

## Barrie Rose Research Day in Palliative Medicine 2022

### *Abstracts*

**Title of Work:** Patient Reported Outcomes/Metrics Program Trial (PROMPT) – Palliative Radiation

**Investigator Name(s):** Philip Wong, Aisling Barry, Srinivas Raman, Andrew Hope, Brenda O'Connor, Breffni Hanon, Amy Zhi Hui Liu, Alejandro Berlin, Benjamin Haibe-Kains, Christopher McIntosh

**Presenter(s):** Philip Wong

**Purpose:** Palliative radiotherapy (RT) represents a substantial clinical proportion of a radiation oncologist's practice. Selecting the aggressiveness of RT, such as the fractionation schedule and simplicity of techniques, is frequently dependent on the perceived prognosis of a patient. Challenges exist in assessing patient response and side-effects during and following RT. Objective biometric measures obtained from a smartshirt (Hexoskin) may complement patient reported outcomes (PRO) collected electronically (Zamplo) to better evaluate the effects of palliative RT.

**Methods:**

A prospective registry trial platform (cmRCT) will be established in which all patients undergoing palliative RT will be provided a Zamplo account to collect PRO. From this prospective registry, patients will be randomly selected and offered the opportunity to participate in PROMPT and wear Hexoskin at predetermined timepoints and durations. The primary objective of the study is to assess the ability of randomizing 100 patients undergoing palliative RT over a 12-month period. Secondary endpoints include (1) Reasons for registry or trial refusal (2) Rate of completed follow-ups (3) Patient experience/satisfaction (4) Overall survival; (5) Adverse event profile; (6) Health-related quality-of-life; (7) Economic Analysis; (8) Adherence to Hexoskin; (9) Completion of quality-of-life survey on Zamplo.

**Importance:** The ultimate objective of palliative RT is to improve QOL of patients by incorporating new technologies to assist with prognostication, patient selection and evaluation of treatment response in an evolving personalized health care model. Integration of commercially available tools in evaluating palliative treatment response may have utility outside of palliative RT for patients with complex pain and other symptoms.

**Title of Work:** Environmental Scan of the Information Transfer Process for Admissions to an Acute Palliative Care Unit (APCU) in an Academic Cancer Center

**Investigator Name(s):** Jacqueline Alcalde, Jenny Lau, Camilla Zimmermann, Ernie Mak

**Presenter(s):** Jacqueline Alcalde

### ***Purpose***

To improve information transfer upon admission to an acute palliative care unit (APCU) at an academic cancer centre, the current state was assessed through staff surveys, team communication record audits, and stakeholder interviews.

### ***Methods***

A Likert-scale survey was sent to the palliative care (PC) physicians working on the APCU and a semi-structured interview was conducted to identify: 1) their perceptions and satisfaction with clinical information transfer upon admission to the APCU, and 2) the relevant information that should be included for information transfer. Using the physicians' recommendations to inform categories of relevant information, the content of the admission requests between July 28 to October 14, 2020, were analyzed to assess the quality of information transferred.

### ***Results***

Twelve PC physicians were surveyed; five were randomly selected for an interview. From the survey, 6/12 (50%) were satisfied with the current transfer information process, 4/12 (33%) agreed that the information received prior to admission was complete, and 10/12 (83%) needed to perform additional review to obtain relevant information to provide care, taking up to 30 minutes. The physicians interviewed disclosed that verbal communication was the most effective method of information transfer. In 41 admission requests, relevant information in the initial communications included: reason for admission (95%), goals of care (32%), PPS (15%), POA (10%), prognosis (7%), family dynamic (13%), and proposed disposition (46%).

### ***Conclusions***

The current process of information transfer during admissions to an APCU is suboptimal and relevant information included in the initial request is sparse. Using a quality improvement model, we are developing a tool to improve the transfer of information during admissions.

**Title of Work:** Eliminating tattoos for short course palliative radiotherapy: set-up error, satisfaction and cost

**Investigator Name(s):** Joanna Javor, Angela Cashell, Tara Rosewall, Carina Feuz, Edward Taylor, and Aisling Barry

**Presenter(s):** Joanna Javor

**Purpose:** Palliative patients are living longer thanks to advancements in systemic therapies and radiotherapy technologies. Prior to image guided radiotherapy, permanent ink tattoos were used to ensure set up accuracy. Permanent marks can cause psychological damage, physical pain and can reduce a patient's quality of life. In recent years, image guided radiation therapy (IGRT) has become standard practice and may eliminate the need for permanent tattoos in this patient population.

**Methods:** 25 patients were consecutively chosen from the Palliative Radiation Oncology Program (PROP). Each received 5 fractions of radiotherapy commencing within 72 hours of CT simulation. In place of permanent tattoos, patients were marked with permanent marker and an adherent transparent film dressing (Tegaderm™) was placed over the mark. Patients were educated on maintaining the marks and dressing. Daily cone beam CT (CBCT) isocentre mismatch values were compared with 25 patients who received tattoos for radiotherapy to similar body regions. Radiotherapist concerns, cost, variations in isocentre shift values and additional imaging requirements were obtained.

