

NHS Greenspace in Scotland

Report to the Green Exercise Partnership on the
Royal Edinburgh Hospital greenspace
demonstration project

Liz O'Brien 2018



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Cover photograph: Cyrenians Community Garden at the Royal Edinburgh Hospital

Contents

1. Introduction	4
1.1. Previous similar qualitative research for the Green Exercise Partnership	4
2. Research methods	5
3. Royal Edinburgh Hospital greenspace and community garden.....	6
4. Results	9
4.1. Types of patients and length of stay	9
4.2. Bringing greenery onto the ward and courtyard gardens	9
4.3. Going off the wards, patient pathways and care plans.....	10
4.3.1. Outdoor greenspace or community garden activities.....	11
4.4. Benefits of the community gardens and hospital grounds greenspace	12
4.4.1. Individual stories to illustrate of impact	13
4.5. Coming back onto the hospital ward	14
4.6. Benefits to staff and hospital practice.....	14
4.7. Barriers to greenspace	15
4.8. Inclusion of greenspace in decision making and evidence	16
4.8.1. Funding	17
4.8.2. Evidence.....	18
5. Conclusion	20
6. References	21
Appendix 1. Interview protocol	23

List of Figures

Figure 1 Two documents outlining the creation and benefits of the community garden at The Royal Edinburgh Hospital.....	7
Figure 2 Photos of activity in the community garden (Photos by Cyrenians)	12

List of Tables

Table 1 Interviewees and their roles	5
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1. Introduction

The Green Exercise Partnership (GEP) is a joint venture between Forestry Commission Scotland, NHS Health Scotland, NHS National Services Scotland and Scottish Natural Heritage. It was established in 2007 to improve links between the environment and health sectors in Scotland in response to increasing evidence that public health can be improved through the use of the outdoors for physical activity and contact with nature.

The GEP's objectives are:

- To promote awareness, engagement and ownership of the benefits of health-promoting environments such as greenspace amongst NHS Scotland Health Boards;
- To facilitate the delivery of practical enhancements and better use of greenspace within NHS ownership;
- To mainstream use of the NHS estate as a health-promoting asset.

To find out more visit <https://www.nature.scot/professional-advice/contributing-healthier-scotland/our-natural-health-service/nhs-greenspace>

As the Greening of the NHS Estate project is being rolled out to strategic hospital sites in the Lothian Health Board area, it was considered useful by the GEP to establish current views (qualitatively) of both corporate decision makers and clinicians at the Royal Edinburgh Hospital on the impacts and the opportunities, for delivery of priorities and outcomes, of the greening of the hospital setting. The research also sought to explore the barriers that exist to mainstreaming this approach.

There is increasing evidence internationally that engagement with nature can have an impact on health – physical, mental and social. In the last half dozen years there have been eleven or more systematic reviews exploring different aspects of the health benefits of nature for different populations groups (Annerstedt and Währborg 2011, Fraser and Lock 2011, Van Cauwenberg, De Bourdeaudhuij et al. 2011, Moran, Van Cauwenberg et al. 2014, Gascon, Mas et al. 2015, Gray, Gibbons et al. 2015, Hunter, Christian et al. 2015, Lovell, Husk et al. 2015, Gascon, Triguero-Mas et al. 2016). The evidence is not entirely consistent due to the range of different studies and types of methods used and environments explored. However there is reasonable and increasing evidence of effects in terms of broad health and wellbeing for many groups of people. Recent World Health Organisation reviews of the evidence for urban greenspace and health and of interventions highlight the importance of these spaces for particular groups within society such as the economically deprived, older people and children (Egorov et al. 2016; WHO, 2017).

1.1. Previous similar qualitative research for the Green Exercise Partnership

In 2013 qualitative telephone interviews (n=7) were undertaken by Forest Research with a range of health and estates professionals in different parts of Scotland (see O'Brien,

2013), further interviews (n=7) were undertaken in late 2017 with estates and public health staff at University Hospital Ayr and Ailsa Hospital (see O'Brien, 2018). This current study also included interviews (n=6) at the Royal Edinburgh Hospital. To date the total number of interviews is 20 (Table 1), along with some discussions with those involved more in the delivery of nature and health activities.

Table 1 Interviewees and their roles

Broad organisational role	Number of interviewees
Strategic e.g. planning, sustainable development, finance	3
Public health/clinicians e.g. public health directors, occupational therapists, nurses	9
Services/estates e.g. property services, estates planning	6
Nature engagement staff e.g. garden managers, heath and greenspace development	2
Total interviews	20

2. Research methods

For this current piece of research the Green Exercise Partnership was interested in a further round of interviews at a range of demonstration sites including:

- University Hospital Ayr and Ailsa Hospital (two hospitals on one site)
- Royal Edinburgh and Lothians Health Foundations
- New Craigs Hospital Inverness
- Gartnavel Hospital Glasgow
- Ninewells Hospital Dundee
- Forth Valley Hospital Larbert
- Possil Park Health and Care Centre

Interviews were undertaken with University Hospital Ayr and Ailsa Hospital to test the approach and initial results (Phase 1 – see O'Brien, 2018) and the next phase of the work (this report) has involved interviews with staff at the Royal Edinburgh Hospital.

