



CENTRAL BALTIC
INTERREG IV A
PROGRAMME
2007-2013



EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
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TESTING RESULTS OF INNOVATIVE ELECTRONIC DEVICES IN HOME CARE SERVICES IN RAKVERE

International project INNOCARE

innocare A graphic element consisting of three vertical bars of increasing height to the right of the word 'innocare'.

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Rakvere 2014

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Introduction and methodology

This is a satisfaction survey report of the project “Testing results of innovative electronic devices in home care services in Rakvere”. The study was conducted from December 2013 until April 2014. The target groups of the satisfaction survey were the clients who used the alarm button service (19 clients), six home care givers and four social work officials of Rakvere. The study included analysis of five different databases:

- Monthly reports from service provider Meditech Estonia OÜ (emergency call centre work and data);
- Monthly reports from Social Centre of Rakvere (data of guard team’s work);
- 19 semi-structured questionnaires conducted in December 2013 by Kersti Kriisk, Anu Varep and Airi Öosalu;
- Semi-structured interviews with 6 home care givers conducted in January 2014 by Kersti Kriisk;
- One focus group interview and one single interview with social work specialists conducted in January by Kersti Kriisk.

The data was analysed from February until April 2014. By the data analysis, descriptive statistics were used for quantitative part, and if necessary, direct quotations from interview were used for qualitative part of the study. The members of the research group were: Kersti Kriisk (research group leader, Tallinn University); Marje Lepanen, Kerstin Vissor and Airi Öosalu from Rakvere College of Tallinn University; Hille Ainsar, Meeli Männamäe, Anu Varep and Pille-Ruth Kukemilk from Lääne-Viru College; Lea Kivipõld, Mairi Etverk and Pille Ilves from Rakvere Town Government; Silja Lehtpuu (project coordinator).

Summary and Conclusions

A total of 126 calls were made to the emergency call-centre, i.e. an average of nine calls per month. Clients made 29 calls that required home care givers' intervention, which averages 2.1 calls per month. 14 of those calls were false alarms and in 15 cases the reason for emergency call was client's health problem requiring intervention of home care giver.

The majority of calls made to the emergency call-centre were false alarms and in 57.1 % of the cases (72 cases) the call centre worker was able to solve the situation without contacting the home care giver or the contact person. Some clients had a habit of repeatedly pressing the alarm button even after the call centre worker had confirmed to the client that home care giver was on the way. Almost half of the cases that required home care giver's intervention were false alarms (14 of 29 cases). If a client inadvertently / accidentally pressed the alarm button, then he/she had to be near the alarm device to hear and respond to the call centre. Often the client was not even aware of having made the emergency call and in many cases the client was too far away from the alarm button device in order to hear and respond when the call centre tried to contact him/her. For example, the client was asleep or not at home. In their interviews, the clients mentioned that one fears of using the alarm button service was that they would inadvertently cause false alarms. In order to improve the alarm button device, the home care givers suggested alternative possibilities to cancel false alarms (for example a quick double click of the alarm button). The home care givers also suggested that the alarm button could have additional sound and/or light functions informing the client of (inadvertent) alarms.

In all 15 cases where the intervention of home care givers was justified, the clients had problems with health. In ten cases, the intervention of ambulance was required, and in five cases the home care giver could solve the problem without additional help (in all five cases the client had fallen on the floor and couldn't stand up by himself/herself. It may be argued that in those cases the use of alarm button service saved a client's life or spared him/her of staying on the floor for extended time periods (days).

Interviews with home care givers reveal that in many cases the emergency call-centre contacted the wrong contact person / home care giver. Thus, better communication between emergency call-centre and home care givers is necessary in order to ensure that the emergency call-centre always has adequate information about the "on call" home care giver.

The city of Rakvere had purchased 21 alarm buttons, 16 devices for landline phones and 5 devices for cell phones. In total, 28 clients used the alarm button service. In average, 20 the clients used the alarm button service in a month. Thus, most of the alarm button devices were in constant use, but interviews with officials revealed that it is difficult to find clients for landline phone devices. Therefore, in case it is necessary in the future to purchase new additional alarm button devices, they should be adapted for cell phones. In the opinion of home care givers and officials, one of the problems in providing alarm button service is low awareness of potential clients and their family members about the service.

9 clients have stopped us alarm button service. The reasons were as follows:

- decline of client's health and a need to move to a care home or hospital;
- death of client;
- client moved to other municipality;
- client was not satisfied with the quality of service.