**Results:** Isocentre shift values were similar ( $p < 0.05$ ) for Tegaderm™ vs. tattoo patients in the anterior-posterior (AP) and right-left (RL) directions. The mean shift value in the superior-inferior (SI) direction was larger for Tegaderm™ than for tattoos ( $p = 0.01$ ), however the magnitude was only 2mm, which is clinically insignificant as these shifts were prior to IGRT guided correction. No patient required a repeat CBCT or a resimulation. The cost of the Tegaderm™ dressing was substantially less than the tattoo group. Radiation Therapists' satisfaction with Tegaderm™ was overall high, however some expressed concerns with their durability and longevity.

**Conclusions:** We found that the use of Tegaderm™ dressing did not result in increased set-up time, mismatch error or additional imaging procedures (CBCT or CT simulation) and moreover cost substantially less than permanent ink tattoos.

**Title of Work:** Inpatient Palliative Care and Neurosurgery: A collaborative model of care

**Investigator Name(s):** Drs Haley Draper and Nadine Gebara

**Presenter(s):** Drs Haley Draper and Nadine Gebara

**Background:** The division of neurosurgery at the Toronto Western Hospital (TWH) is the largest in Canada and a world leader in advancing neurosurgical care. Despite large volumes of seriously ill neurosurgically-managed patients at TWH, including those at end of life, few of them are referred to our inpatient Palliative Care (PC) team.

**Purpose:** To establish better collaboration between the inpatient PC and neurosurgical teams at TWH in order to better identify, evaluate and manage unmet neurosurgical palliative care needs.

**Methods:** Beginning June 2021, two inpatient PC physicians met weekly with the inpatient neurosurgical nurse practitioners to screen inpatient lists for one of the following criteria, triggering inpatient PC consultation: stage IV cancer, “surprise question”, symptom needs, goals of care (GOC) discussions.

**Results:** Inpatient PC consult volumes increased by 225% in the initial 7 months of this collaboration compared to the 7 months prior (19 vs 62 pre- vs. post-initiation). Common diagnoses included primary brain tumour, spinal- or brain-metastases, and intracranial bleeding. Reasons for consultation included introduction to palliative care, pain and symptom management, assistance with advance care planning or GOC, and disposition planning.

**Conclusions:** This pilot collaborative model resulted in a significant increase in PC consult volumes likely resulting in improved serious illness care for this vulnerable population. Provider experiences including recommendations for ongoing collaboration will be discussed. Future analyses will examine its impact including trends in reason and timing of referral, documentation of GOC including code status, referral to outpatient or home visiting palliative care resources, and patient/provider experience.

**Title of Work:** Telemedicine and service delivery in an ambulatory palliative care clinic during the COVID-19 pandemic

**Investigator Name(s):** Savar Kaul (trainee), Michael Bonares, Christine Lau, Amy Nolen

**Presenter(s):** Unspecified

**Purpose:** The delivery of palliative care for cancer patients has been profoundly impacted by the COVID-19 global pandemic. Telemedicine has been adopted as an innovative method for the delivery of specialist palliative care in ambulatory settings, to mitigate exposure risk and ensure optimal care delivery for patients. There have been very few studies examining the efficacy of virtual platforms for delivering outpatient palliative care.

**Objectives:** The primary objective of this study is to investigate the impact of the COVID-19 pandemic on the volume of referrals and type of encounter (in person vs. virtual) among patients receiving ambulatory palliative care at a tertiary cancer care centre. The secondary objective is to examine the effect of the COVID-19 pandemic on the use of health services, the frequency of documented advance care planning discussions, and the place of death among patients receiving ambulatory palliative care.

**Methods:** The study will take the form of a retrospective chart review. The study population will include patients referred to the outpatient palliative care clinic at the Odette Cancer Centre during three discrete time periods:

Pre pandemic: April 1 – June 30, 2019

First wave: April 1 – June 30, 2020

Third wave: April 1 – June 30, 2021

**Results:** Project is in-progress, data collection will be underway shortly (results available yet).

**Conclusion:** With the rapid integration of telephonic and video encounters for delivery of care, it remains to be seen if telehealth can be a feasible platform for providing outpatient palliative care to the same quality as in-person care. We hope that our study will help elucidate the impact of the pandemic on the delivery outpatient palliative care and help inform the future delivery of outpatient palliative care.

**Title of Work:** Opioid Disposal Practices of Patients with Life-Limiting Cancers in an Outpatient Palliative Care Clinic

**Investigator Name(s):** Jenny Lau, Camilla Zimmerman, Peter Selby, Andrea Furlan

**Presenter(s):** Jenny Lau

### **Purpose**

Large quantities of opioids can accumulate in the last years of life. Proper disposal of prescription opioids is essential to prevent poisonings and deaths. This study examined the opioid disposal practices in a tertiary cancer centre's outpatient palliative care clinic.

