

Summary of the report

“Dining assistive technology for people with physical disabilities”

Welfare Technology Assessment Social agency ABT project

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Translated from Danish and presented in summary form.

Full report is available on request from info@neater.co.uk

**An Independent Clinical report from
Denmark on the use of eating machines**

Introduction

This report is made up of extracts from the fully independent report “Spiserobot til borgere med fysisk handicap” published on the 22nd November 2012 by Lone Gaedt, Physiotherapist at the Institute of Technology Robotics. It has been translated from the original Danish using Google translator and this edition is designed to raise the findings within an easily accessible format.

The Study

The project used the Welfare Technology Assessment platform or VTV to evaluate its results. The study was carried out using both manual(NEM) and electronic Neater Eaters(NEE) over an 11 month period beginning March 2011 and concluding in February 2012. It began with 36 residents with physical disabilities in 7 different care homes in 5 municipalities, (of category 105 & 108 residences according to Danish social law). After initial evaluations, 25 residents continued with the project and were evaluated over the 11 month time frame. The clients were evaluated on the basis of inclusion criteria including motivation, medical requirements, and the possible savings created by implementation of the technology. The users were evaluated over a minimum of 2 meals per day.

Methodology

The VTV at project completion, examined 4 areas with 8 assessment parameters. These 8 assessment parameters are categorised into pairs within the 4 main areas and are assigned a score on the basis of the collected data. This provides a VTV score that describes the future potential of the machines. These parameters include:

- Labour saving/economy
- Resident’s interaction with the technology/quality of life
- Work and work processes/organisational issues
- Eating machine performance/reliability

The four areas examined were based upon data from time measurements at the project start (March 2011 without eating machines) midway through the project (August 2011) until the conclusion (February 2012)

Data was collected using the following methods:

- Individual observational studies (including video)
- Living environment studies
- Interviews with clients
- Log book notes
- Staff questionnaire to those who worked with clients and machines

Results

The results of the study are based upon the 4 main areas of the study.

Labour saving/economy

It was found that using the eating machines saved the assistance required during each meal by on average 16 minutes and 44 seconds (from 24 min 22 sec down to 7 mins 38 s.). This time saving evolved naturally through use of the equipment and carer interaction. It is calculated that 618,390 hours of carer time can be saved annually, based on 2567 people using eating machines for 2 meals per day in residential homes in Denmark. This means that on average a manual Neater Eater (NEM) will have paid for its cost within a 75-95 day time frame. The Electric Neater Eater (NEE) will reimburse the authority within 212 days of its initial use. Another conclusion reached was that a deliberate attention to the work shift/release time could generate even greater resource savings.

Interaction with the technology/quality of life

The survey of residents' interaction with the technology/quality of life highlighted overwhelmingly positive experiences. Residents expressed that the use of the eating machine has contributed to greater autonomy, self-confidence, freedom, health (in relation to chewing, swallowing, digesting, etc.) and better quality of life.

The results formed a clear and positive image of the eating machine, including creating a more equal relationship between staff and residents. The joy of being able to eat independently meant that residents felt a greater degree of dignity and self-esteem in everyday life. They enjoyed eating at their own pace, choosing what order to eat the food in. They appreciate not being fed too quickly (which can even cause choking) and not having to wait for staff to get the next bite of food. Residents reported an increased sense of self-determination, independence and coping - all supporting the dream, for many of a more independent life.

The report mentions health gains with better seating and dining positions when eating and from better chewing and swallowing with less reflux and aspiration.

Work and work processes/organisational issues

Implementation of the eating machine has given rise to changing working conditions and work processes / workflow. Among other things, it was recorded that the preparation time for the meal is on average slightly longer. This was negated by comparing this with the way the residents used the eating machines, far less time was spent by staff on the meal itself and also a little less time on the subsequent clean up. Therefore a very significant overall time saving was experienced with the carer.

The report emphasises that a successful outcome requires local management to secure motivation and a positive attitude to the equipment.

It is important that sufficient time and resources are devoted to implementation and follow-up so that users / co-workers are taught properly. It was recorded that the NEE required more input than the NEM.

As a result of implementation of the eating machines the majority of employees report greater job satisfaction, a less stressful work life and a sense of personal and academic achievement.

Eating machine performance/stability

The Neater Eaters have shown good durability during the projects with no repairs needed. Evidence from the Danish distributor shows that the machines will easily outlast their standard warranty periods.

Other observations

During the course of the clinical trial it transpired that there were a lot more users that could benefit from an eating machine than the chosen group of those with physical impairments. Those with learning difficulties, arthritis or multiple sclerosis, younger people and children with neurological conditions, muscular weakness and loss of cognitive function should also be considered. This led to the conclusion that the visiting therapists should be observant to help identify further beneficiaries.

VTV score

On the basis of the score data from each of the 4 areas/8 assessment categories, the eating machines reached a total score of 34 points out of 40 (85%) and achieved 4 out of 5 stars.

Overall conclusion

The success of the Neater Eater eating machines was very clear. The study drew the following conclusions:

- The benefits of using the machines are clear and positive.
- Eating Machines provide greater levels of independence, wellbeing (including health benefits) and quality of life than carer interventions
- Carers become more engaged with the client in the feeding process and are less stressed when the machines are in use
- Time savings mean that the equipment reimburses the funding body in 75-212 days. This is far quicker than the standard 1825 days (5 years) return on investment normally required in Denmark to justify funding.

- The equipment is reliable and durable
- A concentration on work patterns could see further cost savings being made without compromising staff moral
- Additional clients were identified who would benefit from the machines
- Time should be spent by therapists in training and follow ups to further enhance the client experience

The full Google translated transcript of this report is available on request from Neater Solutions Limited, 12 Burlington Road, Buxton, Derbyshire, SK17 9AL
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