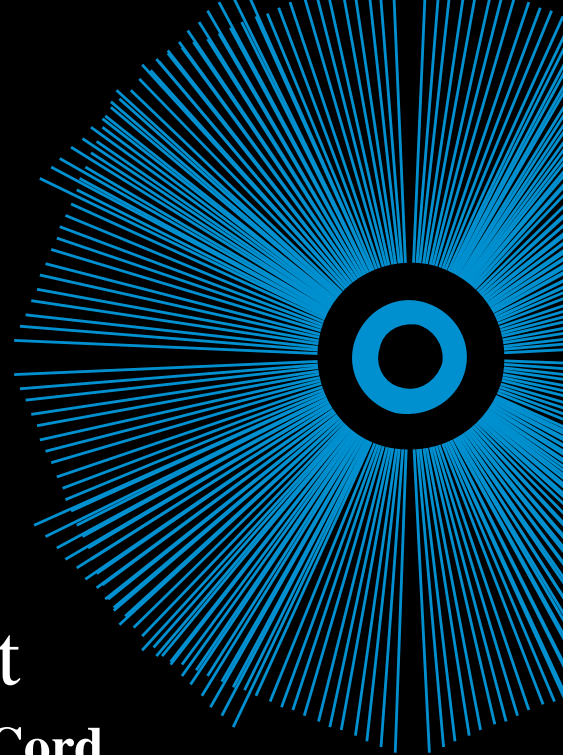




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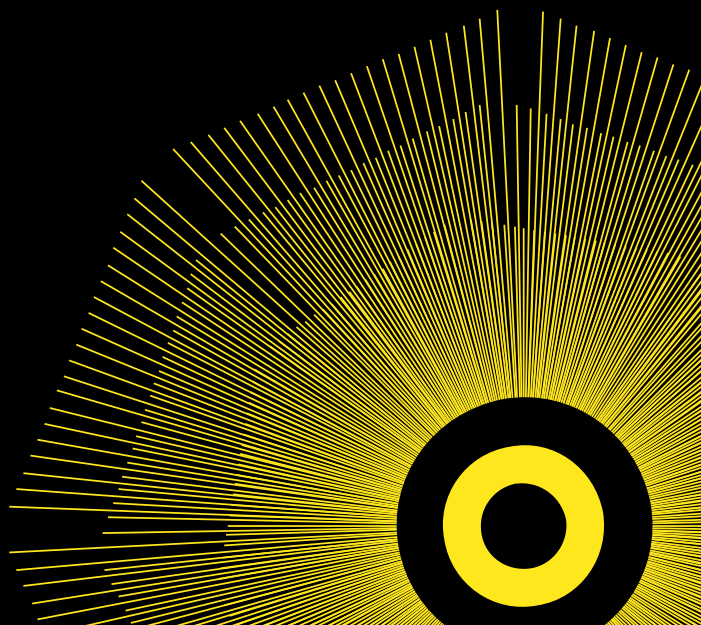
Shine 2012 final report

Improving self-efficacy in Spinal Cord Injury Patients through 'Design Thinking' rehabilitation workshops

Sheffield Teaching Hospitals NHS Foundation Trust

March 2014

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Part 1. Abstract

Project title: Improving self efficacy in Spinal Cord Injury Patients through ‘Design Thinking’ rehabilitation workshops

Lead organisation: Sheffield Teaching Hospitals NHS Foundation Trust

Partner organisation: Sheffield Hallam University

Lead Clinician: Dr Nazakat Hussein (Project lead: Daniel Wolstenholme)

Design Researchers: Jackie Leaver and Rebecca Partridge

Background:

Advances in surgical and medical management have significantly reduced the length of time patients with spinal cord injury (SCI) have to stay in hospital, but this has left patients with potentially less time to psychologically adjust.

In 2012 The Princess Royal Spinal Injuries unit, Sheffield was involved in a pilot 'Design and rehabilitation' undertaken by Sheffield Hallam Universities Lab4living team supported by the Silvia Adams Trust and the Royal Society of Arts, both staff and participants had given favourable feedback on the experience. This project builds on this work aiming to explore if the sessions could allow patients with SCI to have a greater say in their own rehabilitation, and see what positive effect this could have on helping them to deal with the life-changing effects of SCI.