### **Methods**

This cross-sectional study involved a retrospective chart review of new, adult patients who completed a survey about opioid use in the Princess Margaret Cancer Centre outpatient palliative care clinic between September 2018 and August 2019. This survey contained screening questions for opioid use disorder and questions about the following opioid-related constructs: source of prescriptions, use, storage, disposal and knowledge about harms.

### **Results**

This study included 122 patients, and 52% (58/111) reported that they did not routinely dispose of their opioids. The most common disposal method reported by 79% of patients was returning unused opioids to pharmacists. Patients who reported receiving pharmacist or physician education about opioid disposal were more likely to be aware of proper disposal methods (100% vs 54%,  $p < 0.001$ ), dispose of opioids by giving them to pharmacists (72% vs 38%,  $p < 0.001$ ), conduct pill counts (57% vs 29%,  $p = 0.002$ ) and have knowledge about drug-take back programs (45% vs 17%,  $p = 0.002$ ). Whereas, patients were less likely to routinely dispose of their opioid if they responded "Yes" to "Have you had to increase the amount of opioids you take over the past six months?" (OR 0.38; 95% CI, 0.16 - 0.88).

### **Conclusion**

There is a high prevalence of people with life-limiting illnesses who do not routinely dispose of their opioids.

**Title of Work:** Patients' experiences with virtual outpatient palliative care visits during the COVID-19 pandemic: a qualitative study

**Investigator Name(s):** Mirza Jacqueline Alcalde Castro, Rinat Nissim, Brenda O'Connor, Ernie Mak, Jenny Lau, Camilla Zimmermann, Breffni Hannon

**Presenter(s):** Mirza Jacqueline Alcalde Castro

**Purpose:** Early palliative care, delivered in oncology palliative care clinics (OPCCs) typically involves in-person visits, however the COVID-19 pandemic necessitated rapid adoption of virtual care. This study aimed to determine the experiences of patients around virtual visits to an OPCC at a tertiary cancer centre in Toronto, Canada during the pandemic.

**Methods:** One-on-one telephone interviews were conducted with patients who had a) at least one in-person visit to the OPCC prior to the pandemic, with subsequent virtual follow-up(s), or b) virtual visits only. Purposive sampling was used to ensure representation based on sex, age, distance from home to the cancer centre, and mode of virtual visits (telephone versus video). Interviews were recorded and professionally transcribed; thematic analysis was used.

**Results:** Twenty-six patients were interviewed (17 had an in-person visit, 9 were virtual only), lasting between 10-60 minutes. Patients reported overall satisfaction with virtual care, and appreciated that virtual care allowed for care without disruption during the pandemic. An initial in-person visit to the OPCC was felt to be advantageous in terms of rapport-building with the team; non-verbal communication was highlighted. Many participants expressed a desire to continue with virtual care beyond the pandemic, especially during periods of relative health stability. At transition points in care, or where advance care planning discussions were anticipated, in-person visits were preferred.

**Conclusions:** Virtual visits to the OPCC during the COVID-19 pandemic were feasible and appreciated by patients. The role of virtual care for select clinical scenarios beyond the pandemic should be further explored.

**Title of Work: Examining the Origins of Patient Reported Quality of Life Outcome Measures in Palliative Care: A Systematic Review**

**Investigator Name(s):** Yifan Li, Vivian Hung, Kieran L. Quinn

**Presenter(s):** Yifan Li

**Purpose:** To systematically review the derivation and validation of patient-reported outcome measures (PROM) of quality of life (QOL) in patients with serious illness.

**Methods:** We identified all PROMs from a published systematic review of palliative care interventions in patients with noncancer illness. We included all studies that examined the PROMs psychometric properties in a population of patients with palliative needs, defined as study population comprising  $\geq 50\%$  with: 1) serious illness (e.g. dementia, heart failure, cancer); and 2) an estimated prognosis of  $\leq 1$  year. Narrative synthesis was used to describe the study characteristics and patient populations for the PROMs original derivation and validation studies. The primary outcome was the proportion of validated PROMs, defined as a Spearman correlation coefficient of  $r_s \geq 0.50$  or a Pearson correlation of  $r \geq 0.3$ .

**Preliminary Results:** A total of 6516 titles were screened for eligibility and 32 were included for analysis. Ongoing analysis will report study characteristics such as country, year, care setting and specific QOL PROM; and characteristics of the study population such as age, disease, number of participants, and average QOL scores.

**Importance:** Current evidence for the effects of palliative care on QOL in patients with noncancer illness is mixed, which may be related to the use of PROMs that have not been validated in a population of patients with palliative needs. A critical examination of commonly used QOL PROMs may help to better understand these prior findings and inform future directions on their use in palliative care research for patients with serious illness.



