



An AI-Powered Clinical Decision Support and Staff Wellbeing Tool for Dementia Care Professionals in the United Kingdom

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1. Introduction

The Alzheimer's Society's report, published in 2024, reveals a deepening dementia crisis in the UK. The pressure on the health & social care workforce is mounting with the number of people with dementia in the UK projected to pass 1 million by 2025 (Alzheimer's Society, 2024). There are increasing reports from professionals working in care homes, NHS memory clinics and community health settings of high levels of burnout, lack of access to live clinical support, and being unable to make timely evidence-based care decisions (Care Quality Commission [CQC], 2024). CareAssist AI is an AI-powered tablet and mobile-based tool that is proposed in this pitch. This tool helps to solve the issues mentioned above. CareAssist AI incorporates two primary components: a clinical decision support module harnessing Explainable Artificial Intelligence (XAI) and a staff wellbeing monitoring module. In combination, these functions deliver measurable value to professionals, patients, and the NHS as a whole.

2. The Community Impacted and the Need for Innovation

The target community for which this innovation has been created are health and social care professionals working in dementia care settings. The cohort of professionals classified under this group include regulated nurses, care workers, occupational therapists, and other allied health professionals. Such people are involved in making complex clinical decisions daily under high time pressure. Besides, they also do not have enough choice of technology to support their activities. Research done by Antipas et al (2024) and NICE (2022) indicate that dementia care staff experience amongst the highest levels of occupational stress in health and social care. In addition, Antipas et al. (2025) have warned that high turnover and burnout among staff hamper the quality of care offered to patients. Thus, a harmful cycle is created that impacts the very patients that these institutions serve.

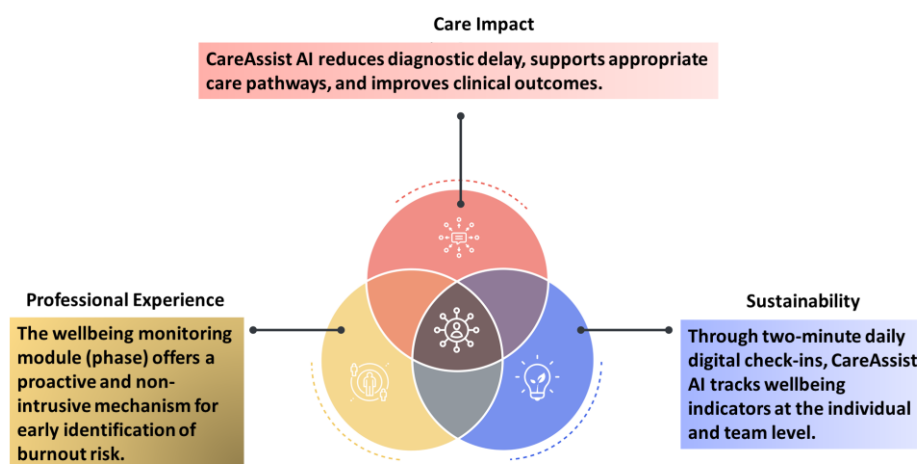


Figure I. Human-Centred Innovation Framework of CareAssist AI

Source: Author

The other secondary community that impacts dementia patients and families. Around one quarter of all NHS hospital beds in England (NHS England, 2023) are taken up by people living with dementia; however, clinical decision-making for this group remains highly variable. According to Almadani et al. (2025), the implementation of standardised real-time decision support tools has yet to occur, resulting in care quality relying disproportionately on the individual's experience and proximity to specialist knowledge, which is not uniformly available across the UK's care workforce. In this way, CareAssist AI fills this gap by putting smart, objective feedback directly into the professional's workflow.

3. Health and Wellbeing Benefits

CareAssist AI health benefits and wellbeing benefits work on two levels. For dementia patients, the clinical decision support module of the tool makes it possible to more rapidly and accurately identify acute changes, often erroneously attributed to dementia, such as delirium, pain or medication side effects (Topol, 2019). CareAssist AI is based on evidence and is designed to promote the correct care pathway while enhancing clinical outcomes. Most importantly, they followed Explainable AI (XAI) principles. Meaning, instead of just giving practitioners recommendations, it also establishes a reason for the vicarious trauma caused by being overwhelmed. This is intended to address a well-known barrier to acceptance of AI in the clinic, professional distrust of black box systems, NHS AI Lab (2023)

The burn-out risk module (phase) provides care and support professionals with a proactive and non-intrusive way of sensing the risk of burnout and acting on it before it is too late. According

to research from the NHS Staff Survey (2024), over 30% of NHS workers have stated that they feel burnt out as a result of their work. The Victimisation of dementia care settings from this issue. CareAssist AI monitors wellbeing at the individual/ team level through two active two-minute daily digital check-ins. The system automatically alerts supervisors and provides links to occupational health resources when burnout risk patterns are detected. As per NHS organisation people plans (NHS England, 2020), this changes the wellbeing monitoring approach from a reactive, crisis-led approach to a continuous, proactive one.

