

Dementia and Technology

Enhancing Communication and Reducing Behavioral Challenges Through AI-Powered Real-Time Translation in Multilingual Long-Term Care Settings L. G. Franciosi. *Gerontechnology* 25(s)

Purpose Language barriers represent a significant clinical challenge in increasingly diverse long term care (LTC) facilities, particularly for residents with dementia who may revert to their native languages as cognitive decline progresses [1]. In a 102-bed residential care facility, where approximately 35% of residents speak English as a second language, we will conduct a quality assurance pilot evaluation of an Agentic AI Auto-Translation System to assess its feasibility and effectiveness in improving staff–resident and family communication, reducing work-related frustration, and potentially decreasing behavioral incidents related to communication breakdowns [2]. This quality assurance study will evaluate implementation processes, baseline conditions, user experiences, and anticipated post-implementation outcomes of real-time multilingual translation technology within a residential care environment. **Method** A prospective trial will be implemented using a before-and-after quality assurance study design. Stakeholder engagement will involve leadership team members, frontline care staff (registered nurses, licensed practical nurses, and care aides), finance department personnel, family council representatives, and resident council representatives. Baseline (pre-implementation) data collection (January 2026) will include surveys measuring staff confidence and communication satisfaction, resident and family satisfaction questionnaires, time-motion studies of communication-related workflow interruptions, and incident documentation (Code White events related to behavioral escalation). The system, featuring a voice-to-text-to-speech interface optimized for healthcare settings, will be deployed in a pilot 17-bed care unit with tablets distributed to frontline staff. Ongoing monitoring will include monthly usage logs, quarterly comprehensive surveys using 5-point Likert scales, focus group sessions with staff and families, and chart audits for communication-related documentation errors, enabling comparison of post-implementation findings against baseline measures. **Results and Discussion** Baseline observations confirm a critical need for real-time translation enabling clear communication of daily tasks, care plan information, and behavioral de-escalation with non-English-speaking residents and families, aligning with previous reports on language barriers in LTC. Current workarounds such as locating available bilingual staff, requesting family members provide phone interpretation, or using generic translation applications, consume significant staff time and create potentially unsafe care conditions. The organization’s anticipated measurable post-implementation improvements include: 30% increase in staff–resident communication satisfaction, 80% of respondents reporting improved communication, 40% reduction in communication-related time waste, 50% reduction in documentation errors related to language barriers, 25% reduction in perceived staff stress, and 20% reduction in Code White incidents; these represent expected outcomes that will be tested through pre/post comparison rather than assumed effects. The Agentic AI Auto-Translation system potentially addresses organizational priorities through its healthcare-specific vocabulary optimization, simplified language features for cognitively impaired residents, integration capability with existing tablet infrastructure, and 24/7 technical support. Implementation success depends on mitigation of identified barriers: staff digital literacy challenges addressed through designated “tech champions” and hands-on training; translation accuracy concerns managed through guided pilot expansion; workflow integration supported through clear benefits communication; and family engagement enhanced via common-area device availability and multilingual training materials. Strong organizational enablers include committed leadership support aligned with the organization’s 2026–2029 strategic priorities emphasizing people-centered, technology-driven care for diverse populations. The Agentic AI Auto-Translation System represents a promising innovation for addressing language barriers in culturally diverse long-term care settings. Systematic quality assurance evaluation using rigorous pre/post outcome measures will determine the system’s effectiveness in improving communication quality, reducing staff burden, enhancing resident and family satisfaction, and potentially decreasing behavioral incidents driven by communication failures, while contributing practice-based evidence to inform optimal implementation strategies for real-time translation technology in residential care environments.

References

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