in Wakefield	Safe Anchor Trust - http://www.southwestyorkshire.nhs.uk/quality-innovation/creative-minds/project-directory/wellbeing-through-waterways/
Wrexham	World Heritage Site with tourism marketed and its related activities (including angling)	Urban Walks (Groundwork North Wales)		

As can be seen from the table above there are a number of different activities being run at, or near to the canal sites including health walks, conservation activities and art through prescription. Any future interventions proposed at the sites will work in partnership with existing projects and local organisations where possible and work to develop their health links.

Proposed Indicators

Appendix 3 of the Literature Review lists a range of indicators for measuring mental health and the impacts of interventions. CRT have requested a simplified list of indicators which have the potential to be standardised and rolled out across their operations in order to capture consistent data about impact of their interventions.

The report “Which Tool To Use”, developed by the Federation of City Farms and Community Gardens, evaluates a number of metrics, with a specific focus on impact of community gardening, and assesses their effectiveness across the spectrum of population level to individual interventions.

<https://www.farmgarden.org.uk/system/files/whichtooltouse.pdf>

The following indicators are proposed for consideration, with the following caveats:

- These are provided as samples for consideration, without specific recommendation by CSH
- Proper use of the indicators will require appropriate training and/or licensing
- Depending on the specific conditions of participants, different indicators may be advised to map progression against their specific needs

Mass participation – the Warwick Edinburgh Mental Wellbeing Scale (WEMWBS)

<http://www2.warwick.ac.uk/fac/med/research/platform/wemwbs/>

This tool was specifically developed to monitor mental wellbeing at the population level, and uses a framework of scored questions and responses to generate data which can be assimilated and used to demonstrate progress over time across a group of participants. It benefits in terms of its consistency and ability to give a “broad brush” picture of the effectiveness of interventions in a group over time, but is very limited in its ability to demonstrate progression in specific individuals.

Small groups – The Outcomes Star™

<http://www.outcomesstar.org.uk/>

The Outcomes Star™ is a suite of tools developed for monitoring progression across a range of conditions, including mental health. It can be applied to a range of different scenarios, and once baselined, can provide regular indications on progress across a range of attainment areas. Its benefits are that a specific version of the star can be selected to best match the conditions of the participants of the interventions, and that it can then give both individual and group indicators of progress over time. Its limitations are that it requires one to one contact with the participants in order to update, and requires significant training and competency in its use in order not to present a barrier to participation.

Individual interventions – Goal Attainment Scaling

More of a methodology than a specific tool, GAS relies on identification of a small number of specific goal areas with an individual beneficiary, against which progress is then monitored in conjunction with a trained practitioner. It benefits in being able to deliver highly bespoke and detailed information about an individual’s progress under an intervention, but the data is so personal that it cannot be standardised to group level. As with the Outcomes Star, this indicator relies on one to one sessions with the beneficiary, and a well trained and experienced practitioner is an essential part of its use.

Recommended interventions at each case study area

The recommended interventions are based on a number of different factors. Most importantly: the health priorities of the local area; weight of evidence for health benefit; existing local projects and ensuring that a good spread of interventions was being tested across the case study areas. Interventions will provide a range of prevention, intervention and wellbeing benefits, depending on the mental health needs of the local area.

Stoke on Trent

There are a number of health priorities for Stoke on Trent, one of which is reducing the high levels of anxiety and depression and increasing the amount of physical activity. This would also reduce the levels of obesity in the local area.

It is recommended that CRT develops links with Walking for Health and creates some further health walks along their canal at Stoke on Trent providing both wellness and prevention for mental health. There is good evidence of the benefits of walking for both reducing obesity and anxiety/ depression and there are a number of studies evaluating the health outcomes of larger numbers of people than for many of the other interventions. It must be noted that the health walks have tended to be used for prevention/wellbeing in the general population rather than as a therapeutic intervention for particular mental illnesses, but this would still be beneficial for Stoke on Trent whose health priorities are very much focused on healthy living. Health walks are also well understood within the health profession and might be easily embedded within the system in Stoke, particularly as the current Chair of the CCG has a focus on long term conditions such as diabetes and hypertension.

It would also be worth tying in health walks along the canal with potential schemes that CSH are looking to develop with our links at University Hospital of the North Midlands where walks are developed for staff to use in their lunch break or before or after work to encourage physical activity and reduce stress and other mental health issues.

