A proposed system for the home-based ambient monitoring and enablement of older adults with dementia.

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**Background**

- With the worldwide increase in dementia prevalence, more than ever we need to focus on developing an acceptable, cost-effective home-based solution to support individuals living in the community with dementia, and to delay institutionalisation.
- Ambient assistive technologies can support independent living and prolong community-based living

**3 Themes of Dem@Care**

Lab: Diagnostics

Home: Enablement and support

Nursing home: Safety

**2 Loops of Care**

**Home-based loop**
- Between person with dementia and their family caregivers
- Sensor-based
- Context-sensitive, evolving, personalised

**Clinician loop**
- Creates a faithful log of health related information
- Warns clinician about deteriorations & trends
- Supports care decisions

**Principles of Dementia Design**

- Keep user interaction to a minimum
- Appear familiar to the person with dementia
- Be empowering and encourage the person with dementia to solve problems
- Be reassuring
- Algorithmic applications should be based on a large dataset, because human performance is highly variable
- Be fiddle-proof, and robust
- Have an aesthetic
- Be person-centred and not carer-centred
- Provide the person with dementia with a feeling of independence
- Acknowledge the person with dementia as a person with abilities
- Engage carers with the first stage of development, before the prototype is debuted with persons with dementia
- Be emulative of carer behaviour, i.e. provide reminders, support, reassurance

**Structure of Support**

Assessment interview:
- Sleep
- Exercise
- Diet/ADL
- Socialising
- Mood

Functional decline detected in 1 or more areas

**What next?**

- Technology-led design of the “toolbox” approach, creating personalised systems of home-based sensors.
- Recruitment of individuals with early to moderate stage dementia and their families
- Home-based deployment, system adapts over time.

**References**


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**Images:**

- Image 1: A diagram illustrating the home-based monitoring and enablement of older adults with dementia.
- Image 2: A flowchart outlining the principles of dementia design.
- Image 3: A chart showing the structure of support for dementia care.

**Keywords:** dementia, assistive technology, home-based solution, sensor-based, person-centred.