**Title of Work:** Using Tumour Specific Growth Rate as an Outcome Predictor post Stereotactic Body Radiotherapy in Patients with Metastatic Oligo-Progressive Disease

**Investigator Name(s):** I. Navarro<sup>1</sup>, J. Helou<sup>1</sup>, S. Kuruville Thomas<sup>2</sup>, A. J. Hope<sup>1</sup>, and A. S. Barry<sup>1</sup>;  
<sup>1</sup>Department of Radiation Oncology, Princess Margaret Cancer Centre, University of Toronto, Toronto, ON, Canada, <sup>2</sup>Joint department of Medical Imaging, University of Toronto, Toronto, ON, Canada

**Presenter(s):** Inmaculada Navarro

**Purpose/Objective(s):**

The use of metastatic directed therapies and the criteria for patient selection is evolving. We aimed to assess the impact of pre- and post- tumour specific growth rate (SGR) on outcomes of patients with metastatic oligo-progressive disease (OPD) treated with Stereotactic Body Radiotherapy (SBRT).

**Materials/Methods:**

Patients with OPD ( $\leq 3$  metastases) were enrolled in a prospective phase II SBRT interventional study. Treated metastases were contoured on pre-SBRT scan (GTV1), at time of SBRT (GTV2) and post-SBRT (GTV3). SGR was calculated as  $(\ln(\text{GTV2}/\text{GTV1})/t(\text{days}))$ . Pre-SBRT growth (SGR1)=GTV2–GTV1 and post-SBRT (SGR2)=GTV3–GTV2. High-SGR was defined as  $\geq$  median-SGR. All progression was defined as local failure and/or distant progression. The impact of SGR1 and SGR2 on all progression was evaluated.

**Results:**

Fifty-three metastases from breast (29.4%), gastro-intestinal (GI) (41.2%) and genito-urinary (GU) (29.4%) cancers were analyzed. Median follow-up was 11.2months. Cumulative incidence function at 12-months of all progression and OS was 9.2% and 64% respectively. The median volume of GTV1, GTV2 and GTV3 was 3.8(IQR 0.9 - 6.6)cc, 7.1(IQR 1.9-15.3)cc and 2.7(IQR 0.8-7.9)cc. Median SGR1 and SGR2 was 0.007(IQR 0.003 - 0.013) and -0.009(IQR -0.01 to -0.001). 52% had a high-SGR1 and 43% high-SGR2. There was no difference between histology and SGR1( $p$  0.08) or SGR2( $p$  0.77). There was a significant association between high-SGR1 only and all progression ( $p=0.0013$ ).

**Conclusion:**

High SGR1 appears to be associated with disease progression post SBRT. This measure may be used as an additional criteria for future OPD patient selection. These findings require validation in a larger cohort.

**Title of Work:** Nationwide Strategies Employed to Provide and Integrate Palliative Care to Patients with COVID-19

**Investigator Name(s):**

Wolofsky, Kayla; Wentlandt, Kirsten; Weiss, Andrea; Hurlburt, Lindsay; Fan, Eddy; Kaya, Ebru; O'Connor, Erin; Lewin, Warren; Graham, Cassandra; Zimmermann, Camilla; isenberg, Sarin

**Presenter(s):** Kayla Wolofsky

Background: Little is known on what palliative care (PC) has been provided to patients with COVID-19.

Aims: To understand what PC was provided nationwide to patients with COVID-19 and strategies implemented to overcome barriers during the pandemic.

Methods: Semi-structured interviews were conducted with physicians across Canada about their experiences providing PC to patients with COVID-19. Thematic analysis was used to describe and interpret overarching themes.

Results: Twelve specialized PC (SPC) and 11 primary PC (PPC) were interviewed. Interim analysis of 16 coded interviews demonstrated SPC and PPC physicians used traditional strategies (such as opioids, oxygen and serious illness conversations) to manage symptoms, support end of life, and engage patients and families in goals of care conversations (GOC). Neither SPC nor PPC indicated strong adoption of GOC and symptom management tools circulated early in the pandemic. Both SPC and PPC indicated a shift to virtual communication due to restrictive visitor policies, highlighting the need for distanced support and planned communication. Care coordination for PC patients was challenged by a lack of community resources, family infected with COVID-19, prolonged hospital stays, and increased number of PC patients discharged to rehabilitation services.

New PC structures included; GOC teams that functioned in the emergency department and medicine floors, integrated clinical rounding by non-PC clinicians with PC teams, and hospital-based PC outreach to long term care. Strategies to improve PC implementation included: virtual technologies, team collaboration, patient and family engagement tools, and symptom management and GOC conversations tools.

Conclusions: While PC management approaches to support patients with COVID-19 were mostly unchanged, new structures and strategies were developed to ensure patients and their families were provided with support.

**Title of Work:** Prevalence of Ultrasound-Guided Thoracentesis and Paracentesis in a Palliative Care Inpatient Unit

**Investigator Name(s):** Dr. Merna Wassef, Dr. Jeonga (Jenna) Gim, Dr. Jenny Lau

**Presenter(s):** Dr. Merna Wassef/Dr. Jeonga (Jenna) Gim

**Purpose:** Point-of-care ultrasound (POCUS) is a low-cost, portable diagnostic and therapeutic tool. It allows procedures to be performed conveniently at bedside. At PMH, palliative care patients who require US-guided paracentesis or thoracentesis are transferred off-site. While waiting for these procedures, patients can deteriorate and no longer be clinically stable. Access to POCUS on a palliative care unit will increase access to these procedures for symptom management. POCUS in PCU may also result in shorter hospital stays, reduced overall costs, and improved patient satisfaction.

