

# Vivago Ltd – From innovation to product

Milan 19<sup>th</sup> of May 2011

[mrs.walters.mpg](http://mrs.walters.mpg)

**FIRST THERE WAS A VISION**

# Company Background

- Finnish telecare technology company was established in 1994
- First commercial application to the telecare market in 2001
- Today over 40 000 users of Vivago watch across Europe
  - More than 20 000 home system users
  - Some 400 care and nursing homes use the Vivago system
- Vivago has got several recognition from its technology in Finland and internationally. It has more than 26 patents.
- ISO 9001 and ISO 13485 certified
- Main owners are Finnish Innovation fund and pension and insurance organisations
- Frost & Sullivan “Product Innovation 2006” Award in the telecare sector



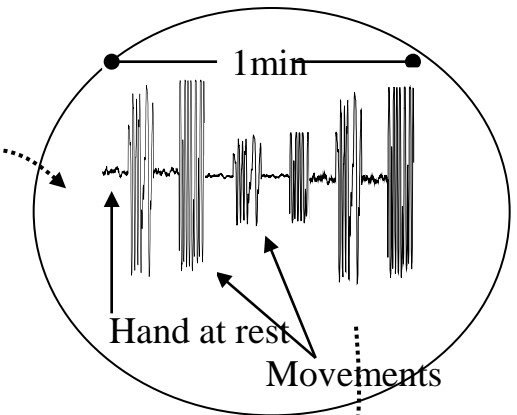
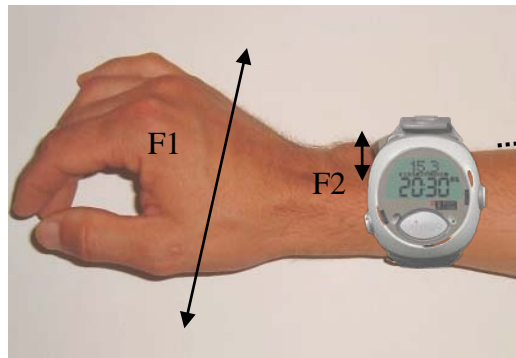
FROST & SULLIVAN



# Activity measurement

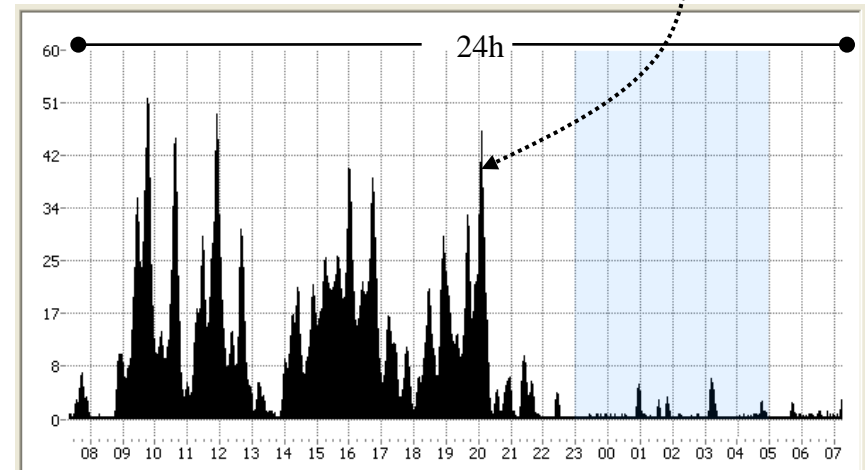
The Vivago system measures the movement activity of the wrist unit's user. Measurement is made with the wrist unit's sensitive movement sensor.

The wrist unit measures macro movement i.e. hand and body movements that move the wrist unit (F1). In addition it measures micro movements of the wrist muscles and ligaments detected as forces at the base of the wrist unit (F2).

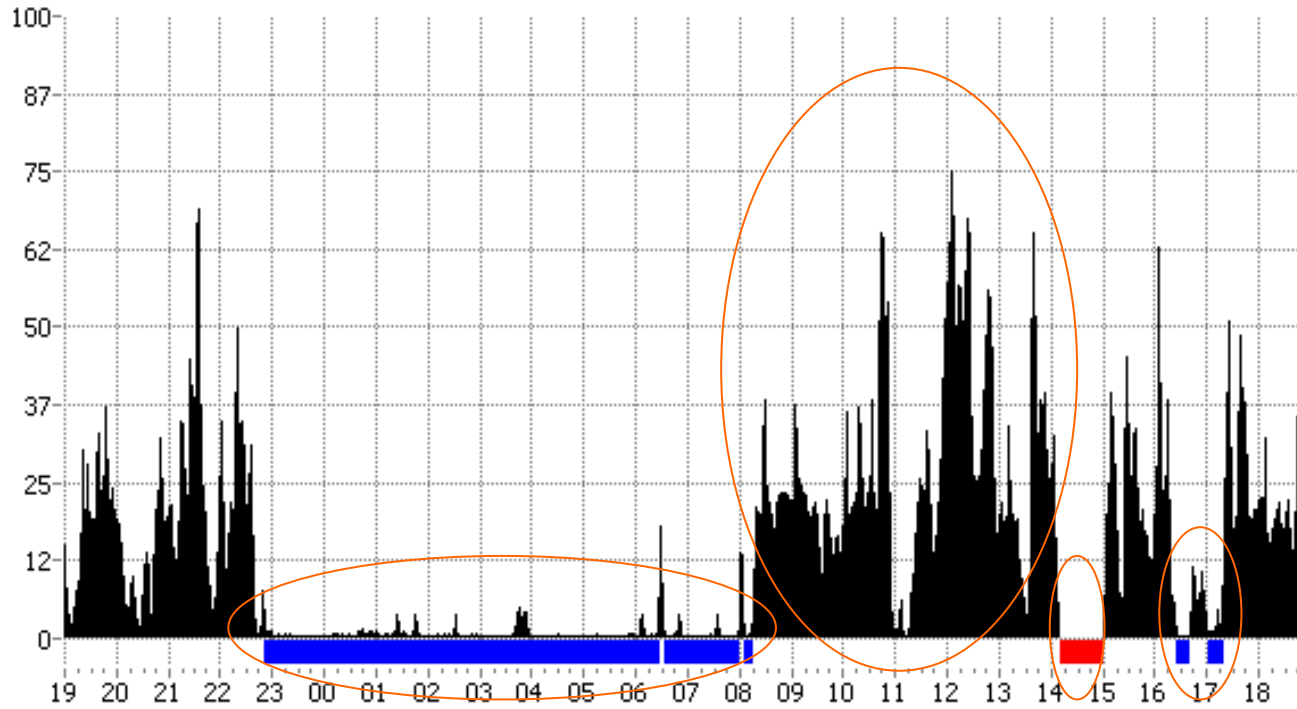


The signal measured by the wrist unit is the sum of macro and micro movements. ( $S=F1+F2$ )