Category	Area of Benefit	Description of Benefit	Supporting Evidence
Patients (Dementia Patients)	Early Detection of Acute Conditions	Enables faster and more accurate identification of conditions such as delirium, pain, and medication side effects, reducing misdiagnosis.	Topol (2019)
Patients (Dementia Patients)	Improved Clinical Decision-Making	Provides evidence-based recommendations in plain language, supporting appropriate care pathways and reducing diagnostic delays.	Topol (2019)
Patients (Dementia Patients)	Enhanced Clinical Outcomes	Early and accurate interventions improve patient safety, treatment effectiveness, and overall health outcomes.	Topol (2019)
Patients (Dementia Patients)	Increased Trust in AI Systems	Use of Explainable AI (XAI) ensures transparency by showing reasoning behind decisions, improving clinician confidence in AI-supported care.	NHS AI Lab (2023)
Professionals (Care Staff)	Early Burnout Detection	Identifies early signs of burnout through daily digital wellbeing check-ins, allowing timely intervention.	NHS Staff Survey (2024)
Professionals (Care Staff)	Proactive Wellbeing Monitoring	Transforms wellbeing management from reactive to continuous monitoring, improving long-term staff health.	NHS England (2020)
Professionals (Care Staff)	Improved Workforce Support	Automatically alerts supervisors and directs staff to occupational health resources when risks are detected.	NHS Staff Survey (2024)
Professionals (Care Staff)	Reduced Work-Related Stress	Supports staff through early interventions, reducing emotional exhaustion and improving job satisfaction.	NHS England (2020)
Professionals (Care Staff)	Enhanced Workplace Culture	Aligns with compassionate care models, fostering a supportive and psychologically safe work environment.	NHS England (2020)

Table 1. Health and Wellbeing Benefits for Patients and Professionals

4. Policy, Legislation, and Professional Standards

CareAssist AI is underpinned by existing NHS Long-Term Plan and Dementia Strategy Policies and legislation, therefore meeting current NHS initiatives. According to the National Dementia Strategy of the UK Government and the NHS Long-Term Plan, integrating technology and innovation is the main principle that enhances dementia care. The DHSC AI Strategy for Health and Care (DHSC, 2023) supports the application of AI tools that are safe, transparent, and clinically tested. The impetus behind CareAssist AI has been to embed all of these principles within the operational model.

In terms of regulatory adherence, the CareAssist AI system satisfies the Medicines and Healthcare products Regulatory Agency (MHRA) framework for AI as a Medical Device, introduced following the recent post-Brexit MHRA regulatory changes (MHRA, 2023). The UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018 govern data protection, which establishes strict requirements for collecting, storing and processing health data.

5. Encouraging Public Involvement

Although CareAssist AI is designed for health and social care professions, public involvement is crucial to making it legit and establishing it for the long-term. Dementia impacts families and communities. The UK has 700,000 unpaid carers (Carers UK, 2023). Working with carers and the public through co-production workshops and awareness campaigns ensures the tool captures lived experience. Partnering with organisations such as Dementia UK and the Alzheimer's Society can not only improve the design and trust but also comply with the NHS principles of patient-centred care and increasing acceptance of digital health technologies.

6. Value Creation, Creativity, and Innovation Theory

CareAssist AI reflects essential frameworks of innovation and value creation in health and social care. This paper draws on Schumpeter's creative destruction (Schumpeter, 1934, cited in Tidd and Bessant, 2021) to consider the implications for current traditional, experience-based dementia care decision-making. It proposes a systematic, data-driven decision-making approach for those with dementia. In addition, its design is based on the principle of creating shared value. The tool benefits all stakeholders involved. It helps patients receive better quality of care. Staff feel more confident and have less burnout. Finally, it provides savings to the NHS in terms of errors and admissions to the hospital. This wide-reaching impact makes CareAssist AI a relevant social innovation.