Five interviews with health and estates professionals were undertaken at the Royal Edinburgh Hospital, along with a discussion with the Cyrenians Garden Manager who leads the management of the gardens at the Royal Edinburgh and Midlothian Hospital Community Gardens.

The interviews were conducted by telephone. All but one of the interviewees identified for interview responded and were interviewed. Interviewees were identified by the Cyrenians Garden Manager. All respondents signed a consent form to take part in the research. Three of the interviewees were ward focused and the other two were wider hospital focused. Interviews were undertaken with respondents in the following roles within the Royal Edinburgh Hospital:

- Services Director
- Occupational Therapist
- Activities Co-ordinator
- Senior Charge Nurse
- Head Occupational Therapist

The research questions for this piece of work are as follows:

1. What impacts has the Greening the NHS Estate project had so far from the perspectives of clinicians and corporate decision makers in Health Boards?
2. What has been the progress towards mainstreaming the concept of Greening the NHS Estate and what are the key factors that are enabling mainstreaming where it is occurring?
3. What opportunities has the Greening the NHS Estate project provided?
4. Have any barriers been encountered in the project and if so have they, or how could they, be overcome?

All of the interviews were recorded, transcribed and analysed using NVivo 8¹. Each transcript was coded into a series of themes and sub-themes that were grounded in the data rather than a *priori* list being developed beforehand.

3. Royal Edinburgh Hospital greenspace and community garden

The Royal Edinburgh Hospital was originally opened in 1813 caring for people with mental health problems. The hospital's first physician in the 1830s encouraged patients to be active and use their existing skills in gardening, carpentry and pig farming. The

¹ Qualitative software package

hospital today provides acute psychiatric and mental health services, which includes treatment for learning disabilities and dementia, with specialist services including centres for treating eating disorders, alcohol problems and younger people's mental health. The site also has the Orchard Clinic which is a medium secure care unit for the small number of patients with mental illnesses who require treatment in a more secure environment.

The hospital is being re-developed on its site; with two new buildings being recently opened in which all of the wards have a courtyard garden so that patients (including the secure units) can have safe and secure access to some greenspace everyday by using or viewing it. The hospital site has a range of greenspace on the wider site including an orchard as well as the community garden managed by the Cyrenians and also three large glasshouses. However, the glasshouses are likely to be removed in the next phase of the hospital development and are thought not robust enough to be relocated elsewhere.

The Cyrenians is a charity who in part specialise in developing solutions to contemporary problems with the aim of creating a fairer, greener and socially successful Scotland. The chair of NHS Lothian formed a group comprising NHS officers and third sector stakeholders including the Cyrenians to discuss the Royal Edinburgh Community Gardens Project to encourage exercise, healthy eating and psychological wellbeing. The Cyrenians were selected to manage the gardens in late 2009. The community garden site at the hospital was overgrown and had been used for dumping. The Cyrenians along with other community and voluntary organisations, corporate volunteers and other volunteers in 2010 cleared the site, carried out site analysis, soil testing, a wildlife and tree survey, established essential utilities (water, power, drainage) and infrastructure (paths, fencing, signage, portacabin) and prepared and cultivated the growing areas. This required an immense amount of effort. With the re-development of the site the community garden had to be relocated and NHS Lothian incorporated the move into its plans so that the community garden would continue to exist. The current site is slightly smaller than the previous area.

The gardens are staffed three days a week and all members of the public, local charities, users of mental health services, community associations and in-patients are encouraged to get involved and visit.

Initial funding for Cyrenians staff time to work in the gardens was part funded by the Central Scotland Green Network development fund. NHS Lothian now contribute to the costs on a yearly contract basis and the Green Exercise Partnership provide development funds to encourage development and delivery of greenspace activity sessions, to recruit and support volunteers, disseminate the achievements of the Community Gardens programme and pursue opportunities to share good practice. Figure 1 shows two documents that have been produced outlining the development of the community garden.

Figure 1 Two short documents outlining the creation and benefits of the community garden at The Royal Edinburgh Hospital



Scottish Natural Heritage
Dualchas Nàdair na h-Àlba
All of nature for all of Scotland
Nàdar air fad airson Alba air fad

GREEN EXERCISE Case Studies

**Royal Edinburgh
Community Gardens**



Location Morningside, Edinburgh.

Summary The highly successful 0.5-acre community garden within hospital grounds involves a diverse range of volunteers of all ages, abilities and social backgrounds. It was established to pilot a community based approach to maintaining and improving health and well-being, promoting healthy eating, outdoor exercise and volunteering opportunities.

Health benefits

- Greenspace and community based gardening activities provide fresh air, exercise, somewhere to relax and interact socially, all of which support physical fitness and recovery from mental and physical illness.
- Promotes healthy eating by enabling people to get involved in growing their own food.
- The inclusive, convivial community spirit that pervades the gardens and how they are run improves participants' self-confidence and sense of well-being.