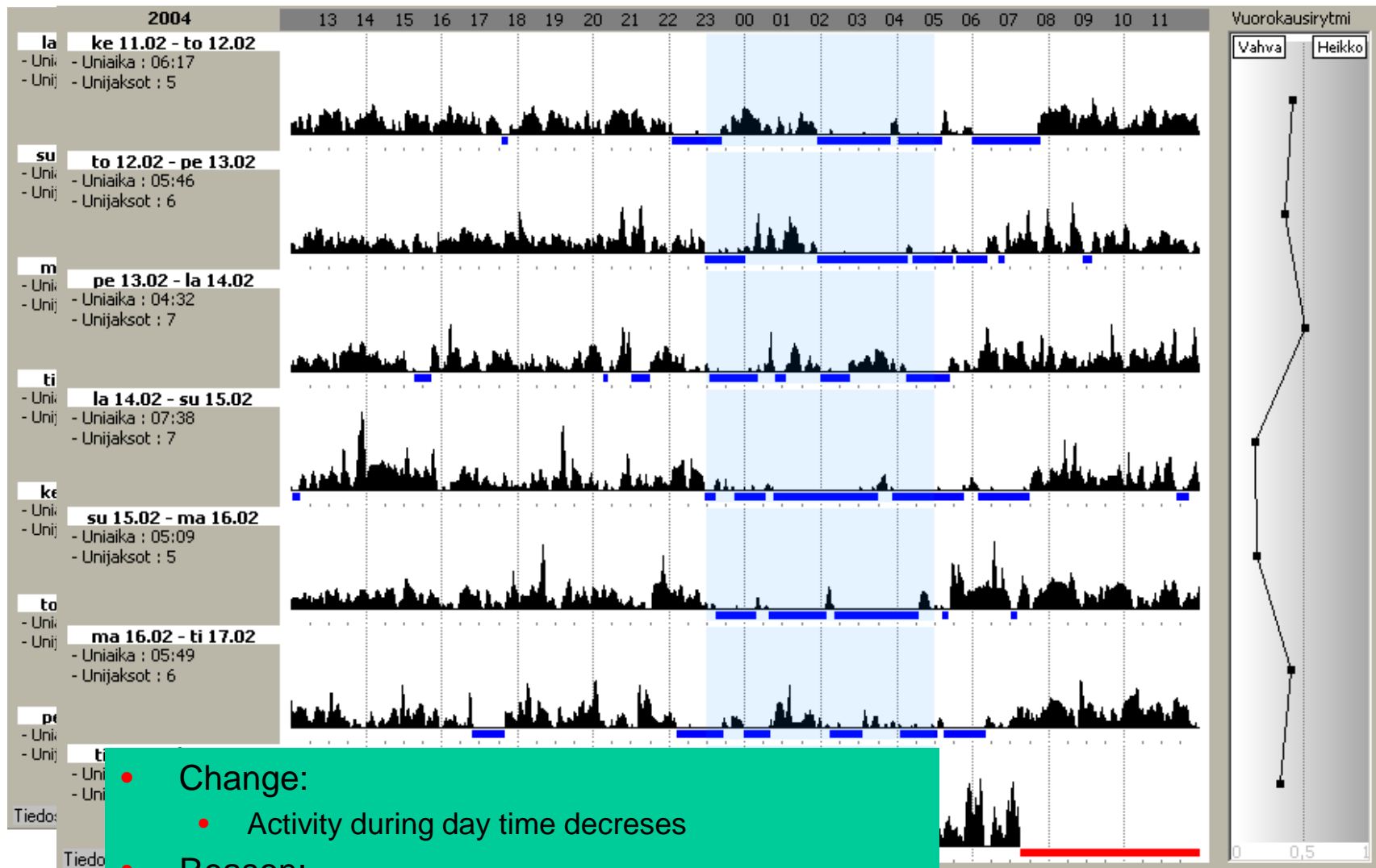
One value (A) is formed from the signal every minute to represent movement activity during one minute. The calculated values are presented on the screen as a graph.