**Methods:** We will conduct a retrospective chart review of patients admitted to Palliative Care Unit in 2018 to identify the number of patients who were ordered US-guided thoracenteses or paracenteses. We will describe their characteristics including demographics, cancer diagnoses, etc. We will determine number of days between ordering the procedure and completion. We will identify the number of patients who had their orders cancelled and describe their characteristics. Data will be collected from paper-based medical records and electronic patient records. Descriptive statistics will be calculated for all demographics, medical characteristics and study measures.

**Proposal:** QI project will be conducted to incorporate the use of POCUS into clinical care on PCU. We propose to conduct a descriptive study to answer “how many US-guided thoracenteses and paracenteses are ordered from interventional radiology for patients admitted to 16P in a one-year period?” Secondary objectives will be to review the characteristics of the patients, determine the proportion of those who have their procedures cancelled, and determine the average wait time.

**Title of Work:** An evaluation of the Cancer Rehabilitation and Exercise - Advanced Cancer (CaRE-AC) program

**Investigator Name(s):** Ms. Tiffany Tse, Dr. David M Langelier, Dr. Breffni Hannon, Ms. Lydia Beck, Dr. Eugene Chang, Dr. Lori Bernstein, and Dr. Jennifer Jones

**Presenter(s):** Tiffany Tse

**Background:** Patients with advanced cancers (AC) face complex challenges, including fatigue, pain, reduced mobility, and impaired psychosocial function. Early research suggests the importance of rehabilitation for non-AC patients, but high-quality evidence on safety, acceptability, and efficacy in those with AC is still needed.

**Objectives:** Assess the feasibility and acceptability of a multidimensional exercise and self-management education program specific to AC patients (CaRE-AC) and obtain preliminary effects on disability, fitness, and quality of life (QOL).

**Methods:** Mixed methods pre-post Phase 1 study. 8-week group-based, in-person program incorporating exercise and self-management teaching. Initial assessments (T0) with re-assessments at 8-weeks (T1-primary endpoint), 1-month (T2), 3-months (T3), and 6-months (T4). Qualitative data from semi-structured interviews were collected at T2. Quantitative data included patient-reported outcomes (disability, QOL, fatigue, social functioning) and physiological factors (6MWT, sit to stand, dynamic balance).

**Results:** 58 patients were referred to the CaRE-AC between March 2019 and March 2020. 36 patients completed initial assessments, 22 completed T1 (61%), and 13 completed T4 (36%). Interviews and questionnaires confirmed acceptability. Interviews revealed institutional factors (location, facilitators, accessibility), curriculum (educational and physical), interpersonal relationships, and perceived long-term benefits as key emergent themes. Positive trends were observed in 6 min walk, balance, disability and QOL but did not meet statistical significance.

**Conclusion:** CaRE-AC was acceptable to patients with a 61% completion rate. Feedback will be used to further refine content and delivery. Future research involving larger cohorts is necessary to assess cancer and patient-specific factors and determine effect on disability, physical performance, and QOL.

**Title of Work:** Effects of a Cancer Survivorship Clinic

**Investigator Name(s):** Donny Li, Martin Chasen, Rardi van Heest, Deepanjali Kaushik, Courtney Coome, Ravi Bhargava

**Presenter(s):** Donny Li

### **Introduction/Purpose**

The Cancer Survivorship Clinic (CSC) was established at Brampton Civic Hospital in 2017 to provide a transitional service between oncology and family physicians for patients who have completed primary anticancer therapy. This study aims to determine the patient impact of the CSC.

### **Methods**

All enrolled patients completed the distress thermometer (DT), Canadian Problem Checklist (CPC), and Edmonton Symptom Assessment Scale (ESAS). Descriptive statistics and *t*-tests were used to assess the impact of the CSC.

### **Results**

1,294 patients were enrolled in the CSC from Feb 2017 to Dec 2021 with 948 patients having at least one follow-up visit. 214 were males and 1080 were females; the median age was 61. All 2,441 visits with DT records yielded an average and median distress score of 2.8 and 2.0 respectively. There was a significant decline in distress from baseline to follow-up among the study population overall ( $p < 0.05$ ) and high-risk patients with an initial score  $\geq 4$  ( $p < 0.0001$ ). From the initial visit, the top five reported causes of distress include pain, fatigue, nervousness/anxiety, tingling in hands and feet, and sleep/insomnia. All 1,972 visits with ESAS records showed significant declines in anxiety, depression, drowsiness, nausea, and tiredness ( $p < 0.05$ ).