Keys to success and learning points

- Growing and supporting inclusive communities is as important to Royal Edinburgh Community Gardens (RECG) as growing healthy plants and food.
- Variety and diversity within the planning and use of available space underpin the vibrant character of the gardens, its wildlife interest and appeal to a wide range of people.
- Commercial development and use of the gardens, rather than allocation of specific areas to different groups, helps break down barriers and fosters development of community engagement, but relies on effective co-ordination of activities.
- Many individuals and groups share an interest in the gardens but each has different needs and ambitions. The challenge is to encourage, support and fulfil these without discouraging anyone or losing sight of the core purpose of the project.
- An enthusiastic garden co-ordinator whose horticultural experience is matched by superb interpersonal skills is key to realising health and social inclusion benefits by enabling everyone to pay their part, regardless of their age, physical or mental capacity.
- The range of opportunities and inclusive atmosphere, which typify all activities at the garden, encourage high attendance and retention.
- Involvement of previous patients at Royal Edinburgh Hospital, who have now become volunteers, is an integral part of the project.
- There is significant scope to roll out similar projects elsewhere based on the highly successful RECG model. Discussions are already well underway for development of Middlesbrough Community Hospital gardens, planned and designed around the needs and interests of key stakeholders.

Edinburgh Cyrenians
Scottish Charity 5C011052



**ROYAL EDINBURGH
COMMUNITY GARDENS**
A Community Growing Together

Developing a Great Place for the Community to Grow Together






In seven months from January 2010 a three acre site in the grounds of the Royal Edinburgh Hospital was transformed from a forgotten wasteland into a thriving Community Garden. Twelve community groups, 8 businesses and over 3,000 volunteer hours have contributed to creating 'a great place for the community to grow together.'

NHS Lothian owns the land and said from the outset that they didn't want allotments. They wanted to see a Community Garden. That suited Cyrenians fine... our whole purpose as a charity is to get the community working together in a way that includes people who are too often left out and to help steer things in the future to being kinder on the planet and its people.

We got together a group of local people who were passionate about different elements of the project: growing food, the future of the environment, providing more opportunities out in nature and in company for people disadvantaged by circumstance and disability and basically 'got on with it.' Spring was coming fast!

We all agreed to these principles that would guide what we did with the land and with each other

- Incorporate the full extent of the natural habitat, including trees, hedges and wild plants, rather than over-cultivating the site
- Take a respectful, holistic approach to land use and the people involved

The Royal Edinburgh site has an amazing history and fantastic resident wildlife, including a fox (helps to keep the rabbits away from our crops), bats and woodpeckers.

4. Results

4.1. Types of patients and length of stay

Interviewees were working in different parts of the hospital with a range of patients of 18 years and over. For example, interviewees were working in the elderly care department and in the dementia assessment ward; with older male patients with dementia; or in the Orchard Clinic which is a medium secure forensic unit. Some of the patients in the hospital in psychiatric rehabilitation or the Orchard Clinic can be there for long periods, even for years in some cases. Others in acute admission or older adults might be in for a few days, weeks or months and therefore having opportunities to get off the wards and out into the hospital grounds and the community garden, as well as out of the hospital altogether can be particularly important.

4.2. Bringing greenery onto the ward and courtyard gardens

There is ward based activity being delivered for those who cannot leave the ward due to ill health, being in a secure unit, or when there is particularly poor weather. The Cyrenians run ward workshops on a number of specific wards that have signed up to the approach, and the organisation brings nature indoors and undertakes activities, such as wreath making, aromatherapy, soap making, planting bulbs, and making bird feeders. The activities can be tailored to the needs of those in different wards and staff reported that the charity was very good at being flexible to meet those varying needs.

They'll do something like wreath making. What I'd say is something they're good at is basically taking a very simple activity and making it suitable for people who have quite limited cognitive, physical abilities or maybe much more complex.... It might be wreath making or making bird seeds and bird feeders and planting bulbs. I want to get some better soil in the raised beds so it'll be turning over some soil into the beds and planting plants, or also it can be even just planting bulbs into indoor pots as well as outside as well, so there's literal garden things that can happen inside as well. (Interviewee 3)

The two new buildings in the hospital that have recently been completed have courtyard gardens to allow all some access to nature.

Yes, it's just great to have the resource of the courtyard garden. That feels like it's an essential asset that needs utilising. (Interviewee 3)

4.3. Going off the wards, patient pathways and care plans

The frequency and time patients spend off the wards vary depending on the patients' needs and their individual care plans. Interviewee 4 outlined that most of their elderly patients go off the ward on a daily basis. The range of activities that people do also varies. As some patients may be at the hospital for months or even years they can go out and away from the hospital with staff and get a bus somewhere, go to the cinema, go for a walk along the beach, go for a cup of tea, to the Botanic Gardens. These outings are undertaken so that patients can carry out activities that are part of normal everyday life. They can also make use of the greenspace and the community garden within the hospital grounds and this can be particularly important for new arrivals:

But during the day, the green areas within the hospital are used but I would think maybe when we have patients that are in and quite new to us, the garden is an area where you can take someone and it can ease their distress, just simply by being in a garden. (Interviewee 4)

For this interviewee they always start by taking newly arrived patients into the community garden or wider grounds. Interviewee 3 talked about sometimes taking out groups of patients of 5-6 people but could take more if they had more staff support. The activities patients undertake can also be based on their interests, so keen gardeners can be particularly open and interested in getting involved in the community garden, while others might develop that interest during their hospital stay.

Patients have a care plan that is based on their treatment and needs. Going outdoors and being in the greenspace or working in the community garden can be built into the care plan based on the patient's needs, interests, stage of recovery and recovery pathway in which they may move from needing clinical staff support to being able to go out into the community garden with voluntary organisation support, for example, from the Cyrenians.