# Automatic measurement device



# Vivago tells the changes in wellbeing:



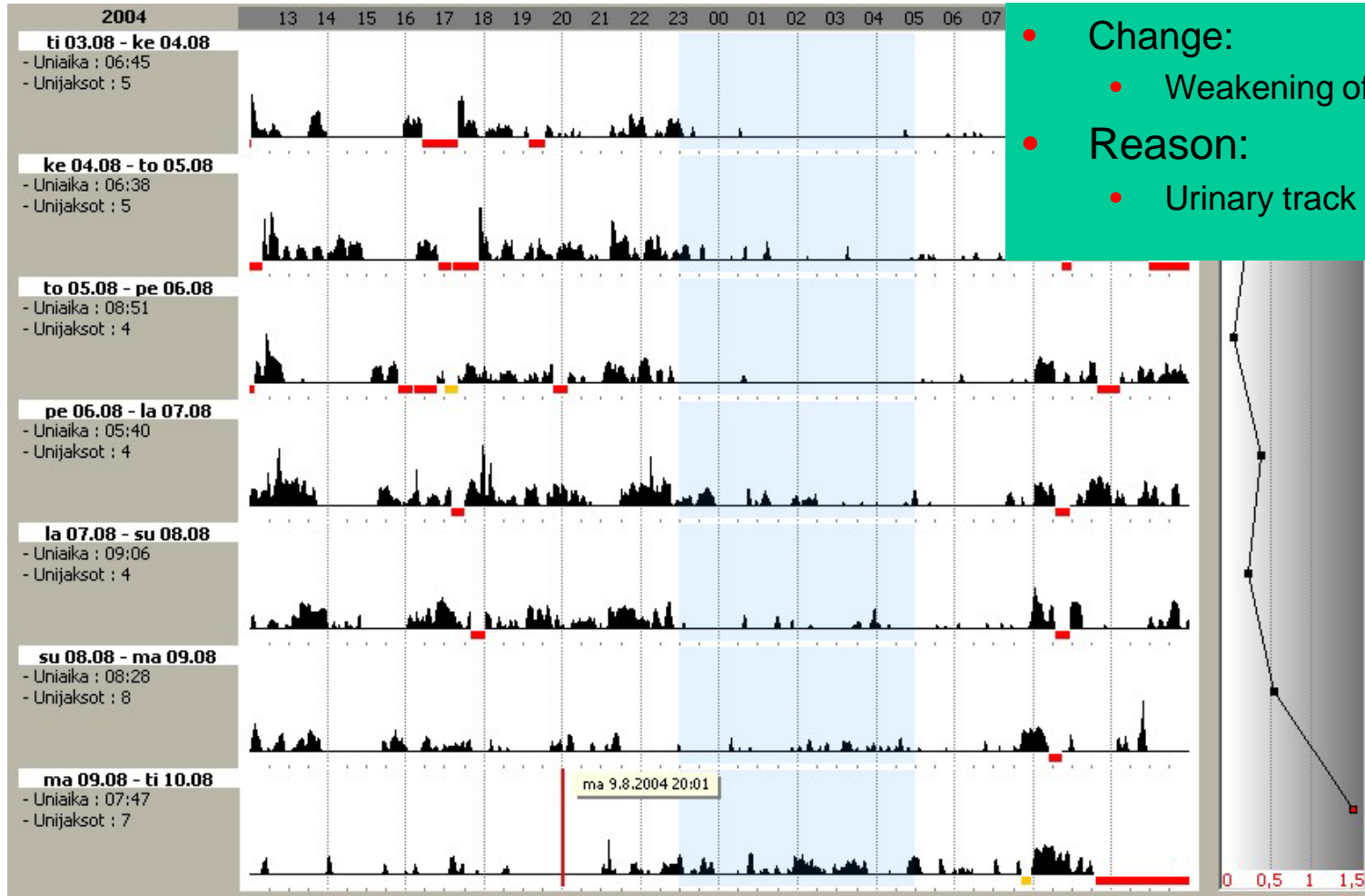
- **Change:**

- Activity during day time decreases

- **Reason:**

- Worsening of COPD → weakening of ability to move

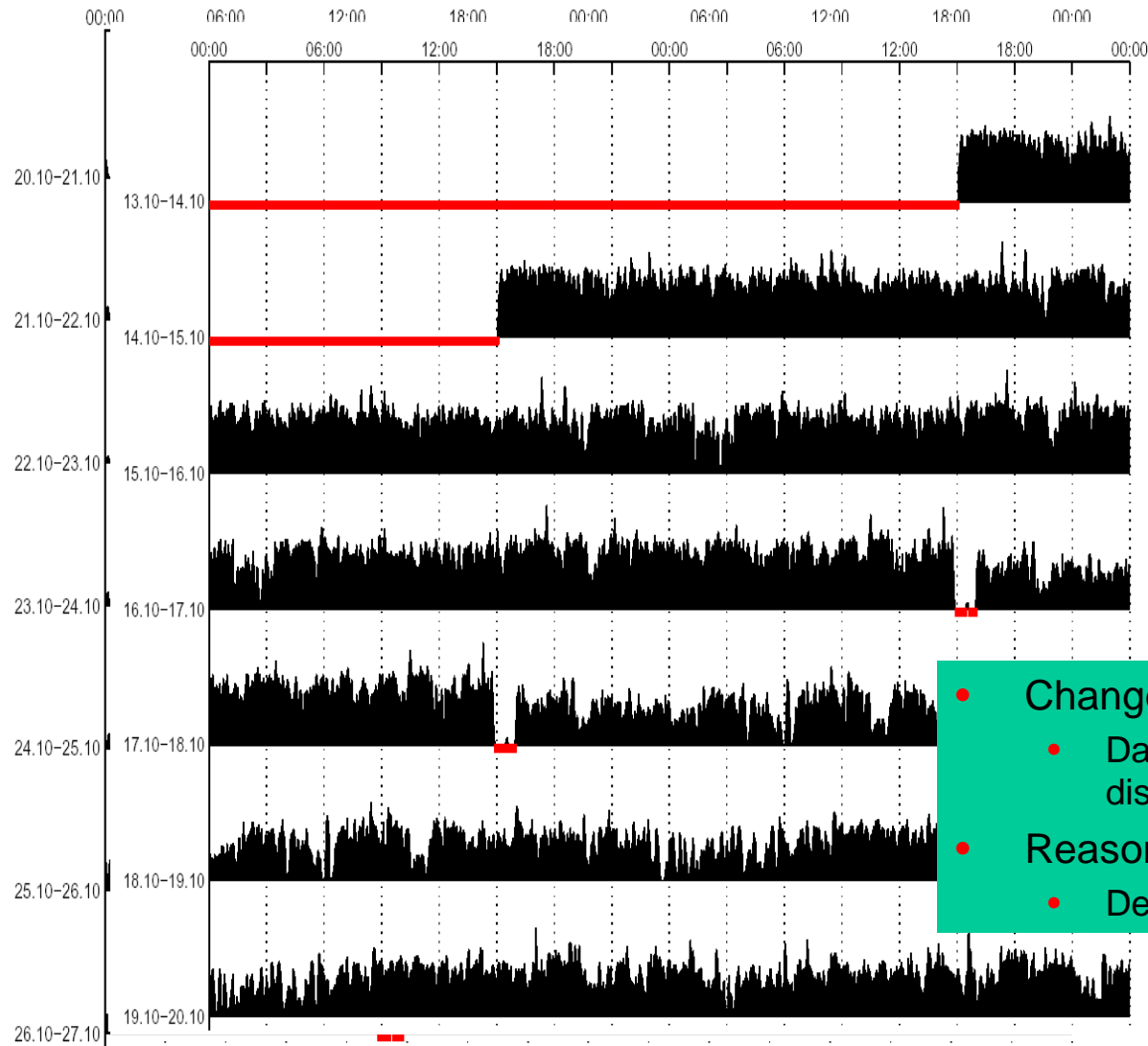
# Day – night rhythm is a delicate mirror that reflects wellbeing



- Change:
  - Weakening of day- night rhythm
- Reason:
  - Urinary track infection

