

How can you help?

CogWatch is currently in the development stage. To ensure the final rehabilitation system best meets the needs of people with AADS, the CogWatch group will run a series of focus groups for stroke patients, family members and carers.

The focus groups will be informal sessions with small groups of 6-8 where we collect the views of patients and caregivers on how they feel this type of technology could enhance their independence. We will discuss the kinds of mental difficulties experienced after a stroke, how technology could be used to assist patients with their everyday activities and what features of the proposed system would make it user friendly within the home environment. We would also like to gather opinions on the ability of stroke patients and their carers to work with high-tech devices.

If you would be interested in participating in a focus group, please contact Alexa Hazell – Senior Occupational Therapist at: A.hazell@headwise.org.uk



If **CogWatch** is successful it will enable stroke patients with AADS to overcome the mental challenges that impair their daily lives and therefore improve their quality of life in the long term.

Prepared by The Stroke Association on behalf of The CogWatch partners



CogWatch

**Developing rehabilitation tools for stroke survivors
with mental difficulties**

This information booklet is aimed at:

- Stroke patients
- Family members
- Community carers

The Problem:

After a stroke, patients can suffer from a wide range of problems depending on which area of their brain was affected. **Physical** impairments, such as problems with motor movements, vision or balance, are addressed with physical therapy but **mental** impairments, such as problems with language, memory or problem solving, can be harder to identify and can get overlooked during a patient's rehabilitation.



Stroke patients can have trouble performing **ordered sequences of movements**, such as those required to make a cup of tea or to brush their teeth. Patients with normal movement of their hands and arms find themselves unable to complete everyday activities because they cannot execute the correct sequence of movements necessary to complete a task.

This type of impairment is termed 'Apraxia and Action Disorganisation Syndrome' (AADS) by doctors and, although it is hard to diagnose, it is actually quite common. Recently, scientists in the UK found that perhaps as many as 68% of stroke patients have problems typical of AADS.

AADS can have a significant effect on a patient's recovery after stroke and on their ability to live independent lives in their own homes.

Mental impairments are called '**cognitive problems**' by doctors as they are problems with **cognition**, which means mental processes.

The Proposed Solution: CogWatch

The **CogWatch** project aims to develop a personalized home rehabilitation system for people with the symptoms of AADS. Installed in patients' homes, the system will silently monitor the patient as they go about their everyday activities. When an error is detected, the **CogWatch** will provide helpful and relevant guidance cues to assist the patient in completing the particular task.

The **CogWatch** researchers are developing intelligent everyday objects such as cutlery, a kettle, a toothbrush and a vest which will sense the way the objects are being used and wirelessly transmit the information back to a central device. The objects contain sensors to monitor orientation, motion and grip strength that, when used in combination, will provide a detailed description of how the objects are being used by the patient.



During a task, such as making a cup of tea, a screen will display relevant images to the patients that will:

- Guide their actions to complete the task.
- Make them more aware of the mental errors they commit.
- Instruct patients on how to overcome the error.
- Alert patients if their safety is at risk when handling tools and objects inappropriately.