So if we can develop a care plan for an individual patient who might have a learning disability, a mental illness or brain injury, then we can build that into part of their care plan so that on a weekly basis, they're doing something that has got those broader occupational health needs, building social skills, all the benefits that would come from working with nature and vegetables and plants and seeing things grow, and then in terms of developing skills around cooking, using fresh produce, budgeting - those sorts of things that would be skills that people may have lost or never had and is a key part of their ability to recover and do well in the community, hopefully with as much independence as possible. (Interviewee 1)

Interviewee 5 outlined the importance of greenspace for the patient's pathway which can move from being in a secure place to developing freedoms:

For us working here, it's absolutely core to the patient pathway. So we do a lot of work with people and often patients in our setting can be... when they're first admitted, they can be quite a long time in the Orchard Clinic and use the Orchard Clinic's enclosed outdoor spaces, and then we work in a graded way to work with people to build up their ability or their freedoms to be able to go out and access wider things within the hospital. (Interviewee 5)

4.3.1. Outdoor greenspace or community garden activities

Patients can get involved in a variety of activities in the community garden and grounds. Interviewee 3 talked about taking the elderly dementia patients out so they could focus on sensory experiences: smelling flowers, touching, tasting. While, interviewee 4 talked about taking dementia patients to a small grassy area within the new building and laying out picnic blankets and getting patients to take their shoes off and feel the grass beneath their feet. The community garden shed can also be a space for coming together, but staff need to consider the abilities of their patients:

The other thing I've done there is booked the garden shed for a cup of tea there and maybe we have like a birdwatching morning or something. We've not done digging and weeding in the community garden, partly I suppose because the beds in the community garden are not raised and the patients are older. Although the lady I've just taken out now, she's very physically fit so she would be able to but then her cognitive ability is quite limited so I don't know. (Interviewee 3)

(NB: the garden does have an 'All Ability Area' of raised beds and accessible beds for wheelchairs, but the interviewee may not have been aware of this)

Another interviewee spoke about working with the Cyrenians, Occupational Therapists and patients to build a cob oven in the community garden over a number of weeks, with patients from the ward getting involved twice a week; developing new skills and working as part of a team. The oven is used to make lunch in the gardens on a regular basis. An art therapist is also working with the Cyrenians and patients to focus on the greenspace and community garden from an art perspective and this activity is contributing to a John Muir Award which is an environmental award scheme for people from all backgrounds. Four challenges lie at the centre of the award and these are: 1) discover a wild place, 2) explore it, 3) conserve it and 4) share your experiences. The Award can be something patients use to get onto a course or into employment or volunteering once they leave hospital. Growing food and using it in cooking sessions allows patients to get involved right away through the process of allotment gardening:

Yes, we had someone growing potatoes in our clinic garden last year and then what we would do is we would use the potatoes in cooking groups or in one to one cooking sessions. Last summer we've also had people growing salad and veg within the glasshouses space and the hospital grounds and again we would use that produce in our cooking groups and our sessions with people. So people were seeing the whole process, I guess, the planting and the growing and then using it

in produce within the kitchen. We try to do that as much as we can. (Interviewee 2)

Figure 2 Photos of activity in the community garden (Photos by Cyrenians)



4.4. Benefits of the community gardens and hospital grounds greenspace

Staff described a wide range of benefits for patients of getting out into the hospital greenspace and also of visiting and working in the community garden. This includes:

- **Physical wellbeing** – gaining strength from undertaking manual gardening activities, or from walking, getting Vitamin D while outdoors, sleeping better after expending energy, being out in the fresh air.
- **Skills and knowledge** – gaining knowledge of plants and tools, learning to take responsibility, to develop routines and be on time for activities and learning to work as part of a team.
- **Doing something different and meaningful** – not all of the patients were familiar with gardening activities or nature craft activities, doing something they had not done or were not particularly familiar with could be invigorating and stimulating

So all these things that help people have really good purposeful, enjoyable places that they can go where they can learn skills, they can be working with other people, and thinking about how that sits with routines and developing routines, and a sense of achievement as well that people get from the work that they do. So it's absolutely central I think to where we're working with people as occupational therapists. (Interviewee 5)

- **Sensory experiences** – being outdoors hearing sounds, touching, tasting and smelling can be important. Although smells do not always work with older patients as their sense of smell may be reduced.

- **Social connections** – spending time with other people, mixing with non-hospital patients, having positive things to talk about to others on the ward.

I think it's really good in terms of social interaction as well because they've got things they can talk about. I think if you're stuck in a ward seeing the same people day in day out, there's not an awful lot to talk about. If you're away and you're doing something and you're learning something or you're seeing something new, you can come back and talk about that and we've been quite lucky as well. (Interviewee 5)

4.4.1. Individual stories to illustrate of impact

Interviewees would sometimes illustrate the benefits for patients and some of the challenges they faced by outlining the stories of individual patients. For example, a woman who was quite passive and was doing very little while in the hospital, and who had been involved in craft activity throughout a lot of her life, had the muscle memory to be able to make something when given the opportunity:

...we gave her the ivy to make a wreath with and she was away and in five minutes she'd done it. Her hands knew what to do and yet cognitively you couldn't really have a conversation with her but her hands knew what to do. So those kind of procedural memories I suppose that they have. (Interviewee 3)

An occupational therapist described one mental health patient who could become quite manic at times and becomes irritable with the hospital staff; however, a coping mechanism is going out into the community garden and doing some physical labour:

...when you take him out and he accesses the garden and he does a bit of digging or he does some sort of hard manual work for an hour or so, he's much, much calmer afterwards and it's really beneficial for him to be going outside, and it's one of the things they do on the ward as well. (Interviewee 2)

Another mental health patient now goes out alone from the ward and volunteers in the community garden on a regular basis.