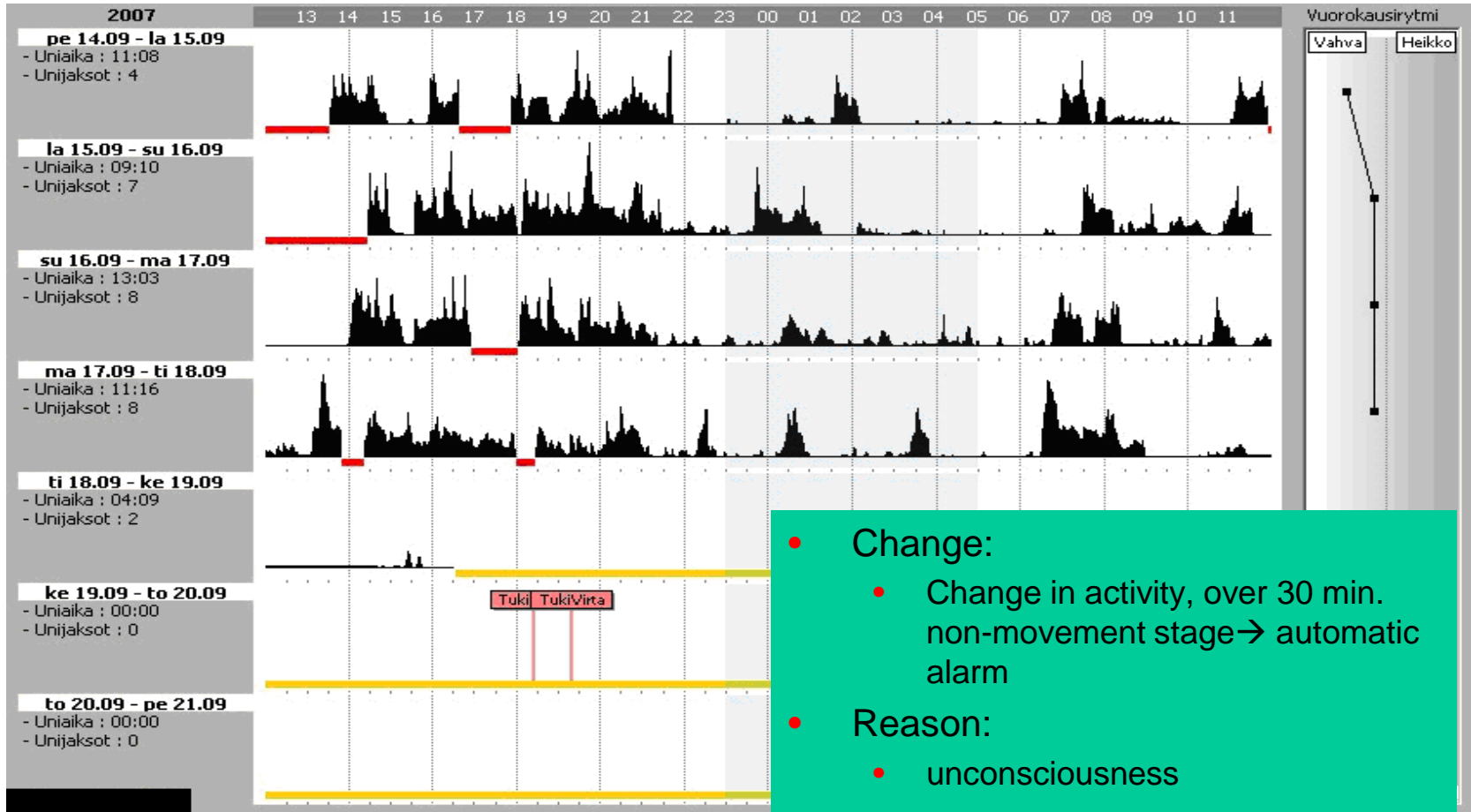


# Dementia is shown in day-night rhythm



- Change:
  - Day-night rhythm has disappeared
- Reason:
  - Dementia has evolved

# The system will alarm automatically from deviations





## Other ways to use Vivago system

- Personal settings allow customized care to each patient
- Alarm and activity reports provide valuable information to relatives, doctors, patients, authorities ect.
- Activity information allows the follow up of medication for example the change of medication (the comments can be added to the activity curve.)
- Real time activity curves give information about patients activity level and for example night time wake ups and walking



Finland

# **INSTITUTIONAL CASES**

## Nursing home - Silvermoon

- Night shift care givers are able to follow up night time deterioration alarms and therefore do not have to wake residents unnecessarily.
- If a resident is having trouble, the night care giver is aware of this and is able to take action thus increasing safety if the resident.
- Sleep medication adjustment according to sleep wake rhythm
- Deviating behavior of residents/patients can be detected by observing activity curves and appropriate action can be taken immediately. For example, during the night, we can call a resident and suggest going to bed.

- Nursing home living requires a good monitoring system to ensure the night time safety of residents being watched by only a single care giver.
- Offers a feeling of safety to residents/patients/relatives and care givers.
- The wrist unit agreement made with the customer defines the level of safety he/she desires.
- Staff receives information of required help in max 3 minutes.