Description of Innovation:-

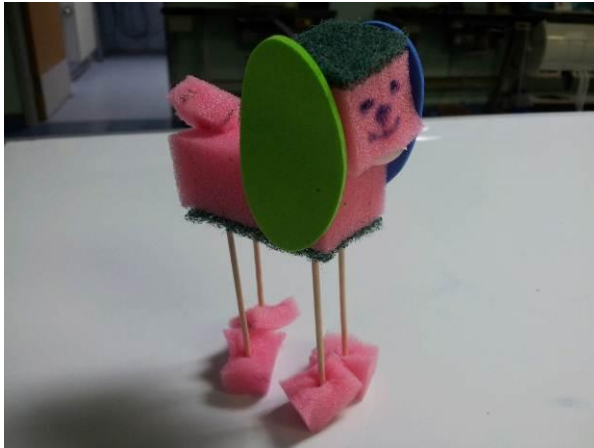
What is design thinking?

Design thinking is about understanding the approaches and methods that designers use then applying these to think creatively about problems and suggest ways to solve them. In this instance design thinking is not about designing new products (although the approaches can be used to do this) it is developing a long term creative and explorative mind-set through skills such as lateral thinking, prototyping and verbal and visual communication.

The principles of ‘design thinking’ have underpinned design education and practice for many years, it is also recognised in business and innovation, but from our original reviews there was no evidence of it being used in rehabilitation or spinal injury settings.

What was the innovation?

People with spinal cord injuries consented to a series of four weekly ‘Design thinking’ sessions. During these participants took part in a range of activities learning skills such as; creative and outside the box thinking, seeing failure as learning, questioning things and prototyping,



The Making Activity: Learning about communication of ideas and prototyping.

Methods used for testing:

The project was registered with the Clinical Effectiveness Unit of the hospital and received permission to commence. The team obtained honorary contracts to work within the trust and all patients had to give written informed consent.

We had a range of outcome measures; some generic, some specific to the SCI context. These included: (all in the appendices)

- EQ5D
- Perceived manageability of condition
- Appraisals of disability (ADAPSS)
- Patient activation measure (PAM)
- Interviews immediately after
- Follow up interviews from 3 months after

Other measures included:

- Length of stay
- Number of emergency readmissions

What you achieved

Outcomes

We recruited 33 patients to the workshops with 20 complete data sets. We had positive participant feedback from the qualitative strand of our evaluation, with the majority of patients wanting more sessions. Participants suggested the workshops complemented current physical therapies at the unit and many patients saw it as a sort of 'mental rehab', brain stimulation.

“It was more about my mental recovery whereas everything else is about my physical recovery it was the only really mental exercise I got to do in the hospital”

We demonstrated no detrimental impact on LoS or readmission rate and statistically significant improvements in 2 key quantitative metrics, the EQ5D (quality of life survey) and the PAM (Patient activation measure).

Challenges

Session dynamics

There were initial challenges whilst developing the session's content and format. The initial group sessions were not appropriate for all people and there were timetabling problems so

the workshops were rewritten into 45 minute sessions and on a 1:1 basis, allowing the team to incorporate the intervention into the existing timetable.

Staff buy-in

We were conscious to engage and involve the unit from the start, this was not without difficulties due to the fluid nature of staffing so we organised a variety of engagement methods from talks to a welcome event.

There were also difficulties keeping staff engaged throughout the project which was frustrating for the team. But writing regular updates helped to build trust and a relationship with the staff.

Recruitment

Recruitment to the study was a big challenge, the initial idea that word of mouth would drum up interest did not happen. We had a variety of problems from patients misunderstanding objectives to the unit closed to admissions for a month. The team regrouped to discuss these and come up with solutions to develop an appropriate recruitment programme and informed consent session. Resulting in the successful completion of some 140 sessions with patients and a comprehensive mixed methods evaluation.

Part 2. Quality impact: outcomes

Setting of innovation:

The Princess Royal Spinal Injury Unit, Sheffield, is a supra-regional centre, the second largest in the UK catering to a population of around 9 to 10 million. It is a standalone, self-contained unit, with its own staff and specialist facilities. The unit takes an average of 140 patients a year over four wards, acute, rehab, Neuro-rehabilitation and readmission. The acute and rehab wards were involved in the project.



The Princess Royal Sheffield Spinal injuries unit

The main change to the intervention happened in the first few months; we moved from group to 1:1 sessions and extended the planned time period for the intervention from 6 to 8 months in order to recruit as many patients as possible.

We achieved:

- 33 patients recruited
- 20 full data sets
- Approximately 140 workshops run
- 8 Months of workshops.

Quantitative data:

The measures that we used were:

- EQ5D
- Perceived manageability of condition
- Appraisals of disability (ADAPSS)
- Patient activation measure (PAM)

Data collection:

All the measures came from our health economist. They were tick box sheets that participants completed either at the end of every session or pre and post workshops. The majority of these posed no problem to collect except the EQ5D which was challenging in an SCI setting, as the first question asks about walking. The team worked hard to find a way to explain this form to each participant, ensuring effective use.