There's someone that I work with that volunteers at the Cyrenians and attends two or three groups there a week on his own and initially he was going with a member of staff but he now attends on his own, and he very much benefits from being in the outdoor space attending the Cyrenians and they see him as part of the team down there almost and it greatly benefits him to be outside and being outdoors. (Interviewee 2)

An older patient who was deaf, non-verbal and whose sign language was confused because of his cognitive impairment (he has expressive Dysphasia) became particularly agitated on arrival and became increasingly frustrated as he could not be understood, and a sign language interpreter was not on hand, was asked and shown to put his coat on and taken outside into the community garden:

And the people that worked in the gardens, or volunteered in the gardens, took this gentleman and they were letting him taste some of the raw veg or smell some of the flowers, and I suppose maybe without thinking or maybe it was, but they were using other senses and that man really calmed down. Then we were able to put that as part of his care plan, that for communication, not for anything else, apart from it was really enjoyable for us, to see we were able to relieve his distress and the stress that he was having because of that, just take him over to the gardens and it's a nice, quiet, calm area where whatever intervention they were doing allowed him to calm down and let the communication be open. (Interviewee 4)

4.5. Coming back onto the hospital ward

Interviewees also outlined that there could be benefits realised on the wards of patients being happier and calmer after they have been out in the community garden or walking in the greenspace.

So the staff are seeing the benefits of that and the kind of things that we get is that, for some people a smile is a huge success for the day, or returning to the wards and being calm for many hours, looking forward to going the next time. All of these things really contribute to a calm and therapeutic area and that's one of the things that we're absolutely keen on and, of course, gardening is one way of doing that but it's definitely proving to people, as in staff, that the value is huge on an individual patient basis but then in the ward environment itself. So as people go back to the ward, they are happier and calmer and have developed some skills they'd not have had for quite a while. (Interviewee 1)

However, coming back to a locked ward can also be difficult for patients, however much they have enjoyed their outdoor activity. It can also be a reminder of what they are missing.

Yes, and also because of a trigger that being outdoors might kick off for them. In the case of this patient, walking the dogs, she was suddenly aware she has dogs, where are her dogs? And then where's my dogs, and that can escalate her stress and distress but I have found that just by reassuring her upon return, that seems to calm her and just settling her a little bit. (Interviewee 1)

4.6. Benefits to staff and hospital practice

For ward based interviewees the greenspace activities and engagement and new courtyard gardens have led to improvements on the wards which have both impacts on the staff as well as the patients. Having the greenspace, community garden, glasshouses means there are opportunities for staff to get outside both with patients and also by themselves or with other staff at break times. Interviewee 5 outlined that the hospital is trying to promote these opportunities (such as the community garden) for staff as a place to have lunch for example. However, a couple of interviewees acknowledged that it could be difficult to reach for everyone; ward culture meant that some staff worked

through their breaks or did not go outside the ward. Interviewees were also not sure that all staff realised there was this opportunity. The following quotes illustrate some of the above points.

I think I can safely say our ward has made massive quality improvements that are really, really significant within progression and care and strategically, the financial savings that we've had, and it's all about really ...putting yourself in their shoes. The other day, there's a space within the new Royal Edinburgh building. It's a shared green space and we had some people that were fairly unwell, so it kind of impacted if we took them out separately. So we decided we had to be careful about risks. So we just went into the wee space in the middle there, which has only got a green lawn but we took some picnic blankets out and we were saying to the men and staff, take your socks and shoes off and let them squish their toes in the grass.

Yes, I think we're still... so the REH site holds a Healthy Working Lives Silver Award and I think part of why we achieved that is we do have these opportunities, so we do have nice spaces for staff. So there's been like mindfulness, mindful gardening or places that you can go and have quiet spaces within the hospital site and those contribute to the overall staff experience, and I think that a lot of the time the patients are off the ward, they're with a member of staff. So having good positive spaces and places to go, places to engage with somebody, nice walks to do, I think that improves the staff experience as well. So I think we could develop it more but I think there's definitely benefits to staff. (Interviewee 5)

but I'm one of the few staff who ever go and sit in the community garden and yet it's a gorgeous place for your lunch on a sunny day. (Interviewee 3)

Interviewee 2 outlined how a previous Mental Welfare Commission report had not been particularly good and a range of recommendations for improvement were made. However, a recent visit had gone particularly well and it was likely that no recommendations for improvement would be needed. Part of the improvement was due to the use of and engagement with nature and its use in care plans and patient pathways.

4.7. Barriers to greenspace

While there were many positives outlined about the community garden and wider greenspace interviewees recognised that there remained a number of barriers that can impact on use and development of these spaces. For example, some services and wards within the hospital were less keen to engage with the community garden, possibly due to the pressures they felt they were under.