*Comments from head nurse, Karita Rautavuori*







Germany

**HOME MARKET**

# Voluntiers and profesionels work together



talking



remember drinking



counceling



Support by the SOPHIA Team



# Allways being in contact



Fun per video-communication

Customer-relationship-management

Emergency-call-management

Plus

Health-care data

Documentation

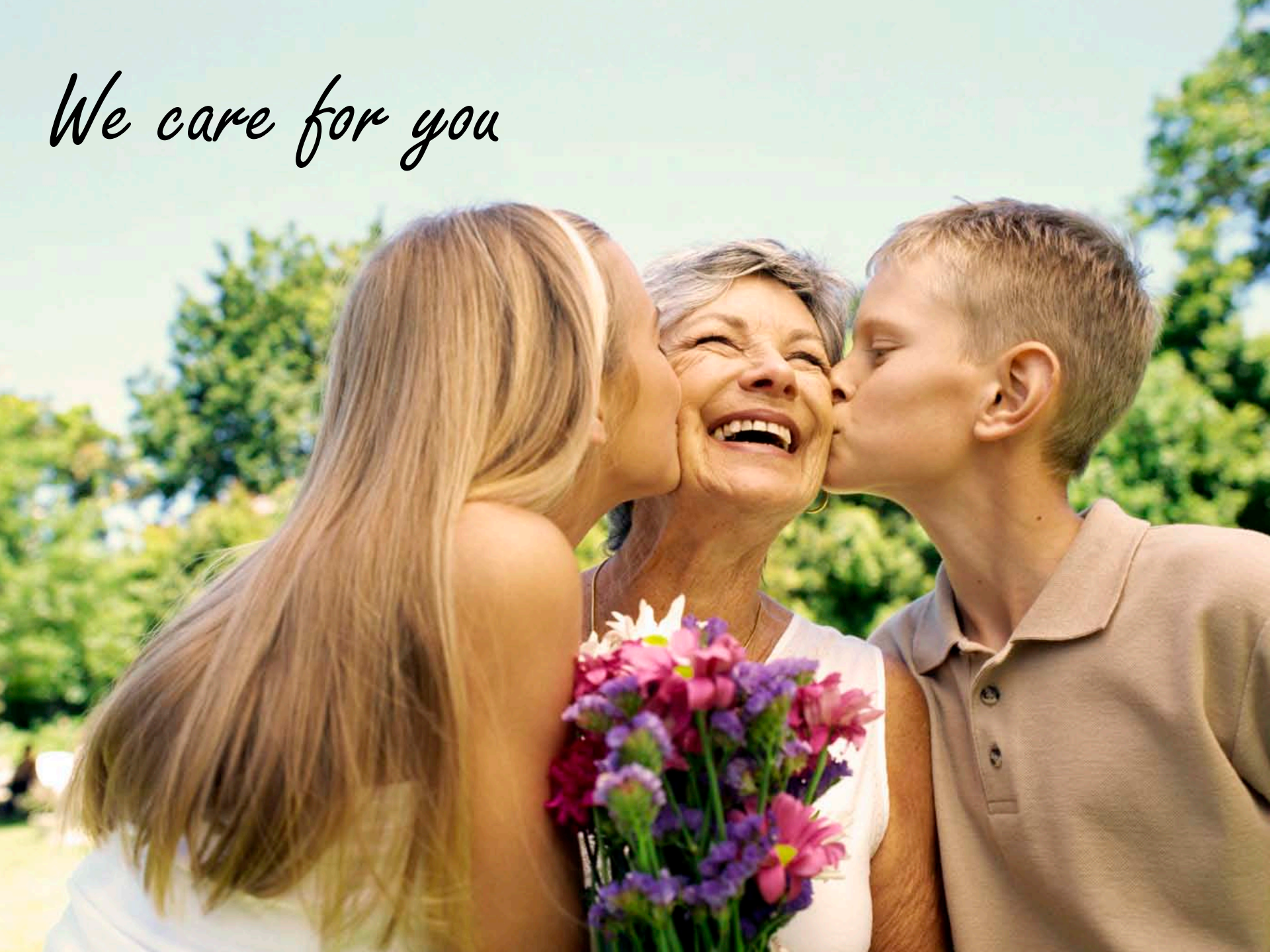
Analyses

- of Cases

- aggregated data



*We care for you*



**Vivago<sup>®</sup>**  
*For the life we love*

# Activity monitoring in Health Care

- Disturbances or changes in circadian rhythm is an unspecific mechanism, which is sensitive to various health and wellness related factors and diseases:
  - Parkinson's disease
  - Alzheimer's disease and other dementias
  - Other neurological diseases
  - Circulatory disorders in the brain or extremities
  - Back or joint pain and other locomotor system diseases and symptoms
  - Heartburn
  - Night-time chest pain
  - Cardiac insufficiency
  - Asthma or chronic bronchitis
  - Urinary incontinence
  - Restless legs, sleep apnea
  - Stress

Confidential

# Vivago –cases in Turku

Results and comments from  
Artturi Project in Turku  
In August 2006

“I am no technical person, I cannot even connect the VCR. The information provided by Vivago has, however, been easy to use. Through this information I have found such details that I could not have found out otherwise. And that is purely benefit to the customers”,

Tarja Norrbacka, the head of Artturi Project,  
from Kotikunnas institution Turku.



# Background of the Project Artturi Kotikunnas

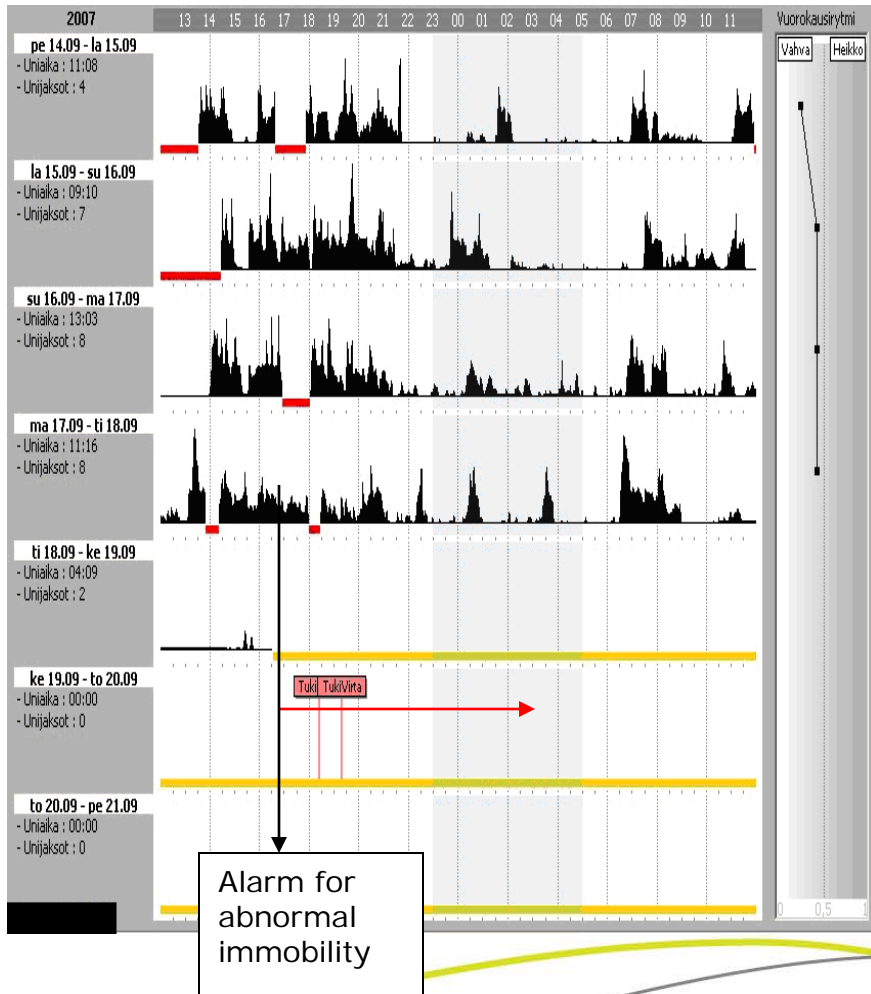
- The goal of the project:
  - Support and added safety in everyday lives
  - For enabling elderly people to live independently in their homes to longest possible.
- How:
  - The customers of the study stage has been chosen together with Turku city outpatient service. Alarm co-operator was Esperio Oy. The Artturi-project is financed by Raha-automaatti association.
  - During the project, several home visits were made to the customers wearing the watch. Service, care, supporting, listening and the role of relatives was highlighted.
  - In addition to the safety alarm, the activity curves inform the customer's activity level, sleep, ability to function etc.