### **Conclusions**

Overall, patients had a significant reduction in distress from the baseline to follow-up visit. Reported symptom severity for anxiety, depression, drowsiness, nausea, and tiredness also declined significantly following clinic intervention.

**Title of Work:** Introduction to a Retrospective Review on the Effects of a Virtual Palliative Home Care Program.

**Investigator Name(s):** Donny Li, John Davey, Martin Chasen

**Presenter(s):** Donny Li

### **Purpose**

The Virtual Palliative Home Care Intervention was implemented in 2018 by William Osler Health System for palliative care physicians to conduct teleconference follow-up “visits” for patients at their homes. The objective of a proposed retrospective review is to describe the effectiveness and feasibility of this intervention for providing virtual, at-home palliative care.

### **Methods**

Patients who attended at least one virtual visit from March 2020 to June 2021 (n=3348) will be included in the review. These were 2937 telephone and 411 virtual conference visits across two sites. Descriptive statistics will categorize patients by demographics and number/type of visits. Statistical analyses will follow to investigate the relationship between these factors and health outcomes. Consequent results will be presented.

### **Importance**

This intervention offers a valuable opportunity for patients to remain at home, where most wish to be during the last stages of life. Further, virtual visits promote health equity as palliative care becomes available for those living far, or unable to reach hospitals. It also reduces the emotional, physical, and financial costs for patients compared to in-person appointments. Physicians are also able to conduct more visits per day as travelling time is significantly reduced; this is especially important due to the increasing palliative population described in the literature.

A preliminary literature scan of telehealth palliative care found no existing programs as described in our intervention. Identified papers instead described one-time, hybrid, or non-physician consultations. Thus, it is our hope that this study adds research to this novel field and inspires similar initiatives.

**Title of Work:** Use of palliative sedation over time: a mixed-methods study of palliative care providers

**Investigator Name(s):** Debbie selby, Amy Nolen, Anneliese Mills, Fahad Qureshi

**Presenter(s):** Debbie Selby

**Purpose:** Very little research exists regarding the impact of legalization of medically assisted death on rates of palliative sedation (PS) use. A local retrospective study noted a large increase in PS one year after MAID legalization compared with one year prior. One study in the Netherlands also found an increase in PS after the introduction of voluntary euthanasia. This study plans to reach a broad group of palliative care providers in Ontario to explore palliative sedation use over time and to assess what, if any, impact MAID has had on this.

**Methods:** This will be a mixed methods study with an online survey as well as qualitative interview. For the first section the OMA section on Palliative Medicine will post the survey link in their newsletter. From this we hope to have ~20 participants who also agree to participate in an interview further exploring use of PS, what changes they have noticed in their practice over the past 5-10 years and what impact they feel MAID has had on PS use. Interviews will then be transcribed and analyzed using standard qualitative methods.

**Importance:** This study hopes to shed light on the degree to which MAID/similar legislation impacts use of PS and explore the potential reasons underpinning this dynamic. Elucidating palliative care practitioners perspectives on PS will contribute to a more fulsome understanding of the changing landscape of end of life care in Canada.

**Title of Work:** Physician service volume and variation in the use of virtual end-of-life care

**Investigator Name(s):** Rebecca Rodin, Thérères A. Stukel, Hannah Chung, Chaim M. Bell, Sacha Bhatia, James Downar, Sarina Isenberg, Douglas Lee, Nathan Stall, Peter Tanuseputro, Kieran Quinn

**Presenter(s):** Rebecca Rodin

**Purpose:** To examine the variation in use of virtual end-of-life care according to a physicians' practice volume before and after the introduction of a health policy intervention on March 14, 2020 that incentivized the delivery of virtual care through specialized fee codes.

**Methods:** A population-based cohort study using linked health administrative data of adults in the last three months of life in Ontario, Canada between January 25, 2018-December 31, 2022, and the 38,282 physicians most responsible for their end-of-life care. Annual physician practice volume was categorized as Low (bottom 25%), Average (25-75%), and High (top 25%). Multilevel hierarchical logistic and Poisson regression measured variation and the association of annual physician practice volume with receipt of virtual end-of-life care.

**Results:** There were 14,189 people (12%) who received virtual end-of-life care before March 14, 2020, and 100,934 people (88%) who received it after that date. The introduction of specialized virtual fee codes was significantly associated with the use of virtual end-of-life care (RR 9.22; 95% C.I. 8.92-9.52;  $p < 0.0001$ ). Physician-level factors accounted for 15% of the variation in the use of virtual care. The final results reporting the association of annual physician practice volume with the use of virtual end-of-life care will be available prior to the research day.

**Conclusion:** The substantial variation explained by differences in physicians suggests that interventions targeted toward them, such as audit and feedback, may help to minimize variation in the continued use of this innovative virtual model of end-of-life care.



**Title of Work:** Factors that Determine the Experience of Transition to an Inpatient Palliative Care Unit for Patients and Caregivers: A Qualitative Study

**Investigator Name(s):** Katherine Whitehead, Kari Ala-Leppilampi, Betty Lee, Jacqueline Menagh, & Donna Spaner

**Presenter(s):** Donna Spaner

**Background:** Patients often experience multiple transitions in care settings at the end of life. These changes can present challenges to patients and families, especially at times when there are also adjustments in level of care and illness trajectory.