We also did the EQ5D after the first activity to break up the beginning and because it is felt that this can be a bit of a barrier....” (Facilitator)

The EQ-5D-3L is a five item preference-based quality of life measure that can be used in economic evaluations to estimate quality adjusted life years (QALYs). The instrument asks five questions on mobility, self-care, usual activities, pain and anxiety and depression and respondents are asked to choose from three response options; no problems, some problems or severe problems. Scores are converted into a score on a zero to 1 scale where 1 denotes full health and 0 death and scores less than zero denote states worse than death. Scores presented here are based on the York MVH tariff (Dolan, 1997). Participants also rated their health on a visual analogue scale ranging from 0, worst imaginable state to 100 best imaginable health state.

Paired t-tests were used to compare health related quality of life (HRQL) pre and post intervention. ANOVA was used to look for differences over time for ADAPSS and PMnac. Stata version 12 was used for all analysis.

Results

20 participants took part in the study 13 (65%) were male and the average age was 37 years (range 16 to 72). For EQ-5D score and VAS and PAMS a higher score indicates better and this was the case for all three measures, with statistically significant improvements for EQ-5D score ($t = -3.13$, $p = 0.007$) and PAM ($t = -3.85$, $p = 0.001$) (Table 1).

Table 1: Mean EQ-5D and PAM scores pre and post intervention.

	Pre-intervention	Post-intervention	Paired T-test	P-value
EQ-5D score	N = 17 0.232 (0.076 to 0.387)	N = 17 0.369 (0.201 to 0.538)	-3.13	0.007
EQ-5D VAS	N = 20 61.6 (49.6 to 73.6)	N = 20 67.6 (57.1 to 78.1)	-0.98	0.337
PAM score	N = 17 55.9 (48.8 to 62.9)	N = 17 67.5 (58.0 to 76.9)	-3.85	0.001

The appraisals of disability scores (ADAPSS) and PMnac were filled in after each workshop. These are presented in Table 2 below. There is no significant change in scores over time, however ADPASS scores after workshop 4 are significantly higher than those for workshops 1, 2 and 3 respectively (WS1 $t = -3.29$, $p = 0.004$; WS2 $t = -4.12$, $p = 0.001$; WS3 $t = -3.37$, $p = 0.004$).

Table 2: Mean ADAPSS and PMnac scores over time

	WS1	WS2	WS3	WS4	ANOVA	p-value
ADAPSS score (N = 16)	21.9 (19.58 to 24.4)	21.4 (18.5 to 24.4)	21.8 (19.4 to 24.3)	24.3 (22.5 to 26.1)	$F_{3,68} = 1.92$	0.135
PMnac score (N = 14)	16.3 (14.7 to 17.8)	14.9 (12.6 to 17.2)	15.4 (13.4 to 17.5)	16.0 (14.5 to 17.5)	$F_{3,65} = 0.23$	0.876