# Experiences about the Artturi project

- Norrbacka sees that with the help of the Vivago-system:
  - many of the customers have been able to continue living home far more longer than without Vivago – home is for most of the people the best and dearest place.
  - There is a lack of institutional care places and they are expensive. With the price of Vivago we could only pay a few days of institutional care.
- Tarja Norrbacka tells:
  - “Vivago is a good tool for nurses and additional safety for the seniors. When adding the basic security, we are also decreasing the symptoms of many elderly, as fear causes some symptoms. In many cases the customer would not have been able to make the alarm by themselves. Luckily, the device follows the customer’s activity level and is able to call for help automatically!”

# Vivago in home care

# Case 1: The automatic alarm brought help to an unconscious person



- A diabetic with insulin treatment, who had a bad sugar balance and at times heavy alcohol use, went unconscious because of the low sugar level.
- The patient could not call for help herself.
- Vivago watch noticed the abnormal immobility and called for help two times.

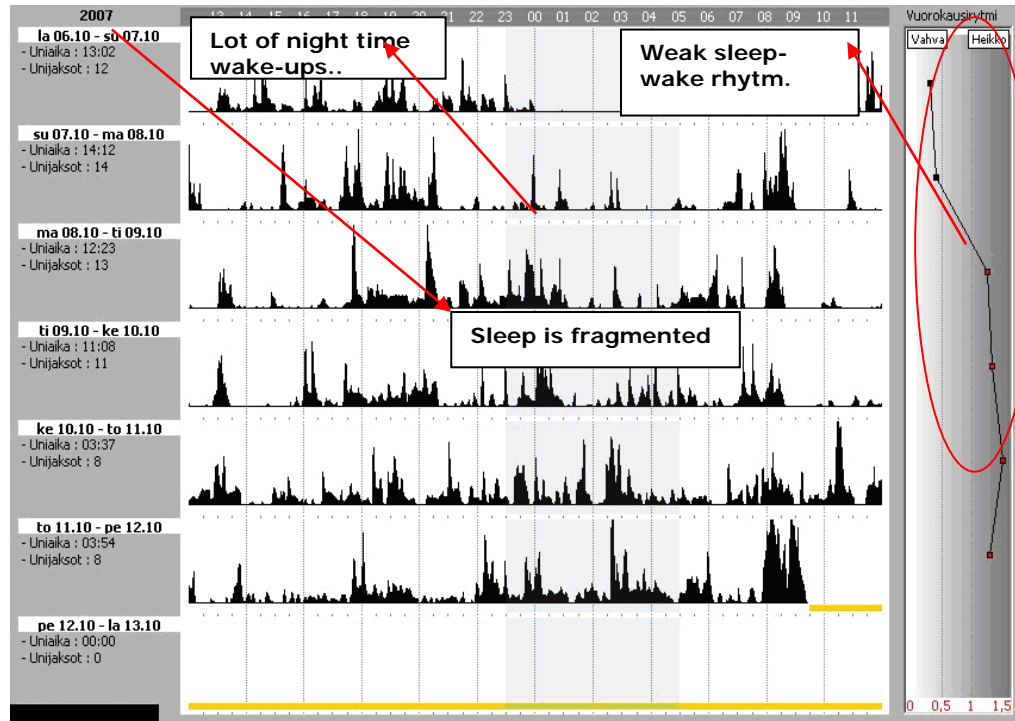
## Case 2: Vivago in the case of a infarct

- The customer had a severe coronary disease and heart malfunction.
- He had a stroke at home
- Vivago watch sent an alarm automatically.
  - As the help arrived, the person was still conscious but was diseased later.
  - The daughter of the customer was very pleased that they had tried to save her mother and that her mother wasn't alone on the time of death.
    - The daughter was planning to visit her mother the next morning and without the help she would have had to find her mother dead.

## Case 3: Vivago helps in palliative care

- A cancer patient was wanted to be treated home during palliative care.
- Vivago watch was part of the treatment and made it possible for the patient to live home.
- The home care staff visited three days in a day and Vivago guaranteed the help during night time, when the customer was alone at home.
- Vivago was in use nearly until the end.
  - Just before the death of the customers the relatives informed that they would take the watch from the patient, as they would be with him from that moment on, as long as needed.