**Objective:** In this study, we explored what factors influenced how patients and family caregivers experienced a transition to an inpatient Palliative Care Unit (PCU).

**Methods:** This qualitative study was conducted at a PCU in Toronto, Canada. Semi-structured interviews were held with 29 participants (14 patients and 15 family caregivers) during their time on the PCU. Data was analyzed through an iterative process of constant comparison to generate themes. The recruitment process continued to the point of thematic saturation.

**Results:** Five themes were identified that represented the participants' experiences in transitioning to the PCU: Being prepared, Feeling supported, Coming to terms with end of life issues, Dealing with uncertainty, and Continuity of care.

**Conclusion:** Our findings highlight the need for clear and iterative communication with patients and family caregivers during the transition to a PCU. Identification and consideration of the common themes involved in the experience of transfer to PCU can help guide future practice and improve the experience of patients and families during transitions at the end of life.

**Title of Work:** Exploring the barriers and facilitators experienced by palliative health care providers working with structurally vulnerable patients during the COVID-19 pandemic

**Investigator Name(s):** Claire Rollans, Justine Baek, Gary Bloch, Joyce Nyhof-Young, Donna Spaner

**Presenter(s):** Claire Rollans, Justine Baek

*Background:* Structurally vulnerable patients not only have higher rates of medical complexity, comorbidity, and mortality, but also face barriers to accessing palliative care services. In homeless populations with palliative care needs, these barriers are compounded, creating significant challenges for both patients and providers that have important health equity implications.

*Objective:* The aim is to explore the experiences of palliative care providers working with structurally vulnerable patients during the COVID-19 pandemic and understand the barriers they faced in providing care as well as the facilitators that aided the success of their teams.

*Methods:* Seven healthcare providers from two Canadian palliative outreach teams actively involved in delivering palliative care services to structurally vulnerable individuals during the COVID-19 pandemic participated in audio-recorded and transcribed video-conferencing interviews. That were analyzed using generic descriptive thematic analysis.

*Results:* Six key themes were identified: (1) Factors negatively impacting patient health, (2) Use of Technology, (3) Care Provider Emotions, (4) Collaboration with Community and Health Care Organizations, (5) Care Provider Education and Advocacy, and (6) Outreach Team Factors.

*Conclusion:* Identified barriers during the pandemic included worsening of existing patient vulnerabilities, as well as challenges with incorporating technology into care. Providers faced increased emotional burden, with a rise in workload, stress, fear, and grief. However, several facilitators allowed teams to provide high-quality care to this vulnerable population, including team support, interprofessional collaboration, and advocacy and education initiatives. The outreach model also proved to be a highly flexible, resilient, and adaptable model for providing care during the COVID-19 pandemic.

**Title of Work:** Greater than the sum of its parts: A comparison of palliative care interventions for patients with heart failure and dementia

**Investigator Name(s):** Yona Grossman, Kieran L. Quinn

**Presenter(s):** Yona Grossman

**Purpose:** To determine if the presence of an interdisciplinary team (IDT) is associated with improvements in quality of life (QOL) among patients with heart failure (HF) and dementia.

**Methods:** MEDLINE, Embase, PubMed and PsycINFO were searched from inception to September 1, 2021, and 11,453 titles were screened by two independent reviewers. We included randomized control trials of palliative care interventions among patients with a primary diagnosis of HF and dementia. An IDT was defined as the presence of a physician and/or nurse, and at least one other healthcare professional. Narrative synthesis was used to describe the studies. A significant improvement in QOL was determined using the Minimal Clinically Important Difference. Fischer's Exact test was used to test for statistical significance at  $p < 0.05$ .

**Results:** A total of 18 trials were included in the analysis (HF: 11 trials,  $n=4,475$  patients; dementia: 7 trials,  $n=1,430$  patients; mean age 76 years, 49% female). An IDT was present in 36% ( $n=4$ ) HF trials and in 43% ( $n=3$ ) dementia trials; 15 (83%) studies measured QOL as an outcome. QOL improved in 100% ( $n=3$ ) of HF trials with an IDT and in 57% ( $n=4$ ) trials without an IDT ( $p=0.5$ ). QOL improved in 100% ( $n=3$ ) of dementia trials with an IDT and in 50% ( $n=1$ ) of trials without an IDT ( $p=0.4$ ).

**Importance:** The inclusion of an IDT was not significantly associated with QOL among patients with HF and dementia receiving palliative care. The relatively small number of trials may limit statistical power, highlighting the need for more research in this area.

**Title of Work:** Identifying Disparities in Equitable Access to Virtual Palliative Care

**Investigator Name(s):** Kieran Quinn, Thérèse A. Stukel, Hannah Chung, Chaim M. Bell, Sacha Bhatia, James Downar, Sarina Isenberg, Douglas Lee, Nathan Stall, Peter Tanuseputro.