Operational parameters

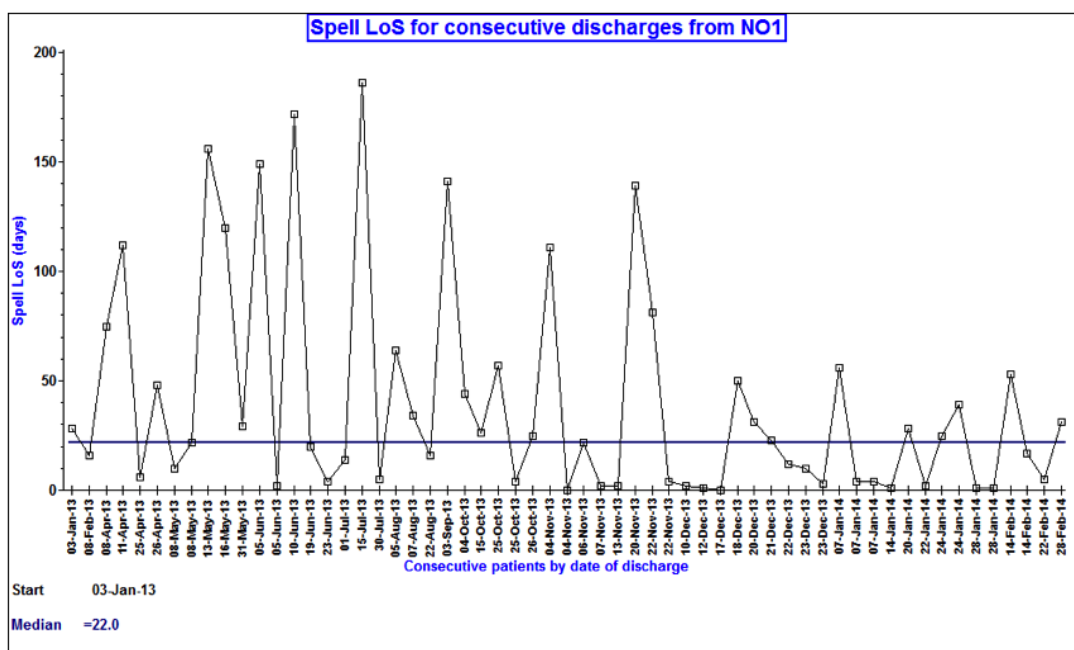
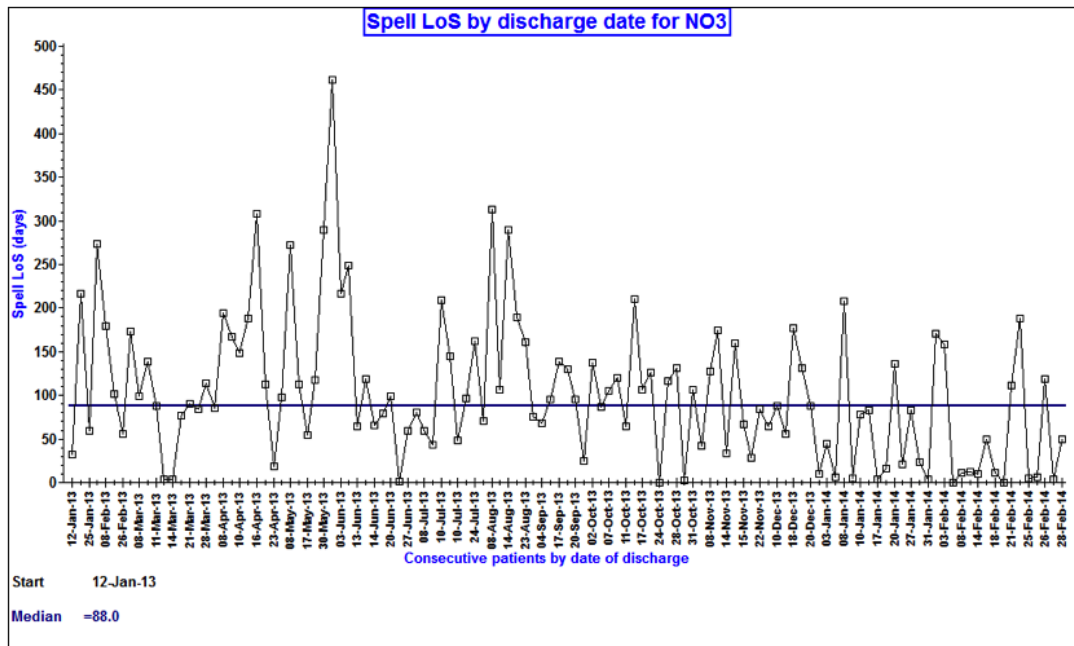
We looked at:

- Readmission rates
- Length of Stay

Challenges with getting the hospital activity data included; dates not properly recorded in medical notes, confusion over medically fit and estimated dates of discharge and skewed data by movement around wards.

Due to these constraints we used the Patient Information systems in the Trust to look at the Spell Length of stay (LoS) by consecutive patient, for patients discharged from either of the wards where people were recruited.

We looked at the time period 1st of January 2013 – 31st March 2014 and identified patient whose date of discharge fell in that time period. The SHINE intervention took place between June and December in this time period.



The two run charts above show NO3 (the rehab ward) and NO1 (the acute ward). Both show a relatively chaotic system in terms of spell LoS however there appears to be a reduction in LoS (although not reaching the strict definition of a special cause variation)

toward the end of Nov –Dec 2013. When speaking to staff on the unit they report that there was a large waiting list for admission that built up over the summer period whilst the wards were closed for infection control requirements. This resulted in patients arriving on the unit already well advanced in their rehabilitation and therefore not requiring as much intervention and corresponding shorter LoS. For the purposes of the study we can say that the intervention did not appear to have an effect on the global LoS for patients through the unit, although this is a chaotic system and only a proportion of patients received the intervention.