Milton Keynes

The health priorities in Milton Keynes are a reduction in the health inequalities found in areas of deprivation in the town and a focus on work place health to reduce levels of stress and increase physical activity.

'Arts on Prescription' has been a successful scheme in Milton Keynes and it could be adapted to run a series of art courses using the canal as inspiration for patients with general mental health problems in areas of deprivation in the town. In addition, art work could be used along the canal to encourage more businesses to engage their employees in taking exercise at lunchtime using the canals for a walk. There is a not yet very good evidence for the benefits of art therapy in green space. However, the existing Arts on Prescription project in Milton Keynes was found to improve mental health outcomes and could be considered here for further projects, including better evaluation.

Conservation activities are another intervention to consider for Milton Keynes and would be appropriate for use in both a preventative and therapeutic context. However, a number of other case study sites have scope for this type of intervention and, as numbers of participants are often small, it might be best suited to those areas whose health priorities focus on specific mental health illnesses.

The art work would contribute to CRT's wellness and therapeutic outcomes whereas any related art walks would be likely to help towards prevention targets.

Islington

Islington's key health priorities are a reduction in their high level of hospital admissions and a focus on skill development and awareness of the benefits of physical activity.

With this in mind, the activities at the London Wildlife Trust are relevant, particularly those focused around Camley Natural Park and the Regents canal. Working with an existing group with focused expertise would also reduce the costs often associated with setting up a green gym and would ensure that this intervention was likely to have more impact. It would be beneficial to link the London Wildlife Trust with healthcare professionals at hospitals and other healthcare organisations within the borough to expand the project and engage with them directly on improving mental health outcomes for staff and local communities using the local blue space.

With a key health priority in this area being the high level of residents admitted to hospital for alcohol and addiction issues, the suggested intervention would be specialist-lead Ecotherapy programmes with a focus on the waterside environment. The evidence available demonstrates the benefits of taking part in these activities although these studies should be interpreted with caution as there are not currently huge numbers of research studies measuring benefits for this particular psychiatric disorder. Conservation activities including a green gym element are also recommended for this group. Regular activities already taking place on the canal could be tailored to meet the needs of specific members of the local community under guidance of local healthcare professionals. This project would be in line with CRT's intervention outcomes for mental health.

Blackburn

Similarly to Islington, Blackburn has a high number of hospital admissions due to alcohol in addition to a large number of crack and opiate users. It also has high levels of obesity and self-harm. These factors, together with its levels of deprivation, suggest interventions specifically designed to introduce skills (coping skills and also job related) and the wide benefits this brings. In the Ecominds report (2013)⁶ there appears to be a clear correlation that taking part in Ecotherapy projects can result in an improved sense of wellbeing, healthier lifestyles, better coping skills, enhanced social inclusion and better mental health among other things. In Blackburn there are a range of different green space activities already taking place including the Towpath Task Force, an organisation in operation within CRT which could be expanded to include specific sessions for vulnerable members of the local community. Blackburn is part of Central Lancashire Care Trust, a mental health organisation and an active NHS Forest site which works regularly on horticultural activities with the service users. We envisage setting up a partnership with the Trust and CRT to ensure that local service users become involved in the project and appropriate activities are designed to meet their needs. A green gym would be one beneficial element which could include conservation activities alongside social and therapeutic horticulture.

In conjunction with the existing Canal and River festival, members of the local community could be encouraged to take part in physical activity along the canal using some of the existing cycling and walking routes. More tailored volunteer-lead activities could be added for specific groups. This would address some of the mental health issues associated with inactivity and obesity. Cycling-focused projects bring many benefits but would be funding-dependent as bicycles might need to be provided for members of the community who may not own a bike. Cycling and walking activities would meet CRT's wellness ambitions with regards to mental health.

⁶ Pg 8, Ecominds (2013), Ecominds effects on wellbeing: An evaluation for Mind: Rachel Bragg, Carly Wood & Jo Barton Essex Sustainability institute and School of Biological Sciences - University of Essex

Wakefield

Wakefield's key health priorities are similar to both Blackburn and Stoke-on-Trent in that high levels of physical inactivity and addiction are areas of concern and the levels of self-harm are above the national average. Similar to the areas described above, the development of skills, self-esteem and the benefits of being in nature would benefit vulnerable local people in multiple ways.

Existing activities in Wakefield include skills development through a TCV Aspire2Work study programme initiative⁷. There is also a detailed local authority webpage⁸ on the various opportunities to enjoy green space in the local area.