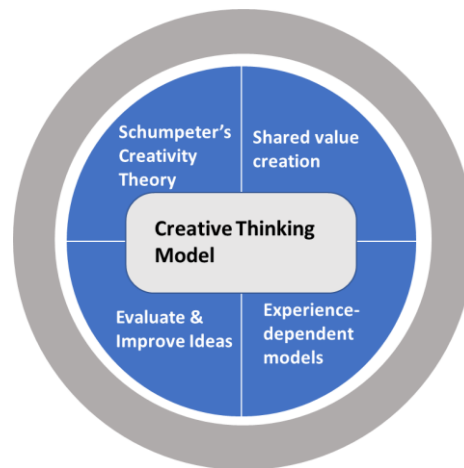


Figure 2. Theoretical Integration Framework for Value Creation, Creativity and Innovation

It is important to recognise the limitations. Implementation of AI in the clinical environment is not risk-free. According to Topol (2019), there are problems with algorithmic bias, digital exclusion of older or less digitally skilled staff, and total trust in technology that all require careful management. In order to fully unlock the potential of CareAssist AI while reducing these risks, a strong implementation strategy is essential, particularly in terms of staff training, ongoing evaluation, and transparent governance.

7. Conclusion

CareAssist AI is a modern, evidence-based and ethical dementia care innovation in the UK. Offering care professionals with explainable AI-driven clinical decision support and proactive wellbeing monitoring are two of the most acute challenges facing the sector today. The proposed intervention under review aligns with and aims to be consistent with current and emerging UK policy, regulatory standards, NHS strategic priorities in this area, and has potential to demonstrate value at all levels.

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CareAssist AI



An AI-Powered Clinical Decision Support and Staff Wellbeing Tool for Dementia Care Professionals in the UK

1M+
UK dementia cases by 2025

£6.3B
Annual NHS dementia cost

25%
Hospital beds occupied by dementia patients

40%
Care staff burnout rate in dementia units

As of 2024, approximately 982,000 people are living with dementia in the UK, with the number projected to exceed 1 million by 2030 and 1.6 million by 2050. Dementia is the UK's leading cause of death, accounting for over 11.8% of deaths. Around 1 in 11 people over age 65 has dementia.

THE PROBLEM

Dementia diagnoses in the UK are projected to surpass one million in 2025 (Alzheimer's Society, 2024), and NHS dementia care costs £6.3 billion annually, with 25% of hospital beds occupied by people living with dementia (NHS England, 2023).

TARGET AUDIENCE &

Primary: Nurses, care workers, and other professionals in UK dementia care settings, including care homes, NHS memory clinics, and community health teams.

Secondary: Dementia patients and their families benefit indirectly through improved, faster, and more confident care delivery.

DISSEMINATION

NHS Innovation Accelerator partnerships
Professional bodies (RCN, Skills for Care)
Social media and health media campaigns
NHSX and NICE endorsement pathways
Peer-reviewed publication of pilot outcomes.

THE INNOVATION

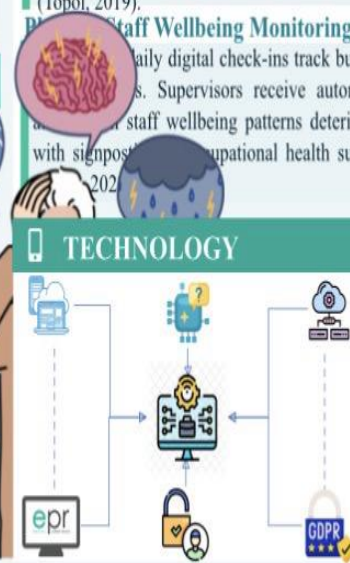
Phase 1: Clinical Decision Support

Using Explainable AI (XAI), CareAssist analyses patient data, including behavioural changes, cognitive assessments, and medication records. It surfaces evidence-based recommendations in plain language, explaining its reasoning to support clinical accountability (Topol, 2019).

Phase 2: Staff Wellbeing Monitoring

Daily digital check-ins track burnout levels. Supervisors receive automated alerts when staff wellbeing patterns deteriorate, with signposting to occupational health support (Topol, 2019).

TECHNOLOGY



IMPLEMENTATION &

Settings: NHS memory clinics, care homes, and community health teams across the UK.

Regulatory Compliance: MHRA medical device regulations, GDPR, NHS Data Security Standards, CQC quality standards, and the UK Government's AI in Health and Care Strategy (DHSC, 2023).

TIMELINE

Phase	Timeline
Phase 1	Months 1–6: Co-design with NHS staff; ethical approval
Phase 2	Months 7–12: Pilot in 3 care settings; user testing
Phase 3	Year 2: Evaluation, refinement & NHS integration
Phase 4	Year 3+: National rollout via NHS England

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