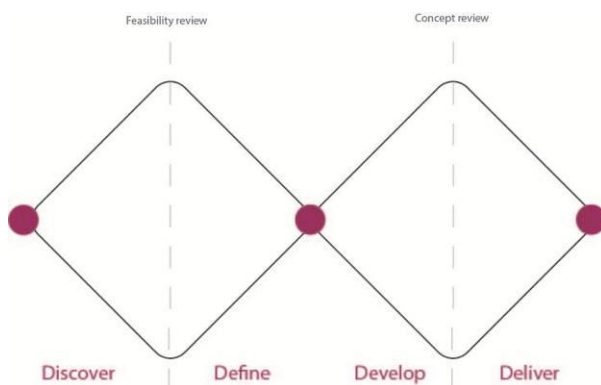
In terms of readmission rate the Patient Information system only identified 51 patients being readmitted within 28 days to the unit since 2006. In hindsight this was a redundant measure in this study.

The Qualitative data

Patient Learning

Design thinking is a long term shift in thought processes. At the end of the workshops we had positive interview feedback about a change in peoples thought patterns and approaches suggesting success.

Participants stated that they had used the skills learned, some as a general change in mind-set, and others in more specific ways such as skills in directing care. One patient in particular managed to overcome a problem with part of a journey home overseas during the session.



'I used it when thinking around setting a routine at home, the activities give a framework'

The double diamond framework.

Patient experience

The project had a positive effect on the quality of the service and the experience of patients; interviews show that participants felt it was a positive addition to their time on the unit viewing it as an additional rehabilitation therapy that provided mental stimulation currently not explicitly served on the unit. Participants stated that they would have liked more of the sessions.



Activity categories: Learning to see things from different perspective

"I remember that being a lot of fun that was good for my memory and vocabulary as well because there's not a lot of chances to practise that, because I lost a lot of that in the accident"

"It was more about my mental recovery whereas everything else is about my physical recovery it was the only really mental exercise I got to do in the hospital"

(Would you have liked more?) "Oh yeah absolutely I mean I was sorry when it ended"

"Very enjoyable, it gave us an opportunity to think outside the box, which we hadn't done for a long, long, time..."

Conclusions

The mixed method approach to evaluating this intervention yielded positive results.

Whilst the LoS and readmission rate showed no change, we might have hypothesised that in a complex system where many other factors influence going home, that a single intervention would not demonstrate a significant change.

The Qualitative data demonstrated not only a benefit for people's experience of being in hospital, but also alluded to the potential for this to be a life skill to take forward after discharge.

The qualitative data was supported by the various psychological metrics used. The EQ5D, despite the challenges of this context, demonstrated a significant positive change over time, as did the PAM. The PAM in particular is a key measure in that the participants were more activated, more likely to think creatively about their futures, more likely to set goals after the intervention. This has big implications in terms of the timing of rehabilitation interventions to get the best results, or the nature of interventions to move people to the point where they are likely to succeed in their rehabilitation. There is considerable clinical interest in this measure, which is a direct result of this project.

Part 3. Cost impact

Our original hypothesis was 'through increased self-efficacy, perceived manageability and activation we would aim to reduce the costs associated with Length of Stay (LOS), readmissions and emergency readmissions.

Costs of the intervention

In this section we consider costs of running the intervention during the study and the cost of running the intervention were it to be taken up by the NHS.

Study intervention

The intervention was delivered to patients over 5 sessions. In the pilot study each patient received 3.33 hours' worth of sessions and these were delivered by a research assistant. The intervention pack included instructions, materials, cards, whiteboard, whiteboard pens, general pens and storage box at an overall set up cost of £145. The running costs of the intervention over a one year period include replacing and reprinting materials at a cost of £40 per year.

Intervention if it were to be delivered by the NHS

If the intervention were to be delivered by the NHS it is not clear who would deliver it, therefore we present a number of scenarios

- i) Intervention delivered by physiotherapist or occupational therapist
- ii) Intervention delivered by a paid carer
- iii) Intervention delivered by a volunteer

It is assumed that materials needed would be the same as above for the study intervention and we expect the time taken to deliver the intervention to be slightly longer than for the study at 3.75 hours.

Set up and running costs for the intervention are taken from the study (see above), unit costs for physiotherapy time were taken from PSSRU (Curtis, 2013), carer time was taken as the average carer wage from TotalJobs.com, cost of inpatient stay was taken from Department of Health reference costs (Department of Health 2013) (Table 3).

