**Poster 65:** Characterizing and predicting instrumental activities of daily living impairment using a large language model in older adults with gynecologic cancer

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Topic
Quality of Life/Palliative Care

Objectives
Impairments in instrumental activities of daily living (iADLs) measure functional disability and have been associated with chemotherapy completion rates in older adult gynecologic cancer patients but are not routinely collected. The purpose of this study is to characterize documentation of iADLs in unstructured clinical notes and evaluate whether a large language model (LLM) can assist with improved prediction of iADL impairment in patients with newly diagnosed gynecologic cancer.

Methods
A prospective study [NCT06089083] of patients >=50 years old with newly diagnosed high grade or metastatic ovarian/uterine cancer collecting repeated measurements of frailty and quality of life, including the Lawton iADL questionnaire, was utilized. Clinical notes from 6 months prior to study entry were extracted from an institutional data warehouse. An LLM prompt was developed to identify functional status and estimate Lawton scores from unstructured notes. Outputs were aggregated at the patient level using the highest level of function per domain across notes. Sensitivity of impairment documentation relative to survey-defined iADL impairment was evaluated overall and by domain. Logistic regression models were used to predict iADL impairment using structured demographic variables alone followed by the addition of a LLM-derived Lawton score.

Results
A total of 3,221 notes were analyzed across 71 individuals (mean age 67.2 years [SD 9.2], 62.0% White, non-Hispanic), of whom 46.5% had impaired iADLs (score< 8). At least one signal of functional status was present in 89.0% of patients. At the domain level, capture of impairment was highest for telephone (100%,1/1), followed by shopping (45.8%) and food preparation (40.9%), with lower capture in laundry (40%), transportation (31.8%), housekeeping (31.2%), financial management (16.7%), and medication management (10%). Despite frequent documentation, clinical notes only correctly classified 45.5% of impaired patients (15/33). A LASSO model using structured predictors with the addition of the LLM-derived Lawton score (AUC 0.67).

Conclusions
iADLs are selectively documented in unstructured clinical notes limiting the ability for LLM-based prediction of disability. Routine formal assessment of iADLs to guide treatment decision making in real-time in this patient population is needed.

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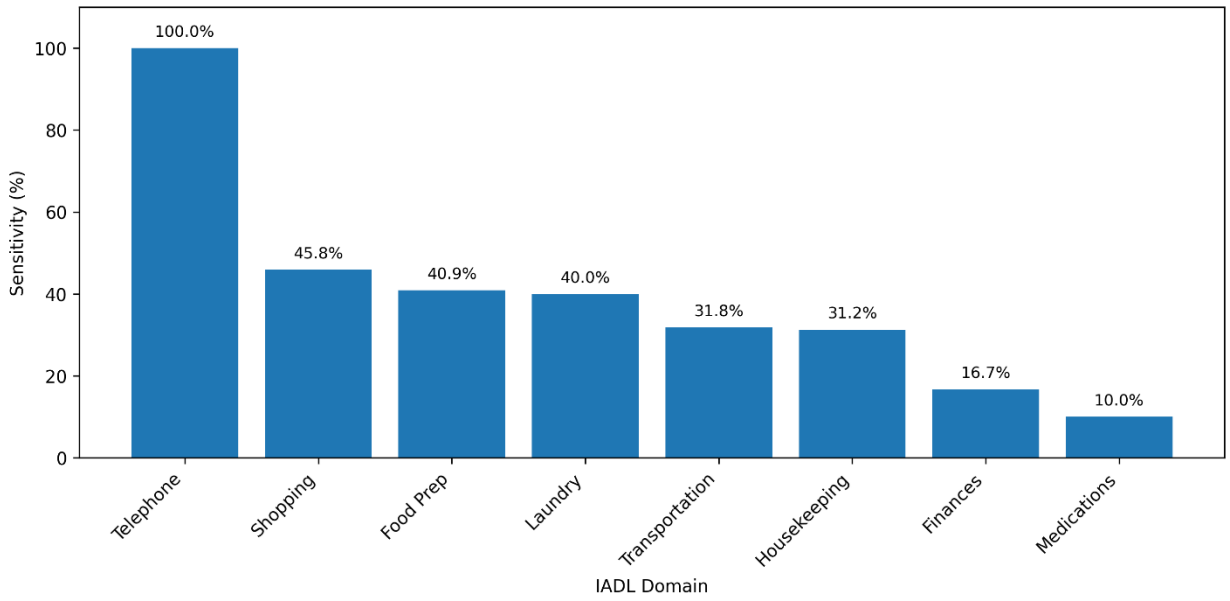
Abstract Table or Graph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45.8%
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Telephone
Shopping
Food Prep
Laundry
Transportation
Housekeeping
Finances
Medications
IADL Domain