A couple of interviewees spoke about the need to ensure managers and planners are more aware of the spaces and the benefits they can provide, and how they can aid patient recovery. Greater access for those with mobility issues, disability or wheelchair

access needs was said to be important: *'it's not very wheelchair friendly, it's a challenge for people'* (Interviewee 3).

Another interviewee talked about the need to raise awareness of the flow of paths to the greenspaces. The re-design of the hospital means that some buildings are being taken down and others are being built and design and planning is important to ensure that with any changes patients and staff can still easily access the greenspaces.

One interviewee felt that some mentality change and training might be needed for some staff that were not sure what to do with patients outdoors and who sometimes considered it too risky to take patients outdoors.

A great comment that a consultant made, he said the thing is, they're as at risk of falling in the garden as they are in their bedrooms, and they have free access to go to their bedrooms so why restrict them going to the garden? (Interviewee 3)

There are also many pressures on staff which can mean that it is less likely they will find the time to take the patients outdoors and some staff may not see it as their role to do so.

The time taken to get from a ward to the greenspace could also mean that it was difficult to take patients outdoors, for example, interviewee 3 who was now situated in one of the new buildings found this was further away from the community garden than the previous ward this person had been on. As the ward was for older people, some of whom had mobility problems, it could take 15 minutes or more to reach the community garden – making it a less easy option.

Sometimes patients are not keen to go out into the courtyard garden or wider greenspace as they *'don't do gardening'*, although staff said taking them out and letting them sit and watch could be beneficial and stimulate interest. The winter weather could also lead to fewer opportunities to go outdoors.

4.8. Inclusion of greenspace in decision making and evidence

Interviewee 1 outlined how the hospital has worked to encourage third sector partners on to the site such as the Cyrenians, Artlink², which has used the glasshouses as a therapeutic space for activity, and Volunteer Edinburgh³. Volunteers with all these bodies have improved the greenspaces around the hospital site including the community garden. With major re-development of the site (which is currently on-going) a major planning exercise had to be undertaken and while management knew there was greenspace in the hospital grounds they were not really aware of how significant it could

² Artlink is an arts and disability organisation; it believes participation in the arts can play an important role in realising personal and social change.

³ Volunteer Edinburgh inspires people to volunteer, helping them to find volunteer opportunities.

be for patients and staff. Interviewee 4 also thought that senior managers were more aware of the greenspace and how it is used with patients. While, interviewee 2 felt there was more that could be done to utilise the community garden and greenspace for a wider range of patients. Many interviewees felt that the greenspace within the hospital was now spoken about and taken note of in a way that it had not been in the past.

Interviewee 5 talked about working with the hospital management to raise awareness of the importance of the community garden and greenspace and what these can contribute to patients' experience and to make sure that if any space in the future is lost another is created that provides the same opportunities. The glasshouses are being removed to make way for the development of the hospital and staff asked if they could be moved elsewhere; however staff were informed that they were not robust enough to move.

Interviewee 4 outlined how their role teaching junior nurses and nursing assistants was critical in ensuring that they include getting patients outside as part of individual care plans:

For me, being outside and activity is as important as any other clinical practice that we would carry out in the ward. (Interviewee 4)

While interviewee 3 wanted to receive training from the Cyrenians in order to train other staff to be comfortable with taking patients outdoors and knowing what can be done with the patients; rather than just sit in the garden with a patient.

4.8.1. Funding

The Cyrenians have received endowment funding by applying to the Edinburgh and Lothian Health Foundation. The Foundation focuses on a number of themes and a new theme that will potentially be created is called gardening for health. The Cyrenians Garden Manager hoped that in the future there might be more funding via the Scottish Government to fund greenspace and health projects in a similar way in which art in hospitals has been prominent and received funding in recent years. The Cyrenians also have two current contracts with the Royal Edinburgh Hospital: one to work with older people's services across six wards and the other to work with learning disability services on a one to one basis or in groups. The Green Exercise Partnership has also provided some funding and that allows the organisation to support open drop-in and a patient buddying programme. The gardens also receive funding from Scottish Natural Heritage, the Green Infrastructure Community Engagement Fund, Edinburgh Wellbeing Public Social Partnerships, and grants from organisations including Morrisons and Tesco 'Bags for Help'.

Interviewee 3 applied for and received funding from the NHS Health Foundation Trust for the ward's courtyard garden and would like to use it to get a garden shed, some tools and more plants. Part of this proposal was for Cyrenians to deliver training to clinical staff in 'the benefits of therapeutic gardening'. These sessions will be designed to support staff to discuss both the benefits and challenges of bringing patients into ward

gardens and other greenspaces on the NHS Estate and to provide some simple adaptive practical tips. The aim is for staff to feel more confident, and feel like they have permission, to engage more with patients in the garden spaces.

Bridging between core NHS business and other activities was seen as important, as often the greenspace and community garden activity is not seen as core business. An advantage is that endowment funding can be accessed for equipment or pieces of work, however that means it is not core NHS business. Now the hospital has service level agreements with the Cyrenians this is starting to bridge the gap, as these come from core staffing budgets: a direct investment.