Table 3: Resource use and source

Resource	Measure	Source	Unit cost
1. Intervention set-up costs	Per patient	Study	£7.25
2. Intervention maintenance cost	Per patient	Study	£2.00
3. Cost of staff time to deliver the intervention			
Research assistant	Cost per hour of time	Study	£20.98
Physiotherapist/OT	Cost per hour of time	PSSRU ¹	£36.00
Carer	Cost per hour of time	TotalJobs ²	£9.23
Volunteer*	Cost per hour of time	Office of National statistics ³	£15.15
4. Hospital stay in spinal injury unit	Length of stay in days	NHS reference costs ⁴	£641.36

¹ Curtis, 2013; ² TotalJobs.com, 2014; ³ Office of National Statistics, 2013; ⁴

Department of Health, 2013; * It is assumed that a volunteer will be taking time away

from usual activities to deliver the intervention and these are valued at the average wage for the population (this would not be cost to NHS but to society).

We present study costs as cost per patient and overall cost of the intervention over one year. Length of stay was calculated for 18 patients, the mean length was 101 days (median = 91.5 days) range 31 to 343 days. At a cost of £641.36 the mean cost of stay was £64,813. Table 4 presents the costs per patient depending upon who delivers the intervention. The cheapest option for the NHS is for carers or volunteers to deliver the intervention.

Table 4: Cost of intervention per patient and over 6 months for alternative people delivering the intervention

	Cost per patient	Cost over 1 year assuming 120 eligible patients given intervention
Study cost	£79.18	
NHS cost: physiotherapist/OT deliver intervention	£144.25	£17,310
NHS cost: carer delivers intervention	£43.86	£5,264
NHS cost: volunteer delivers intervention	£9.25	£1,110
Societal cost: volunteer delivers intervention	£66.06	£7,927

References

Curtis L (2013) Unit costs of health and social care. PSSRU
 Department of Health NHS reference costs 2012/13. Department of Health 2013
 Office of National Statistics, 2013 <http://www.ons.gov.uk/ons/rel/ashe/annual-survey-of-hours-and-earnings>
 Totaljobs.com <http://www.totaljobs.com/salary-checker/average-carer-salary>

Part 4: Learning from your project

Achievements

We were successful in implementing design thinking workshops as part of the rehabilitation programme at the spinal injuries centre. The team found this an inspiring and humbling experience, particularly when participants commented on how useful and enjoyable the sessions were and the importance of the mental stimulation and a problem solving framework.

Team flexibility

We encountered a series of challenges and in order to overcome these the team had to be flexible and willing to adapt and respond to situations as they arose. Allowing them to have this flexibility throughout was key in ensuring we achieved what we set out to, without it, the designers would have had to continue pushing a format that did not work, which could have led to disappointment and frustration.

Challenges encountered are covered in more detail below:

Session Format

The team went through a successful iterative process to fit the workshops in the unit. Originally the intervention was to be delivered in small groups and around 1.5 hours long. We had initial success in finding like-minded people who undertook the sessions together; however it became clear that this was unusual. Participants in subsequent group sessions had different approaches to learning, different levels of engagement and different timetables for their traditional rehabilitation which made it difficult to find mutually acceptable time slots.



Changing from group to 1:1 sessions.

The team met to discuss and proposed a different approach based on experiences, moving to 1:1, 45 minute sessions integrated into the timetable. Again, the ability to adapt where necessary was important here.

Recruitment

We had lower recruitment numbers than the 60 initially proposed which was initially seen as a failure. However on careful analysis of the data of the 90 patients across the two wards, a third of those eligible took part and the other two thirds did not fit the inclusion criteria or they declined. Despite reassessing our initial estimate of 60 participants we did successfully recruit over half of the patients on the ward who fitted our inclusion criteria, which is excellent considering all the challenges and the sensitivity of the context.

Difficulties included;

- Patients misunderstanding project objectives
- Eligible patients on the ward did not meet our estimated numbers (only 90 compared to 140) due to estimated number through patient information systems.
- Unit closed to admissions for a month,
- Demographic factors, patients were often inappropriate to the study (i.e. age related difficulties which did not fit the inclusion criteria).
- Lack of social interaction between patients.
- Patients becoming institutionalised and not engaging in therapies

Solutions were; ensuring that the elevator pitch was informative and appropriate, involving a physiotherapist in recruitment and developing an additional informed consent session to avoid recruiting at the bedside.



Consenting patients in the informed consent session

Staff buy-in

Staff were not required to run the innovation, this was the role of the design team, however it was important that the units' staff were on board in order for it to be integrated successfully. At the beginning of the project we organised conversations with senior staff from medicine, nursing and Allied Health Professionals, talked to ward sisters meetings and Therapy teams and held a launch event with activities and refreshments.