Social and therapeutic horticulture, as evidence has suggested, is an intervention which can bring benefits to mental and physical health but also provides the opportunity for participants to learn new skills and would be applicable in this setting. It would also be beneficial to consider the creation of floating allotments to encourage horticulture to take place on the canal itself as well as along the towpath.

Linking up with Creative Minds and the Safe Anchor Trust who already have links with South West Yorkshire Partnership NHS Foundation Trust running regular boat outings for service users would ensure that we make creative use of existing partnerships.

This idea could potentially meet all of CRT's mental health ambitions of prevention, interventions and resilience.

Wrexham

The health priorities of Wrexham are outlined in a slightly different way to those at the English sites and so at times it can be difficult to make a direct comparison. Key issues in Wrexham are the proportion of both adults and children being treated for mental health issues compared to the rest of North Wales, and also the high levels of physical inactivity. High levels of anxiety are reported and levels of happiness are recorded as being particularly low in Wrexham compared to the rest of North Wales.

In terms of existing green space activities in Wrexham, there is plenty of outdoor space surrounding the town. Urban Walks by Groundwork North Wales⁹ is the main activity already taking place and this has potential for the routes to expand or another walk to be started that includes the canals. Wrexham has also a World Heritage site in the form of Pontcysyllte Aqueduct and Canal and actively promotes tourism to this particular attraction.

There are a number of organisations taking part in angling. There is some evidence available to suggest that angling has similar benefits to walking,¹⁰ is more likely to be taken up than activities such as coasteering and has equal participation across all socio-economic groups¹¹. If an angling

⁷ <http://www.tcv.org.uk/yorkshire/tcv-wakefield>

⁸ <http://www.wakefield.gov.uk/Documents/sports-leisure/cycling-walking/health-walks.pdf>,
<http://www.wakefield.gov.uk/residents/sport-and-leisure/parks-and-countryside>,
<http://www.wakefield.gov.uk/residents/health-care-and-advice/public-health/physical-activity>

⁹ http://www.wrexham.gov.uk/english/leisure_tourism/walks/urbanwalks.htm

¹⁰ Ainsworth et al., 2011 B.E. Ainsworth, W.L. Haskell, S.D. Herrmann, N. Meckes, D.R. Bassett, C. Tudor-Locke, A.S. Leon, 2011 compendium of physical activities: a second update of codes and MET values, *Med. Sci. Sports Exerc.*, 43 (8) (2011), pp. 1575–1581

¹¹

http://www.rya.org.uk/SiteCollectionDocuments/sportsdevelopment/Watersports_survey_Market_Review_2013_Executive_Summary_.pdf

intervention were promoted here it could provide a pioneering piece of research, which would provide benefits in its own right.

Angling is an intervention which is readily scalable and has the potential to generate positive mental health outcomes for local residents, particularly if participants take part in guided schemes. As detailed in section 2 of the 'Fishing For Answers' angling report, angling is thought to have a variety of mental health benefits including rest and relaxation and escapism.¹² There is scope for an angling project to be set up with Hafal/ Advance Brighter Futures, local mental health charities in Wrexham which run various activities in the area. This intervention would provide benefits in the wellness category of wellbeing.

¹² Fishing for Answers: Final Report of the Social and Community Benefits of Angling Project Section 2: Angling and Health and Well-Being Substance report.
http://www.resources.anglingresearch.org.uk/sites/resources.anglingresearch.org.uk/files/Substance_AnglingReport_Section2_WellBeing.pdf

Conclusion

The conclusion of this study is that there is a significant body of evidence which links outdoor and nature-based interventions with positive outcomes for participants' mental health, when measured across a range of commonly identified conditions.

Moreover, the study has identified a number of unique characteristics of the waterside environment, which have the potential to enable these interventions to deliver additional benefit when compared with other interventions which do not have access to the waterside environment.

Research into mental health outcomes of interventions in green and blue spaces would benefit from using more carefully selected methodologies and significant sample sizes. In order to determine robustly which interventions are most effective for people in each type of disorder category, more rigorous research is needed in this area.

These value-adding elements of the waterside environment, combined with the locations of canal and waterway infrastructure, which typically intersect with town and urban centres and also with areas of post-industrial decline and deprivation, mean that with the properly planned interventions waterways can demonstrably deliver positive impacts on mental health.

