The Interface Between Sensory Function and Cognitive Function in Dementia: Implications for Communication and Quality of Life (QoL)

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BACKGROUND

There is a strong relationship between sensory impairment, cognition impairment (CI), and incident dementia. Hearing impairment (HI) is independently associated with incident dementia (e.g., Gates et al., 2011); Lin et al., 2011b) and cognitive decline is greater over one year in Alzheimer's disease (AD) in patients with HI (Uhlmann et al., 1986). There are parallel findings for visual impairment (VI; Rogers & Langa, 2010). Potential mechanisms include common biological mechanisms, reduction of cognitive reserve, reduction of environmental stimulation, and/or increased social isolation from communication difficulties.

> Develop comprehensive models of the complex interplay between hearing, vision, cognition, communication, and QoL in persons with dementia;

OBJECTIVES

 \geq Evaluate implications for cognitive and sensory assessment;

> Understand how combined HI, VI, and/or CI contribute to vulnerabilities that potentiate harm in health care settings; > Elucidate how these co-morbid factors play out in the person's everyday life, in interactions with caregivers, and within the health care system;

Provide high quality training to the next generation of researchers.





Why do people with hearing, vision, and/or cognitive impairment have poorer health outcomes?



MAIN ACTIVITIES

> Our team contributed to the development of the CCNA Clinical Platform assessment protocol, advising on measures of:

- Hearing (pure-tone audiometry; speech-in-noise),
- Vision (Mars Contrast Sensitivity; MNREAD Visual Acuity) Cognition (the CCNA Neuropsychology battery)

Projects Currently Underway:

- > Qualitative methodology to understand the influence of hearing and visual impairment on the safety of hospitalized older adults with dementia.
- Cross-sectional analyses of data from the Canadian Longitudinal Study on Aging (CLSA) examining the relationship between cognitive

NEXT STEPS

The relationship between HI, VI, and cognitive function in the CCNA cohorts;

The role of caregiver communication strategies on communication breakdown and caregiver burden; St

The impact of stigma, stereotypes and self-efficacy on rate of declines in sensory-cognitive-

communication functioning;

<u>j</u> The impact of cognitive-sensory impairments during real world challenges (e.g., walking and listening).

 \geq We invite linkages with other CCNA Teams, especially: 9 (biomarkers), 10 (cognitive training),



impairment, sensory decline, and social support.

> Linking CIHI databases to study sensory and cognitive impairments and their role in health service utilization and related outcomes.

11 (neuropsychiatry), 12 (mobility), 14 (multi-morbidity), 16 (driving), 18 (caregivers)

Key Takeaway: We will address how co-relationships between sensory and cognitive decline are risk factors for dementia, which could lead to interventions to improve function, communication, and QoL.