*So we're kind of bridging that a bit on this site with these service level agreements so they essentially are coming from core staffing budgets. So we see the importance of that but in terms of the proportion, it's a tiny percentage, it's not even one percent of our budget that we would directly invest into that.
(Interviewee 1)*

4.8.2. Evidence

Interviewees were asked about what sort of evidence would be needed to ensure the greenspace and community garden activity was valued. Interviewee 1 felt that the best evidence was experiencing the spaces and activities first hand and observing the impact on patients. For another interviewee it was hearing laughter:

*Absolutely and I think you can have every statistic they want and all the charts and graphs and all the evidence but for me, the biggest evidence is being able to go out on the floor or into the garden and watch the staff and the patients laughing together because it's not like staff and patients, it's just people.
(Interviewee 4)*

The occupational therapists outlined that they would be looking for patient change over time looking at their motivation, routines, how they engage with meaningful activity such as gardening and observing how this can be a transition tool for moving on once they leave hospital and go back into their community and where they can still access the community garden after they have left. Interviewee 5 thought there was a lot of existing good evidence that needs to be made more widely known:

There's so much good evidence about the importance of green space. You don't have to search very hard to find lots of stuff that talks about the benefits of working... whether it's a very small amount of somebody going out to plant or having a house plant, all that stuff about nurturing, plus all the stuff you get about outdoors and the range of benefits. So I think we just need to get better at making sure that the wider managers and planners are actually really aware of that and looking at it, and hearing from patients and from the staff and the providers about the impact of these things and what we can do with it that really actually helps peoples' recovery. (Interviewee 5)

The Cyrenians Garden Manager thought that testimony from clinical and estates staff could be powerful, particularly if combined with patient testimony. The organisation does capture some data with patients to get quotes that can be used in reports to funders or for publicity. Many interviewees felt that the stories people tell about their experiences are important, with the occupational therapists talking about the importance of gathering patient feedback and experiences. One interviewee talked about a project with the Cyrenians over an eight week period and after each session they would have a discussion with patients about what they gained and what could be improved. This would be written up and fed back to the clinical teams to inform decision making.

Yes, it would just feed into decision making about how we work with patients and feeding into what the wider team are doing and feeding back how the patient is getting on with their various activities, and part of that would be how they're managing within the gardening groups or their volunteering sessions within the green spaces. (Interviewee 2)

A few agreed that numbers could only provide part of the evidence base:

I wouldn't go purely on numbers because sometimes people need spaces that are actually quiet. So actually it's important that places have times when they aren't full of hustle and bustle. So actually sometimes you want to have a space that's maybe protected for a smaller group of people to be able to use the site. It's not always about getting 100 people. You can have 100 people and no quality or you can have five people and have a huge difference for folk. So I don't tend to be numbers driven. (Interviewee 5)

One interviewee stated that some staff have produced poster presentations for conferences; this has primarily been within occupational therapy circles. Interviewee 3 talked about writing file notes and activity sheets to illustrate patients' responses to different activities.

Interviewee 2 thought that length of stay in hospital might be a useful indicator and also reduction in incidences of aggression as patient frustration is lessened when they can get out and have a life, and carry out normal activities. This interviewee also stated that a patient not being re-admitted was an important indicator and this re-admittance had happened more at the hospital previously than it does currently. The interviewee is working with an academic at Edinburgh Napier University to write a paper on the evidence of activity and how ways of working are changing. Some evidence has also been written up in NHS magazines.

5. Conclusion

The Royal Edinburgh Hospital has a large amount of greenspace within its grounds, a legacy of it being a Victorian Asylum. The two new buildings developed on site have courtyard gardens that provide opportunities for patients who cannot get into the wider grounds. There are also a number of nature workshops that are brought onto the wards. All of these approaches provide important means for patients and staff to have the opportunity to engage with nature. The site is still being re-developed and this may impact on or change the existing greenspace, however the greenspace is and will be factored into the plans for re-development.

It is clear that some staff are actively building engagement with the community garden and wider greenspace into patients' care plans, with occupational therapists seeing this as a key element of what they do.

Some of the patients are involved in important natural processes such as learning to grow food, pick it, cook it and eat it. Through this they learn a range of skills that can aid their recovery. Some patients access the community garden regularly and some volunteer at the community garden. The community garden and greenspace are an important opportunity for patients to forget they are in a hospital.

Barriers to making the most of the community garden include the pressures staff are under, a lack of awareness of the opportunities and a concern about knowing what to do with patients outdoors; along with access issues for those with mobility problems.

Evidence of patients' experiences and activities is being gathered, reflected on and used in decision making concerning patient recovery pathways. Staff and patient testimonies were thought to be important pieces of evidence concerning the impact of the community garden and greenspace, along with reductions in the length of hospital stay and reduced incidences of aggression by patients.

Senior management is becoming more aware of how significant the greenspace can be for both patients and staff. A mix of funding has enabled the creation of the community garden and its on-going running. Some of this funding has been by a direct investment from the hospital from its core funding budget; which helps to illustrate the importance of the greenspace.