Initially, we felt staff were reluctant to engage with the project and this was very frustrating. The team reflected that perhaps they felt threatened or did not understand the work. They tried a variety of methods to engage them throughout, these included; giving talks, having presence at team meetings, piloting activities, shadowing staff, bringing biscuits and writing monthly updates.

These approaches helped to build a relationship, however from a staff perspective the workshops were still separate from their rehab sessions. Since the handover process, staff have been more engaged in the work, we feel that this could be due to having ownership of the work.

Organisation and policy barriers

The team felt the unit to be very segregated between the disciplines, Rather than rehabilitation being integral to the whole unit patients saw it as going for rehabilitation sessions. It was difficult for the design team to not be affected by teams not working effectively together. On occasion patients would not be able to attend sessions when other things took priority (clinical interventions) or practically the patients weren't ready to attend (delayed showers, washing and dressing. This could be perceived as a lack of priority or importance attached to the sessions.

Staff changes

The main change that affected the project was a foundation Doctor who had been involved in the previous study no longer working at the unit. In the pilot he was instrumental in getting patients motivated to come along. This posed some problems for the design team, who initially felt they had no champion on the unit.

One of the design team left during the project; this made little difference as it happened early on. Follow up interviews with participants showed that having different people running sessions did not matter.

“Because they both know what they are talking about and they both know what to do, how to do it and get on with it, so there's no wasting time”

What would we do differently?

Following challenges and reflections from within this report, things that the team would do differently next time include:

- Ensuring a 'champion' for the work within the unit is established early on.
- Spend time with other members of the unit gaining an understanding of their roles to develop a relationship, particularly those with patient facing roles such as nurses and therapy staff, to try and ensure ownership of the intervention

Part 5. Plans for sustainability and spread

Sustainability plans

Beyond March 2014 the intervention will be continued by the MDT, the costs section list possible models of delivery and their associated costs. Early on the team recognised that in order for this to be continued beyond the SHINE award the unit needs to have ownership of the work and a desire to take it forward. Working with staff members at the unit the sessions have been developed into a toolkit of activities that will enable the staff on the unit to embed design thinking into the current rehabilitation programmes.



Developing the sessions with staff members

As a final ending and handover of the project we have planned an event at the unit for the end of March, celebrating the success and highlighting the range of activities and their application to the rehabilitation pathway.

Conclusions

The SHINE award has allowed for the development and feasibility testing of an innovative intervention. The intervention has a positive effect on patients experience and because of the care and skill used in its creation can be used by a range of professional and non-professional carers. There is a huge potential for use in other sectors where there is a rehabilitative aspect of care.

Developing the toolkit



In order for anyone to use the intervention It is important that the instructions for the toolkit are clear and easy to follow. To begin with we incorporated all the information relating to an activity into a double sided A5 sheet. This resulted in a text heavy document which was hard to follow when delivering a session. (see (1) below)

Making activity


Aim: To work as a team to create and interpret the objects represented on the cards.

Method 1

1. Decide who will be the maker and who will be the describer
2. The materials are laid out on the table.
3. The describer selects a card from the first pack without looking at it. They should then look at the card but not show it to anyone else.
4. The describer directs the maker to create a representation of what is on the card (see below for examples of directions allowed)
5. When the maker thinks that they know what they are making they can make a guess. Participants should be encouraged to complete as much of the making as possible before guessing.
6. Swap roles for the next round (if possible)
7. Start with the first cards before moving on to pack two which are the harder ones.

Tennis Racket



Instructions such as: 'place two lollypop sticks end to end', 'create a circle with the pipe cleaner', 'cut the green card to make a square', are allowed but 'make two wheels', 'create a lid' etc. are not.
Materials for sticking i.e. masking tape and glue are not to be used as part of the object.
The materials should be kept well stocked however, the range of items is limited on purpose to promote resourcefulness.

Discussion

Did you enjoy the activity? What was enjoyable?
Did you find it difficult? What was difficult?
Were there any particularly frustrating moments? If so, why was it frustrating?
If the object didn't look how you envisaged or the maker couldn't guess what it was, how confident were you to go back and try again?

(1)

Working with the unit staff allowed us to identify and remove any design specific language and to pinpoint the essential instructions required to deliver an activity. A separate in-play sheet was then created using only this basic information. Text was used to describe the rules or guidelines and points for discussion, keeping it to a minimum. Images illustrate the step-by-step process (see (2) below). All background and other information is kept to a separate document.

“ I have not failed, I have just found 10,000 ways which won't work ”

Learning

This activity focuses on communication skills and the concept of prototyping.