In all areas identified through the study, there exists the potential to achieve an uplift in the scope and/or scale of provision, through engagement with local partners and initiatives which make use of the waterside environment. This engagement will enable more direct evaluation and research into mental health impacts, and will support the development of a more consolidated evidence base and a robust business case for the development of further initiatives.

Appendix 1: Table of Evidence by psychiatric disorder

As can be seen from the table of 'Natural health evidence by psychiatric disorder', attached separately, the majority of research which showed that interventions were effective did not specify the particular mental health disorder. This indicates that the interventions might be effective for the mental health and wellbeing of the general population but is of limited value for health services who might commission the interventions but cannot do so if they do not know which people might or might not benefit.

The 'mixed mental health' category seems to have been researched most frequently and the intervention which has most regularly been cited as measuring 'mixed mental health' is care farming. This is of limited value in a waterside setting for urban areas but should be considered in future for rural waterway settings with adjacent care farms.

Mild depression and self-reported mental health are the categories where there is most research into the effectiveness of interventions for a particular mental disorder, perhaps because they form the largest proportion of cases in the UK with 9.7 people out of 100 reported as having mixed anxiety and depression.¹³ Learning disabilities and bipolar disorder have the fewest research studies measuring the effectiveness of interventions.

The findings must be interpreted with caution in determining which interventions are most appropriate or effective for people categorised by a particular mental health disorder. Weight of evidence does not imply effectiveness and lack of evidence does not imply that nothing is effective. It may be easier to measure an intervention with people who have mild depression compared with those with diagnosed bipolar disorder, or - given the higher prevalence of the former - it could be that there is more participation in projects and therefore that there are more people to measure.

This piece of work is useful largely in highlighting the gaps in evidence related to particular categories of mental ill health.

¹³ <http://www.mind.org.uk/information-support/types-of-mental-health-problems/statistics-and-facts-about-mental-health/how-common-are-mental-health-problems/>

Appendix 2: Social Prescribing

The Department of Health has proposed the introduction of social prescriptions for those with long-term conditions (DoH, 2006) with the specific aim to promote integrated health and social care, together with the voluntary and community sector (University of York and NIHR, 2015).

CCGs are required to demonstrate that they have a range of mechanisms in place to engage with patients, carers and their communities, and to work in partnership with voluntary/charitable sector groups. Online directories, hubs or portals have been used to provide this information and to highlight the services and service providers available in an area.

Green care provides exactly the style of community-based non-clinical care which is ideal for social prescribing, yet the number of green social prescriptions remains relatively low.

Increasingly, Local Authorities, some Clinical Commissioning Groups and voluntary sector umbrella organisations are developing local online directories of services and service providers as a cost-effective way of publicising the local offer. Using a 'hub and spoke' model these directories or consortia offer a single point of access to a range of different services (nature-based or otherwise). Although these hubs are currently not being used to their full potential, it is likely that they will become effective mechanisms through which GPs can utilise 'social prescribing' and valuable tools for engaging with the small-scale or individual CCG/LA contracts as more CCGs become aware of green care; and for engaging with personalised health or social care budgets as numbers of individual service users with personal budgets increase.

"Social prescribing creates a formal means of enabling primary care services to refer patients with social, emotional or practical needs to a variety of holistic, local non-Clinical services" (Brandling and House, 2007)."

There has been a number of studies describing the nature of social prescribing and assessing its effectiveness. The North West Development Centre have produced a detailed report on the effectiveness of social prescribing and have determined a number of key goals of social prescribing based on their research. They are:

- improve health, wellbeing and quality of life;
- reduce inequalities; and
- regenerate deprived communities.

One of the most common approaches to social prescribing is the involvement of both primary or secondary care staff in signposting their patients towards services that would be for their benefit. Quite often it is the role of the clinical commissioning group (CCG) or GP surgery to collate the information regarding the services available but it is noted that this can often be time-consuming and a barrier to GPs prescribing activities.

There are a number of activities which are common for GPs to signpost patients towards these include; exercise, learning and art activities and these are commonly group lead by a third or private sector organisation.