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Appendix 1. Interview protocol

All respondents	
Introduction	<p>Just to give you a bit of background I work for FR which is the research agency of FC and I've been asked by the Green Exercise Partnership to interview a number clinicians and corporate decision makers in the Ayrshire and Arran Health Board about the Greening the NHS estate project.</p> <p>The Green Exercise Partnership (GEP) is focused on greening the NHS and includes Forestry Commission Scotland, NHS Health Scotland and Scottish Natural Heritage.</p> <p>The NHS greenspace activity to date in the Ayrshire and Arran Health board is as follows: University hospital Ayr and Ailsa GEP national demonstration established, neglected woodland brought back into management, new paths established, new Sustrans route (1Km), new signage and interpretation, tree planting(2,500 trees) and 26 new seats and perches. Officially opened by chairman of NHS board in 2015. Use of footfall counters. Engagement activity taking place via TCV employing greenspace for health senior project officer.</p> <p>In order to further promote and mainstream NHS Greenspace we want to get a better understanding of the impacts of the Greening the NHS Estate project so far.</p> <p>With your permission I would like to record the interview, no one's names will be used, you will remain anonymous and I would be happy to let you see the draft outline or report that I will be produced for the GEP.</p>
Q1	<p>The NHS greenspace demonstration projects have been undertaken to create health promoting environments that can be used and enjoyed by staff, patients and visitors. They can also be used by staff for therapeutic activity.</p> <p>Can you outline if you have been directly or indirectly involved in the greenspace project/s and if so in what way and when did that start? <i>(prompt: involvement in decision making, involved in getting the project/s up and running or in delivery, involved in promoting or encouraging staff to use and enjoy the greenspace (with patients, by themselves)</i></p> <p>If you have not been involved are you aware of what has taken place?</p>

Q2	<p>What do you feel are the impacts of the NHS greening project so far?</p> <p>Has it provided any opportunities? (<i>prompt: for further greening of this site or others, for raising the profile of greenspace in health care settings, for working with patients /staff outdoors</i>)</p>
Questions for estate managers only	
Q3	Thinking about the sites which you are most familiar with what estate management priorities or outcomes (as set out in the Estate Asset Management Policy) have the project delivered or will deliver?
Q4	Have the estate changes that have been made created more work or reduced work?
Q5	Have you found that different skills and training are needed for staff in managing these greenspaces (e.g. woodland management skills, wildflower meadow management skills)?
Q6	Have any of the changes resulted in cost savings or incurred additional costs. Are these one off or on going? Will this have an impact on decisions for maintenance of the greenspace or the creation or improvement of any further greenspaces?
Q7	Do you think attitudes are changing towards the use of the greenspace in health care settings by estate managers?
Questions for clinicians	
Q8	<p>Thinking about the sites with which you are familiar what clinical priorities or outcomes has the project helped to delivery or will deliver in the future?</p> <p><i>(e.g reducing overweight, reducing sedentary behaviour, increasing physical activity, improving mental health etc.)</i></p> <p>How have / are those priorities or outcomes achieved?</p> <p><i>(prompt: via use of space as part of therapeutic programme, by use of staff, patients, visitors in their own time, via hospital ranger encouraging and enabling accessing through organised activity etc)</i></p>
Q9	Do you think attitudes are changing towards the use of the greenspace and green exercise for clinical care and recovery?
Q10	<p>Do you think the green outdoor estate is now more likely to be considered in clinical interventions? If this is the case what helped this to happen (<i>prompt: promotion of NHS greenspace, use, evidence gathered on use / benefits</i>)</p> <p>If no what support would help to make this happen in the future (<i>prompt: support in terms of risk management, training for clinicians, evidence of the benefits or opportunities</i>)</p>

All respondents	
Q11	<p>At a Health Board level how likely do you think it is that greenspace principles will be integrated into new build planning, procurement and development?</p> <p>Are you aware that this is already happening or what would be needed to enable it to happen? How might this take place?</p>
Q12	<p>Do you think there are any barriers to rolling out or mainstreaming NHS greenspace? <i>(prompt: lack of evidence of the benefits, organisational constraints, lack of understanding of the role greenspace could play, concerns about health and safety,</i></p>
Q13	<p>What indicators of success should be adopted to provide evidence of the role of NHS greenspace in this health board to ensure role and out mainstreaming of NHS greenspace <i>(prompt only after they have responded first:</i></p> <ul style="list-style-type: none"> • <i>Changes in how staff, patients, visitors, wider community perceive the hospital space</i> • <i>Active use by staff etc. of the estate – personally, for therapeutic recovery, patient activity programmes, social interaction</i> • <i>Improved staff satisfaction with the work environment</i> • <i>Better staff retention rates</i> • <i>Reduced staff sickness rates/faster return to work</i> • <i>Positive health impacts for patients including recovery rates for long term patients or post operative patients</i> • <i>Mental and physical health benefits for patients participating in green exercise programmes compared to more traditional indoor programmes</i> • <i>Changes in people’s perceptions of how well the estate is managed</i> • <i>Changes in perceptions on how greenspace contributes to hospital sustainability)</i>
Q14	<p>Who should be the audience for this evidence? <i>(prompt: staff, patients, visitors, wider community, wider Health Board, NHS Scotland, Scottish government)</i></p>
Q15	<p>Do you feel that if this evidence was made available it would assist with mainstreaming NHS greenspace?</p>
Q16	<p>Is there anything else you would like to say in regards to the NHS greening project?</p>
Thank you for your time and information and close	

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