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Pharmacists on the Front Lines of Polypharmacy: The Individualized Medication Assessment and Planning (iMAP) Project to Improve Medication Use in Senior Adults with Cancer

The American Cancer Society (ACS) estimates that by the year 2030, 70% of all cancers in the US will be diagnosed in senior adults.[1] The multiple layers of specialized (i.e. oncologists, radiation oncologists, surgeons), general and allied health professionals make it challenging to manage this population. Senior adults are particularly prone to the perils associated with multiple transitions in care, including medication errors attributed to medication changes, complex regimens, and incomplete information handoffs between providers which can lead to potential harm, hospitalization and heightened utilization of health care resources.[2-3] Cancer-related therapy adds to the prevalence of polypharmacy and potentially inappropriate medications; consequently, this increases the risk for adverse drug effects, drug-drug interactions, unnecessary medication use, non-adherence and geriatric syndromes.[4-8] Jefferson Health System is undergoing significant transformation in the delivery of 21st century services and is ripe for greater engagement of pharmacists. The roles and responsibilities of US pharmacists as members of the health care team have expanded beyond medication dispensing.

Polypharmacy is commonly defined as concurrent use of five or more medications for the treatment of one or more medical conditions. Older adults, who typically see multiple providers, may receive potentially inappropriate medications which may increase the risk for adverse drug effects. One approach to address these types of medication-related problems (MRP) is through utilization of team-based care that includes pharmacists. Integrating pharmacists, who represent the third-largest health profession after nursing and medicine, into team-based care models is an underutilized yet viable solution to optimize medication management.

This pharmacist-led pilot -- a prospective, exploratory study-- is currently being conducted at the Senior Adult Oncology (SAO) Center at Thomas Jefferson University's National Cancer Institute-designated Sidney Kimmel Cancer Center. This pilot was facilitated by two Advanced Practice Pharmacists and the medication management follow-up sessions are conducted via telephone at 30 and 60 days post the initial face-to-face session. This iMAP intervention has been used in the primary care setting to identify and reconcile medication related problems in geriatric populations (without cancer).[9] The mean number of medication related problems per patient were reduced (4.2 at baseline versus 1 at 6 months, $p<0.0001$) and the prevalence of medication related problems at 6 months were significantly reduced ($p<0.0008$) compared with baseline. We expect to find similar results in our senior adult oncology population. The SAO center is a consultative outpatient ambulatory center that provides half-day services (5 hours) for patients 65 years and older with cancer. The core inter-professional team consists of medical oncologists, geriatricians, patient navigators, clinical pharmacists, social workers, and registered dieticians. The purpose of this study is to implement a pharmacist-led individualized medication assessment and planning (iMAP) intervention to: 1) examine the feasibility of the intervention; 2) compare the number and rate of medication-related problems (MRP) between contacts [Day 0, 30, 60]; and 3) evaluate the proportion of MRP that are successfully addressed between contacts [Day 0, 30, 60]. Study feasibility utilized a qualitative survey relating to the iMAP intervention that encompassed measures such as: 1) time; 2) resources utilized; 3) barriers encountered. MRP were assessed by synthesizing information from the electronic health record, the pharmacist-patient session and the evidence-based literature. All medication-related problems were identified and measured based on the American Society of Health System Pharmacists classification tool with categories such as under-treatment, suboptimal drug, suboptimal [dosing, duration, frequency, administration], monitoring needed, and non-adherence). Medication adherence is measured based on a patient self-reported questionnaire.

At our SAO center, it is routine practice for patients to bring in all medications (prescription, nonprescription, herbals, and supplements) for the pharmacist-patient session. During the session, the pharmacist evaluated each medication with the patient and/or caregiver to confirm medication possession and/or self-administration, indication, and adverse effects; in addition, the pharmacist assessed the patient's ability to read medication label directions and to manage medications in and organized manner. Once the pharmacist identified medication-related problems (e.g. cognitive impairment associated with medication non-adherence), this information is discussed with

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the patient and the inter-professional team and a progress note is documented in the electronic health record. The pharmacists' medication-related recommendations (e.g. patient requires caregiver assistance for medication management based on cognitive status; consider discontinuing potentially inappropriate medications due to increased risk of falls given history of recent falls, recommend a safer alternative) are forwarded to the primary oncologist and/or medical provider for evaluation and follow-up.

The Institute of Medicine recognizes the significant role played by pharmacists in the areas of medication management and medication safety, as well as the value of pharmacist-physician collaboration in patient care.[10-11] Studies show when pharmacists are involved in direct-patient care and take measures to decrease the prevalence of medication related problems, hospital readmission rates and preventable adverse drug events are substantially reduced.[12-14] Pharmacists have the professional education, training, skills, and expertise to address key challenges facing the health care system and are well equipped to work on inter-professional healthcare teams and employ evidence-based medicine to optimize medication use and patient outcomes. Well-designed inter-professional, innovative medication management interventions are needed to continuously manage medication use in this complex population.

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