

Why NLP for Dementia Detection Isn't Reaching the NHS: A Systemic Inertia Perspective

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The challenge is not innovation but system design. Systemic barriers continue to limit the translation of NLP from research into routine dementia care.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
- Over 57 million people worldwide live with dementia, with prevalence projected to nearly triple by 2050 (WHO, 2025). - Approximately one million people in the UK are living with dementia (Alzheimer's Research UK, 2025). - Earlier detection improves outcomes and care planning. - NLP can identify linguistic markers of cognitive decline before clinical diagnosis. - Clinical adoption remains limited despite growing evidence.	The AI Implementation Paradox - Structured synthesis of evidence relating to NLP implementation in dementia care. - Examination of barriers limiting translation from research to practice. - NLP technologies demonstrate growing diagnostic potential. - Adoption within routine dementia care remains limited.	SYSTEMIC INERTIA AS A TRANSLATION GAP IN NHS ADOPTION OF NLP FOR DEMENTIA DETECTION	- NLP can detect dementia. - Healthcare systems struggle to implement it. - The barrier is organisational, not technological. - Implementation readiness must now become the priority. - Up to 45% of dementia cases are potentially preventable (Livingston <i>et al.</i>, 2024). - Earlier intervention on modifiable risk factors may reduce dementia risk. Figure 2. Conceptual Model of NLP-Based Dementia Detection	- Greenhalgh, T. <i>et al.</i> (2017). Beyond Adoption: A New Framework for Theorizing and Evaluating Nonadoption, Abandonment, and Challenges to the Scale-Up, Spread, and Sustainability of Health and Care Technologies. - Hassan, M., Kushniruk, A. and Borycki, E. (2024). Barriers to and Facilitators of Artificial Intelligence Adoption in Health Care. - Kosedá, E. and Reeve, C. (2025). Health 4.0: A Paradigm for Healthcare Systems with an Ageing Population. - Li, J. and Carayon, P. (2021). Health Care 4.0: A Vision for Smart and Connected Health Care. - Livingston, G. <i>et al.</i> (2024). Dementia Prevention, Intervention, and Care: 2024 Report of the Lancet Standing Commission - NHS England (2023). Digital Maturity Assessment. Shankar, R., Bundeale, A. and Mukhopadhyay, A. (2025). Natural Language Processing for Dementia Detection. The King's Fund (2023). Digital Change in the NHS. - Alzheimer's Research UK (2025). Risk Reduction and Prevention of Dementia. World Health Organization (2021). Ethics and Governance of Artificial Intelligence for Health. - World Health Organization (2025). Dementia. CONTACT Innovation has outpaced implementation Scan for full reference list Ellie Maria Kosedá University of Sunderland Ellie.Kosedá@sunderland.ac.uk ALZHEIMER'S ASSOCIATION AAIC 26