# Case 4: Grandmother had a seizure – Vivago helped



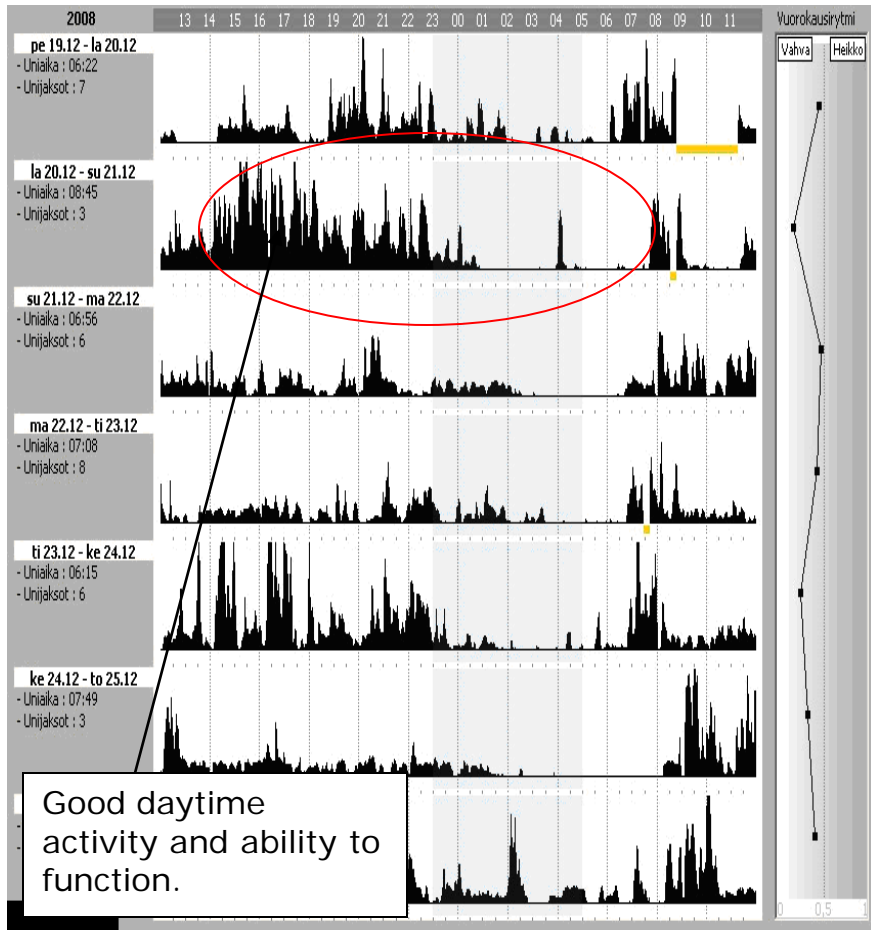
- The customer had Alzheimer's disease as well as heart malfunction. His youngest grand child was visiting and got grandmother to the toilet and helped her there. During this, grandmother got a heart attack. The grand child naturally got scared and called for help with the Vivago manual alarm. After this, the child called to Kotikunnas by phone in order to receive additional instructions. The ambulance took grand mother to the hospital.
- Later, the grand child called and thanked in order to thank for the help and support given to her.

## Case 5: Vivago helped a fallen patient

- The customer had constantly intense dizziness.
- The customer fell down and broke her hip.
- She could not get up herself so she called for help with Vivago manual alarm.