At the beginning of the project, the clients, home care givers and officials had several expectations regarding the alarm button service. Clients expected an increase of a sense of security and, if necessary, "better" and "quicker" ways to call for help. 14 clients had that kind of expectations, 12 clients confirmed fulfilment of their expectations. In one client's opinion, she didn't get "better" help because the emergency call centre asked her to call the ambulance. The expectations of home care givers and officials were also mostly related to clients' increased security and better means of calling for help. Thus, the expectations were fulfilled.

The home care givers feared that the clients will misuse the alarm button, and as a result the workload of home care givers will increase. However, this fear was unfounded; the clients didn't misuse the alarm button and in the opinion of home care givers the alarm button became a "companion" for clients.

The main goals in the implementation of the alarm button service were to improve the quality of home care services, and to increase the safety of clients who live alone. The clients rated their quality of life as average: the majority of clients (11) rated their quality of life as 50 points on a scale of 100. In average, clients gave their quality of life a rating of 59.6 points. Clients also responded to the same question at the start of the project in 2012, and back then more than a half of the clients (20 clients of 35) rated their quality of life as average (50 points), but the average rating was much lower, i.e. 46 points. However, in December 2013 most of the clients (16 clients) confirmed that during the past year their health had declined. Considering that the average rating of the quality of life has improved, and at the same time the majority of clients mentioned a decline in their health condition, it can be assumed that one possible reason why the rating of the quality of life has improved is that the feeling of security has become stronger. Only two clients claimed to be feeling insecure, and all others felt either always or usually safe. The majority of clients (14) associated the changes in security with the alarm button, claiming that they feel safer using the alarm button service. In the opinion of all six home care givers, the clients' security had increased by using the alarm button service.

The majority of clients (17) would like to live in their own homes for as long as their health permits, before they would consider taking up the opportunity to live in a nursing home. The majority of clients (15 out of 17 clients who prefer to live in their own homes as long as possible) and all home care givers estimate that the alarm button service is one of the factors that enables clients to remain in their own homes for a longer time. Only two clients didn't have an opinion whether the alarm button service would allow them to remain living in their own homes for longer. Thus, it can be argued that the alarm button service has increased the safety of clients and improved the quality of home care services, as the additional services aid clients to remain longer in their homes.

According to Meditech Estonia OÜ, 19 clients out of 28 had at least once pressed the alarm button. The clients were supposed to wear the alarm button on their wrist. 14 clients confirmed that they always or almost always wore the alarm button on their wrist. Some clients couldn't wear the alarm button on their wrist because the rubber strap caused allergic

reaction. The majority of clients (14 clients) stated that the use of alarm button service was easy and that they didn't require any further information or assistance. But the home care givers brought out a number of issues in which the clients needed additional help. At the beginning the clients had some questions about how exactly to use the alarm button service. The home care givers were able to help their clients.

Also, home care givers estimated the alarm button service as easy to use and they understood immediately how this service will work. Only one home care giver had some questions because she joined the project later and got assistance from her colleagues. Thus, both clients and home care givers considered that the alarm button service was easy to use.

In the opinion of home care givers their workload had not changed significantly in connection with the alarm button service. Home care givers said that they didn't have to worry so much anymore that something would happen and they would not be able to help on time.

Clients and home care givers had a number of suggestions about what should be improved on the physical device. The suggestions included:

- creating a variety of carrying options, such as the possibility to wear the button around the neck;
- having the strap made from an alternative material since the rubber strap had caused some clients allergic reactions (although some clients really liked the rubber strap);
- extending the operating range of the alarm button device;
- reducing the sensitivity of the alarm button to avoid false alarms;
- creating alternative options to report false alarms.

In general most of the clients rarely go outside their home, but it would be helpful if the alarm button device had GPS functions.

Home care givers and officials made suggestions in relation to the emergency call centre and its service administration. In the opinion of home care givers and officials that it is necessary to raise the call centre staff's competency and awareness of how to communicate effectively with (elderly) clients. It would also be necessary to improve the information sharing between the call centre and home care givers / contact persons so that the call centre has always the current information about which home care giver / contact person is "on call". The emergency call centre doesn't have call-back option enabling home care giver / contact persons get further information or notify the emergency call centre about the situation or that everything is okay. In the opinion of officials, the service provider should consider lowering the price of service that could ensure a wider diffusion of alarm button service in Estonia.

In the opinion of home care givers and officials it is important for the future to coordinate and organise more effectively the work of guard team (home care givers). In the opinion of home care givers and officials the salary of guard team member is very low and in the future it can be hard to find new home care givers who would be ready to do this work for such a low salary. In the opinion of home care givers it is also important that they have adequate information about client's health condition (diseases, medicaments, etc.), so in case of need they can provide correct information to ambulance.