Research has been undertaken by Bristol and UWE as to the process or models involved in social prescribing. These include:

- Signposting a patient to services available with their community
- A "*light*" touch which involves referring a patient to projects which meet a specific need
- *Medium*- this involves a health facilitator or coordinator who works with referred patients. They assess the patients' needs, often using something such as Life Check and then recommend voluntary groups or third sectors that run activities that relate to either specific

disease areas (e.g. Diabetes groups) or specific needs (e.g. “social isolation Knit and Natter groups”). This type of social prescribing works in a specific area and is a joint partnership between the GP and the health facilitator

- *Holistic*. A key example of this work is at Bromley by Bow. The holistic approach is flexible and has evolved to suit the needs of the local community. A partnership is key to this approach between the GP surgery and the third sector organisation. The approach is to consider the wider needs of the local community including their mental health and social care. Quite often these approaches have “evolved to meet a local need”. Due to the complex nature of these projects they are run over a long time and sometimes (as with the Bromley by Bow project) are self-sustaining.

Some of the main challenges of social prescribing include ensuring that all the services are documented in a central point and easily available for the GPs to access and secondly ensuring that GPs do take part in social prescribing. This is a key barrier, as documented in a workshop at Bromley by Bow (2002) where the priorities for nurses and doctors are often focused on disease management rather than preventative medicine with many doctor’s schedules being overcrowded with a lack of capacity to take on new initiatives.

In the Netherlands, they have decided to follow a “top down” approach in social prescribing with the Royal College of GPs producing a policy stating that all GPs should consider the social prescribing method for patients with depression prior to prescribing medication (Sheldon 2012).

A NESTA funded programme focused in part on social prescribing as part of their “People Powered Health” project. It involved working with the healthcare sector for 18 months and researching innovative solutions that have been in operation for many years. Their key message was that transformational change is needed, with 3 key ways in which the system can be changed. These are:

1. “*Changing consultations* to; social prescribing, self-management and different consultations (including group ones)
2. *Commissioning New Services* that provide more than just medical services e.g. Peer support groups, platforms e.g. time banks, coaching, mentoring and buddying
3. *Co-designing pathways* to include long term outcomes, recovery, integrated care, self-directed support and collaborative commissioning (focusing on outcomes e.g. patient reported outcomes).”

There are a number of examples of social prescribing projects that have been funded across the UK. Many of these have operated in different ways and have been evaluated as to their effectiveness. Detailed below are case studies of social prescribing. Some have worked, while others have experienced difficulties!

In Newcastle a social prescribing project was run in 2013, this proved to be challenging in terms of uptake from GPs and there was generally a low awareness of the project. The project did not have a link worker but GPs that were taking part in the programme were encouraged to work with third sector organisations such as AgeUK. A steering group support the programme which included members of the local CCG and the statutory health sector.

The Green Dreams project in East Lancashire has been set up by a local GP and has proved to be an award winning social enterprise focussing on providing support for those that are unemployed and isolated. The organisations employ a number of local practitioners who work closely with local GP practices (13 in total). GPs refer the patients to the schemes and the practitioners then work to identify barriers to the individuals having a good quality of life and work to address these. The organisation also runs a series of community activities which include volunteers. Research has

found that there 27% of those who took part in the project experienced mental and physical health benefits and that there was a 20% reduction in GP appointments as a result of undertaking activities to improve health.

Bromley by Bow is one of the more successful and long lasting social prescriptions projects documented. The GP surgery is now embedded within a service centre which provides a range of services for the local community and its health needs. The organisation is now a charitable enterprise and works with members of the local community on a long term basis, employing the holistic model of social prescribing, to change behaviours.

In Hackney, NHS England has funded a project called the Building Health Programme, the aim of which is to “improve health outcomes through supporting the development of effective and productive partnerships between Clinical Commissioning Groups (CCGs), local authorities and voluntary, community and social enterprise (VCSE) organisations”. Family Action, a local voluntary group were awarded the contract to run the social prescribing. The project involved training individuals to work within each GP consortia who will work with patients referred to the scheme. They will inform patients about local opportunities and services and work with patient participant groups and volunteers.

An essential component of the research carried out is to measure the effectiveness of social prescribing. Researchers at the University of West England have used the Wellspring Wellbeing Questionnaire and calculated the Social Return on Investment. The North West Development Centre used a series of wellbeing scales including the Warwick Edinburgh Mental Wellbeing Scale, and Global Quality of Life Scale.

There are a range of different models in which social prescribing can be carried out. Many social prescribing models have been effective but often these are short term projects. Bromley by Bow, which uses the holistic model, seems to be one of the most effective ways in which social prescribing can be used on a long terms basis. Ensuring that there is a database of activities and the involvement of a coordinator who works with patients to support and advise them seems to be key. To ensure wider use of social prescribing there is the case for a combined top down and bottom up approach as exemplified by the Netherlands example of Royal College of GP’s policies.