1. Communication:

Communicating effectively is a key skill for everyone but particularly for those who need to instruct someone else to carry out a task on their behalf - such as a spinal cord injured person directing care. It is often only when the interpreter (in this activity the maker) has made a mistake that errors in communication become apparent. Designers often use drawing or 3D models to communicate their ideas but talking and describing can also be very effective.

2. Prototyping (trial and error / giving things a go)


Prototyping is an exploratory process that helps a designer to understand the potential of an idea. Prototypes are generally made in 3D. The principles of prototyping can be applied to this activity and to exploring the possible benefits and issues during any problem solving exercise:

- Should be done as early as possible in the 'design' process to try things out
- Don't invest too much time in an idea that is going nowhere. Be prepared to go back a step, take things in a different direction or start again
- Only invest as much time in something as it takes for you to learn from it
- Prototyping does not have to be perfect (look at the materials! It should help to build confidence to make mistakes and see things go wrong.


Non-physical prototyping

This can be a good way to work through the process of doing something without actually doing it. For example, discuss how you would prototype creating a meal: choosing a recipe, buying ingredients, cooking, washing up...

In terms of the Double Diamond this would relate to the third quadrant where possible scenarios are mapped out and evaluated to avoid problems with the final outcome.



'Cut the card to make a square'




'Place two lollypop sticks end to end'

Making Activity

To work as a team to create and interpret the objects represented on the cards


1



Lay out materials


2

Ladder



Pick a card


3



Place two lollypop sticks parallel

Direct your partner to create what is on the card (see instruction guide below)

4



Guess!

Rules

- One person is the describe and the other is the maker, swap each turn if its possible. Start on pack one and move onto pack two after you've got the hang of it!
- Materials for sticking such as masking tape and glue are not to be used as part of the object
- Instructions such as: 'place two lollypop sticks end to end', 'create a circle with the pipe cleaner', 'cut the green card to make a square', are allowed but 'make two wheels', 'create a lid' etc. are not.
- Try to complete as much of the making as possible before guessing
- The range of materials is limited on purpose to encourage resourcefulness.

(2)

Discussion:

- Effective communication-practice makes perfect
- Prototyping/trial and error/giving things a go
- No such thing as failure, just learning
- Non-physical prototyping - acting things out/talking through a process/practice

“ I have not failed, I have just found 10,000 ways which won't work ”

This layout allows the card to be used during play while keeping the discussion points out of sight until required.

In response to participant requests we included suggestions for additional, related activities that could be carried out outside of the delivered sessions (see (3) below).

The worksheet is titled "Categories" and includes the subtitle "Categorising a range of words associated with a particular activity or location." It features three numbered steps:

- Step 1:** "Pick a location or activity and lay out all the words face up." The words shown are: Shopping Centre, Car Park, Lift, Food Court, Escalators, Toy Shop, Toilets, Water Feature, and Seating.
- Step 2:** "Choose three categories (blind). Allocate all the words to the headings." The categories shown are COLOUR, DARK, and ORDER. The words are: Toy Shop, Escalators, Cafe, and Toilets.
- Step 3:** "Remove two of the categories and swap for two others. Reallocate the words (repeat once more)." The categories shown are COLOUR, CHAOS, and TEXTURE. The words are: Food Court, Toy Shop, Cafe, Escalators, and Escalators.

The "Discussion" section contains the following points:

- Did you put any in opposing categories e.g. Chaos then order?
- Keep open minded and unrestricted to look at things from different perspectives
- Often we see both positives and negatives- if we continually explore something.

The "What next?" section includes the following text:

Look at the environment around you and come up with 20 examples that would fit in the categories. i.e 20 examples of chaos, 20 examples of texture.

Do any of your examples fit into opposing categories? e.g light and dark?

(3)

Working with staff highlighted a small number of activities that were less effective when delivered by a non-designer (e.g. 'What is a Designer', 'Perceptions of Design'). As a result, elements of the learning from these sessions were incorporated into other, related activities where it could be used as points for discussion.

Attending to the context in which the intervention is to be delivered is key to improving its chance of sustainability. Naturally the design researchers work in a way to iteratively develop, with staff, the resources that are left behind. It also gives those involved the chance to own, and be proud of the finalised materials, creating more champions along the way.

Resources required

We would like to be able to support the unit in embedding the design and rehabilitation therapy, which would require further funding. As part of this we would look at how effective the sessions are when run by non-designers. Once we know this we can look at spread across the other spinal injury centres in the UK.

We have identified other centres with interesting work going on who may be appropriate to spread the work to initially, these include; Oswestry, Pinderfields and Southport.

Other interested parties

We have engaged the charity Back Up as part of this project and will be meeting with them again to share the findings of the work.