In order to provide alarm button service in the future, a sustainable financing mechanism should be chosen. Majority of study participants believe there should also be a cost-sharing

fee for clients to discipline them. However, almost half of the clients (9 clients) said that they are not willing to pay for this service. In the opinion of clients, home care givers and officials, the cost-sharing for clients should be between 0€ and 10€. The fee should also depend on client's income and existence of family (children).

The study also examined the clients', home care givers' and officials' readiness to start using new additional technical devices. The respondents did not reveal any specific device that they are ready to take into use.

The most common word that respondents used to describe the project and alarm button was "positive". The majority of respondents also associated the project with the increase in clients' security, and "faster" and "better" possibilities to call for help. In the opinion of officials the provision of alarm button service should in the future be extended to Rakvere and to Lääne-Virumaa county.

The testing of innovative devices in Rakvere also included cooker guard and electronic medical dispenser. Two cooker guards were used in the social home of Rakvere. The home care giver considered that a cooker guard had been in some cases a proactive help.

The third innovative technical device in testing was electronic medical dispenser. In the opinion of officials and home care givers, the medical dispenser is too complex a device to be used in home care service. In the opinion of officials, the medical dispenser should be a part of nursing care service because the home care givers don't have enough medical knowledge to refill the dispenser. Thus, the electronic medical dispenser service should rather be part of home nursing services than part of home care service.

Key findings:

- Alarm button service has saved some clients' lives and kept some clients from staying in helpless situation for a long time (days);
- In the opinion of home care givers and officials there should be more ways to inform potential clients and their family members (children) about the alarm button (cooperation with family doctors and hospitals);
- Clients who can use alarm button device with landline phone are getting harder to find. There should be more devices for cell phones;
- Clients, home care givers and officials expected that the alarm button service increases the security of clients and provides "better and faster" ways to call for help;
- In the opinion of clients and home care givers, the clients' security has increased;
- Most clients would prefer to live in their own homes for as long as possible;
- In the opinion of clients and home care givers, the alarm button service enables clients to live in their own homes for a longer period even if the health condition declines;
- In the opinion of clients and home care givers, the use of alarm button service is easy;
- The workload of home care givers has not changed with alarm button service;
- Some improvements should be made to the alarm button device to make it more comfortable to use (different kinds of straps, possibility to wear around neck, to adjust the sensitivity of alarm button, to avoid false alarms, etc.);
- In the opinion of officials and home care givers, the service provider's (Meditech Estonia OÜ) monthly fee is too high in Estonian context;

- All clients and home care givers would recommend the alarm button service to other potential clients, especially to those living alone (elderly clients);
- Most clients wish to continue using the alarm button service in the future;
- Only about half of the clients are ready to participate in cost-sharing for the alarm button service;
- In the opinion of clients (10), home care givers and officials, the clients should participate in cost-sharing for alarm button service. The cost-sharing fee should be in the range from 0€ to 10€ and should also depend on clients' incomes and support of family members (children);
- For the provision of the service in the future, it is important to ensure a stable additional financing from local governments budget;
- For the provision of the service in the future, it is necessary to improve and enhance guard team's working arrangements;
- The general opinion of clients, home care givers and officials is positive, and in their opinion the service is necessary for elderly people living alone;
- Cooker guard as a technical innovative device has occasionally justified itself, but the disadvantage of using this device is the assumption that the client's kitchen has ventilation system which is still relatively rare in the kitchens in Estonia;
- In the opinion of home care givers and officials, the electronic medical dispenser is too complicated a device. Electronic medical dispenser should rather be part of the home nursing service;
- Some clients stopped using alarm button service because they were not satisfied with the emergency call centre or with the quality of service.

Recommendations

Rakvere City Government

- **Raising clients' and their families' awareness about alarm button service**

The study results showed that the awareness of alarm button service is low. In order to find "new" clients, the local government should find ways to raise clients' and their families' awareness about the service. One option is to cooperate with health care system, because usually the need for alarm button service appears after a (long-term) illness, and the nurses could inform potential clients.

- **Developing "pricing policy" for the alarm button service**

"Symbolic" cost-sharing fee could discipline clients and teach them to value the alarm button service. Most clients, home care givers and officials estimate that the cost-sharing fee should be in the range from 0€ to 10€ and should also depend on clients incomes and support of family members (children).

- **Ensuring stable financing and sustainability of the alarm button service**

The clients would prefer to continue using the alarm button service in the future. The city of Rakvere should develop a stable method of financing and a service provision scheme. The clients' cost-sharing is probably not enough, so the service provision will require additional financing from city budget. It is important to continue to provide the service at least in the same extent. That way it is possible to provide the clients additional security and stability.