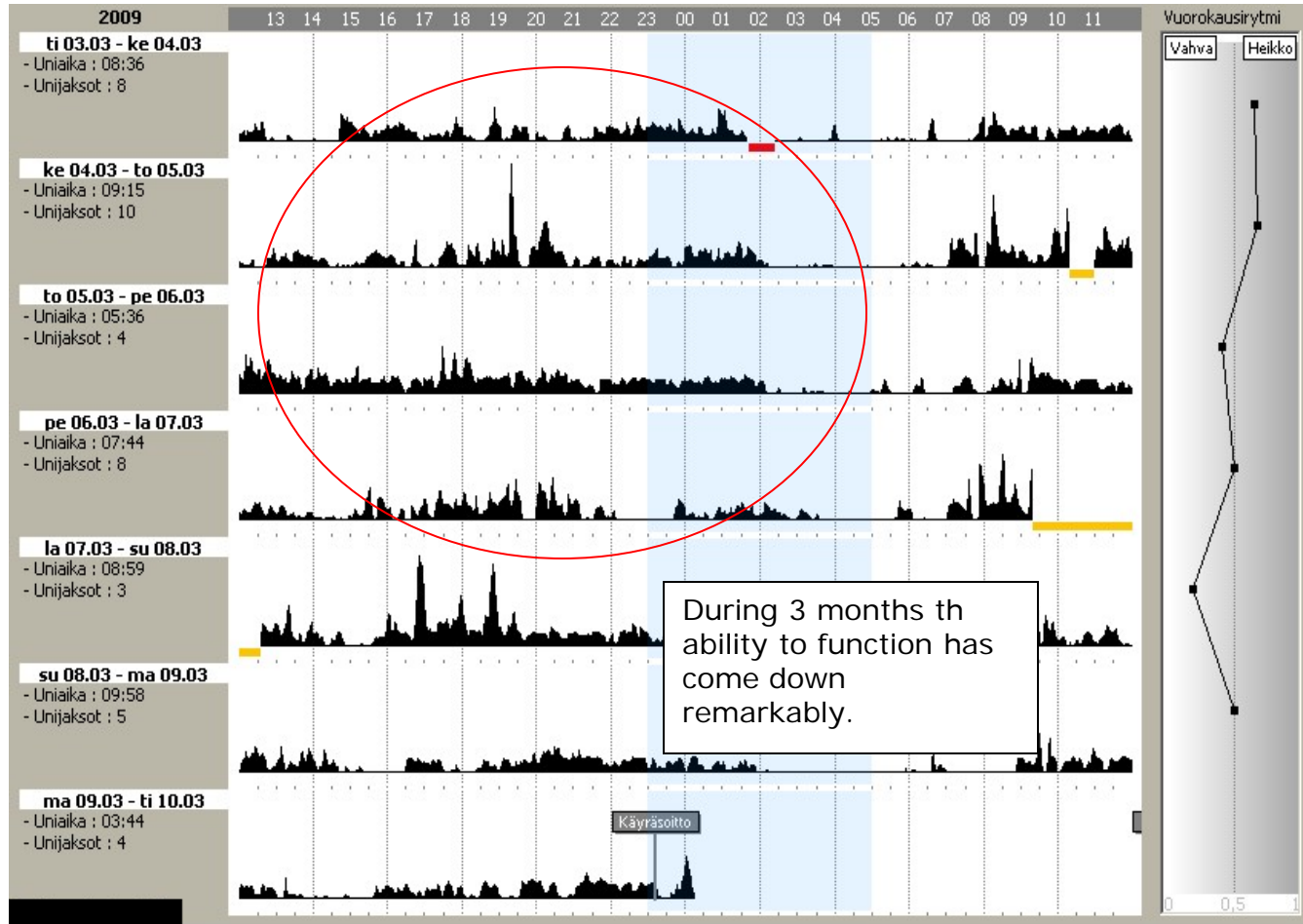


# Case 6: Vivago's activity curves confirmed the customer's story

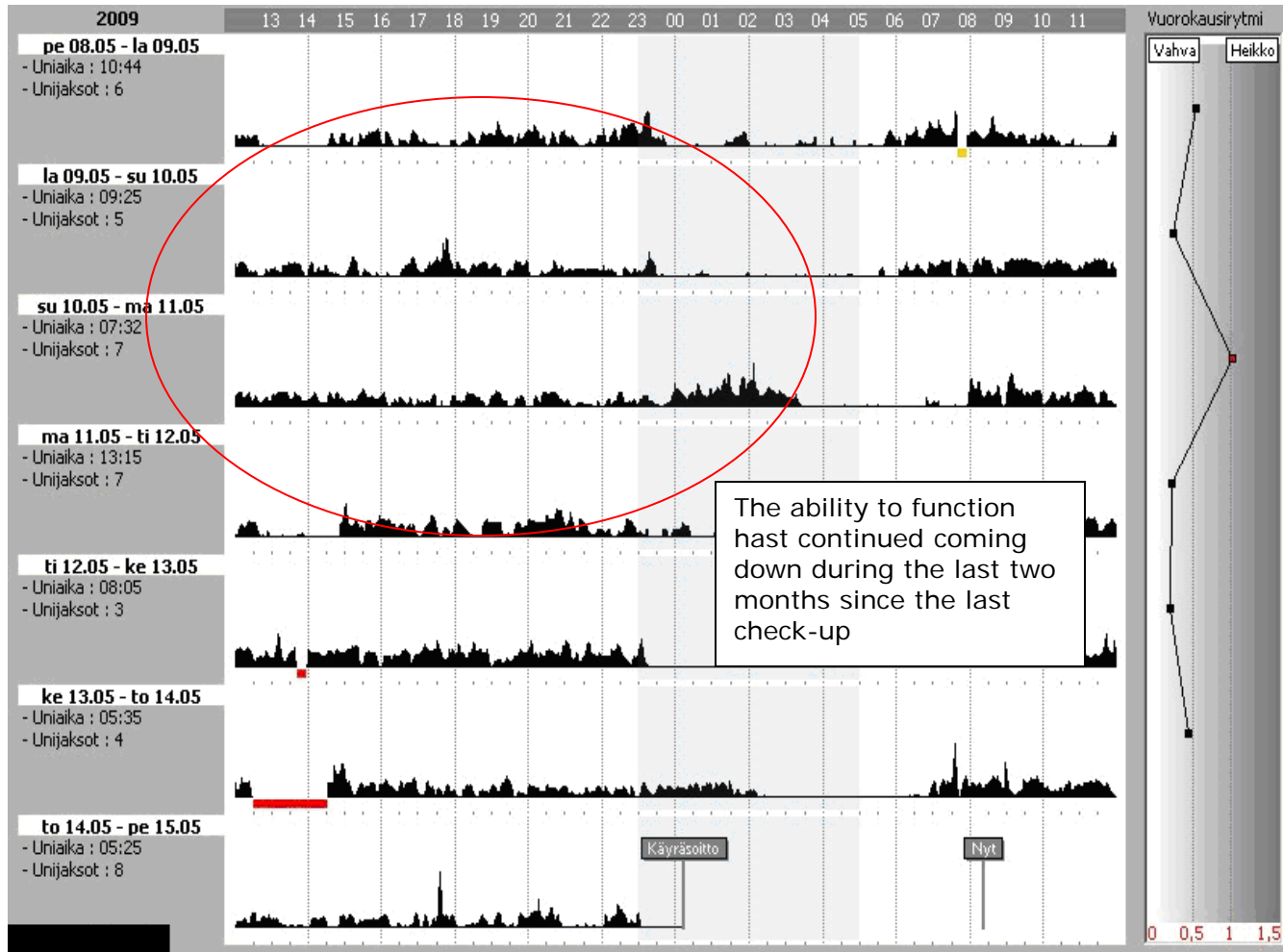


- The customer had Alzheimer's disease and it was from time to time hard for her to produce speech.
- The customer complained about hip pain and told that this was discomfort during moving. The relatives didn't quite believe her at first.
- Tarja Norrbacka from Kotikunnas printed out activity curve documentation from couple of months' time period and took them with her to the home visit, when the relatives were also there.
- The curves indicated clearly that the customer's ability to function was greatly weakened/come down?
  - The customer went to see the Doctor for some examinations with her relatives and got after this physiotherapy to her suffering.

# Case 6: During the last 3 months the ability to function has come down remarkably



# Case 6: The ability to function has continued coming down during the last two months since the last check-up



## Case 7: A falling person got to stay at home with the help of Vivago

- The customer had cancer, rheumatism etc. and she fell down a lot. However, the customer wanted to stay at home longest possible.
- Once during a fell-down, she hit her head and got unconscious.
- Vivago-watch called for help automatically.
  - The customer got to stay at home for a long time, even though she was falling at best three times in a day. Without this device she could not have stayed at home so long.

## Case 8: Security with the help of Vivago-bracelet

- The customer had a developing Alzheimer's disease and at times dizziness. She had no friends or relatives in the district she was living in.
  - The customer was very restless and scared and often called to the doctor's practise, deaconess etc.
- The customer heard about Vivago –bracelet and wanted to have one for herself. Once the device had been installed, the customer calmed down and cancelled all the supporting help such as home care and the help from the deaconess centre.
- The Vivago made her feel comfortable, as she now knew that with the help of the automatic alarms, she would be safe at any moment.
  - She told us, that she wasn't afraid of the death, but instead the fact that she would be lying on the floor or something like that and couldn't call for help. Nobody would know to miss her.

## Case 9: Vivago helped avoiding the unnecessary doctor's appointments

- The customer had coronary artery disease and chest pain came easily.
- The customer herself told that within a short period of time she had had at least three of such cases, during which she had felt the pain starting. However, she hadn't gone to emergency duty, but instead taken her medication and stayed to wait for their effect.
- The customer said that without this device she wouldn't have dared to stay at home and follow the situation, but she would have gone straight to the emergency duty.
  - Those appointments would have been so called unnecessary appointments.





## Case 11: Awareness blurred – Vivago called for help

- The customer had a difficult coronary artery disease and depression.
- She had a medication over dose, which blurred the level of her awareness. The customer could not call for help herself.
- Vivago informed about the abnormal immobility and the customer received help from hospital.



# Vivago in assisted living

# Case 12: A night-time wanderer was recognized from Vivago's activity graph

- The customer had among others Alzheimer's disease.
- Her diurnal rhythm was severely confused which is quite common with dementia patients.
  - She wandered around during night time in the corridors from the care home and went with the elevator back and forth.
  - Other inhabitants told about the night time voices, but nobody saw the wanderer.
- When studying the activity curves, they found out who the person wandering the assisted living was. The curve indicated that she was up all night.
- In the staff meeting, they all checked the Vivago activity curves and made different agreement concerning the arrangements, which would help the customer to balance and maintain her rhythm.
  - With the help of different kind of support actions, she was able to live in the sheltered home for another year.

## Case 13: deceased customers

- Two of the customers in the sheltered home had been passed away.
- In both cases, Vivago has made "abnormal immobility" alarms.