- **Ensuring the sustainability of guard team's work**

At present time, the work in the guard team is an additional job with "very low" salary for two home care givers. In the opinion of home care givers and officials, this kind of arrangement isn't very sustainable.

- **Team work in organising guard duty during working hours and office hours**

During the working hours, the home care giver should react to clients' emergency calls, and after working hours, the guard team member should react to the emergency calls. But during working hours it might be difficult to interrupt the everyday schedule and react to emergency calls. The guard team consists of only two home care givers, and in case of unexpected situations, it could be hard to find alternative solutions to organise the guard team's work.

During the test period, there was also the issue that the emergency call centre contacted the wrong home care giver (guard team member). There should be a method to ensure that the emergency call centre always has current information about contact persons. One possibility is to use one contact phone (cell phone) that is always at hand of a "on call" home care giver.

- **Ensuring the awareness of guard team in cases of emergency**

Often the quality and efficacy of medical help from ambulance depends on appropriate information about client's health condition. So the guard team members should have sufficient information about every client's health condition (illnesses,

medicaments, etc.), but at the same time the privacy of clients should be taken into account.

- **Finding new additional solutions to improve the quality of home care services**

There are many innovative technological possibilities to improve the quality of home care services. Some of them were tested during this project, but the clients' and home care givers' awareness was low and the clients are not yet ready to use them. Therefore the most suitable additional device should be chosen for every client, but that requires testing and raising awareness of clients and home care givers.

Meditech Estonia OÜ

- **Clients and their families and raising awareness**

Clients' and their families' awareness about the alarm button service and its benefits are low. Raising this awareness should be the task of service provider as well.

- **The price of alarm button device and emergency call centre's services**

The study showed that the service provider's monthly fee is too high in Estonian context, especially if the device is rented. Lower price would help spread the service, and as a result the service provider could raise the quality of service.

- **Alternative technical solutions for the alarm button device**

The alarm button device offered by the service provider is very sensitive to touch and comes with a rubber wrist strap. In order to spread the service, it is important to find other solutions (device modifications) that take into account client's individual needs.

- **Taking into account the specifics of communicating with elderly clients**

Some clients quitted using the service because the quality of emergency call centre service was not good enough for them. The service provider should pay more attention to emergency call centre's employees' communication skills.

- **Up-to-date contacts database**

During the test period there have been cases where the emergency call centre's employees have contacted "wrong" contact persons. In cooperation with the city of Rakvere the service provider should find a way to have updated contacts database at any time.

- **The call-back option**

During the test period there have been some cases when the home care giver or contact person needed additional information from emergency call centre, but there was no call back option. The service provider should find a solution, so that if need be, the contact person can additionally contact emergency call centre.

- **Informing clients about all costs**

The clients should be aware about all costs, even very small ones. The alarm button device makes some control calls and the costs of those calls are added to clients' phone bill, but during the test period the service provider didn't inform the clients about those costs.

[Other municipalities of Lääne-Virumaa county](#)

- **Expanding the service to other municipalities**

This study showed that the alarm button service could be an effective addition to home care services, but very few municipalities provide that service. If the service were provided in more municipalities around Rakvere, it would be possible to organise a regional guard team. That could lower the cost of guard team support for one municipality, and at the same time raise the quality of service.

[Future projects](#)

- **New services – readiness, project-based start-up, satisfaction survey and feasibility study**

There are very many different kinds of innovative devices that could improve the quality of home care services, and every client could find the most suitable device to use. But this requires awareness of different devices, as well as testing periods and finances for purchasing first devices. So for introducing new services (devices), the best way to do it would be a project together with research. The study also showed the importance of international and local cooperation between social workers and municipalities.

[Ministry of Social Affairs](#)

- **Project measures for the introduction of new and innovative social services**

The study showed that project-based introduction of new social services (including innovative devices) is effective. The introduction of new devices requires training of employees, client awareness and readiness, testing periods together with research (readiness, satisfaction and feasibility study) and finances to purchase first devices. Therefore, on national or international level, project measures should be taken to introduce new social services and innovative devices that could improve quality of social services.

- **Central emergency call centre (financed from state budget)**

The alarm button services and many other innovative additional devices require existence of an emergency call centre. But in Estonia only Meditech Estonia OÜ offers that kind of call centre (private), and as usual with monopoly, the prices are too high. In order to encourage other device providers, there should be a central call centre where it is possible to connect different innovative devices and clients from different parts of Estonia. That way it is possible to lower the costs for innovative services and to offer every client the most suitable innovative device. This also improves accessibility to innovative services, as the client will be needing only the device and a connection to central call centre, and will not depend on local municipality.