**Presenter(s):** Vivian Hung

**Purpose:** The objective of this study was to measure the association between the use of virtual end-of-life care before and after the introduction of specialized virtual care fee codes; and to identify potential disparities in access introduced by this health policy intervention.

**Methods:** Population-based cohort study using linked health administrative data for adults in the last 3 months of life who died in Ontario, Canada between January 25, 2018 and December 31, 2021. Patients were eligible to receive virtual care prior to March 14, 2020 using a distinct set of fee codes through the Ontario Telemedicine Network, and after March 14, 2020 using a set of specialized virtual care fee codes through the Ontario Health Insurance Plan.

**Results:** There were 14,189 people (12%) who received virtual end-of-life care before March 14, 2020, and 100,934 people (88%) who received it after (RR 9.22; 95% CI 8.92-9.52). Virtual care was more likely to be delivered to older adults aged  $\geq 70$  years (RR 1.11; 95% CI 1.06-1.15), people with frailty (RR 1.03, 95% CI 1.02-1.03), and Chinese patients (RR 1.02; 95% CI 1.01-1.03); and less likely to be delivered to people in rural areas (RR 0.94; 95% CI 0.93-0.95), people with cancer (RR 0.94; 95% CI 0.94-0.95) and people with substance misuse disorders (RR 0.94; 95% CI 0.93-0.95).

**Conclusions:** The use of the virtual end-of-life care significantly increased following the introduction of a health policy intervention that incentivized its use, which was associated with potentially unintended disparities in access across multiple patient factors.

**Title of Work:** Factors associated with a home death among patients with amyotrophic lateral sclerosis

**Investigator Name(s):** Jennifer Shapiro, Meera Mahendiran , Miriam Omilabu, Vivian Hung, Bhadra Lokuge, Natalie Parry, Lori Luther, Susan Coish, Jeff Myers

**Presenter(s):** Jennifer Shapiro

**Purpose/Background:** People living with amyotrophic lateral sclerosis (ALS) have relatively predictable illness trajectories and palliative care related needs that are frequently complex. It is common for end-of-life to follow a sudden event causing a precipitous decline. The result for many is emergent transfer to critical care with death ultimately occurring in the hospital setting for 70% of all ALS patients. Little is known however about the factors that may facilitate dying at home as to date, exploration of home deaths has been limited.

**Methods:** This retrospective chart review was designed to explore the ALS patient, family caregiver and physician factors associated with home death. These include concordance of primary language, family caregiver distress/resilience, length of home visiting physician relationship and frequency of encounters. Eligible patients included those diagnosed with ALS in 2013 or later and cared for by the Temmy Latner Centre for Palliative Care home program.

**Results:** Data analysis is currently underway, however extraction is complete for the 108 patients who met inclusion criteria. Preliminary analysis indicates 27% of the population died in hospital and 55% died at home having had no hospitalizations or ED visits over the time of their admission to the home program. A hospitalization or ED visit occurred for half of the 18% of patients who died in PCU.

**Conclusions:** A more thorough analysis and set of interpretations will be included for this presentation. It is anticipated our findings will inform both upstream care processes and prospective studies moving forward.

**Title of Work:** Association of Virtual End-of-Life Care with Acute Healthcare Use and Location of Death: A Population-Based Cohort Study

**Investigator Name(s):** Dr. Kieran L. Quinn, Thérères A. Stukel, Hannah Chung, Chaim M. Bell, Sacha Bhatia, James Downar, Sarina Isenberg, Douglas Lee, Nathan Stall, Peter Tanuseputro

**Presenter(s):** John Lapp

**Purpose:** To measure the association between the use of virtual end-of-life care with acute healthcare use and an in-hospital death before and after a health policy intervention incentivized the delivery of virtual care through specialized fee codes.

**Methods:** Population-based cohort study using linked health administrative data for adults in the last 3 months of life who died in Ontario, Canada between January 25, 2018 and December 31, 2021. Patients were eligible to receive virtual care prior to March 14, 2020 using a distinct set of fee codes through the Ontario Telemedicine Network, and after March 14, 2020 using a set of specialized virtual care fee codes through the Ontario Health Insurance Plan.

**Results:** Prior to March 14, 14,189 people received virtual end-of-life care, which was associated with a 6% lower risk of an emergency department visit (RR 0.94, 95%CI 0.90-0.97), a 9% lower risk of hospitalization (RR 0.91, 95%CI 0.89-0.93), and a 13% lower risk of an in-hospital death (RR 0.87, 95%CI 0.86-0.89; 23% died in hospital). After March 14, 100,934 people received virtual end-of-life care, which was associated with a 34% higher risk of an emergency department visit (RR 1.34, 95%CI 1.31-1.37), a 27% high risk of hospitalization (RR 1.27, 95%CI 1.25- 1.29), and a 11% lower risk of an in-hospital death (RR 0.89, 95%CI 0.89-0.90; 27% died in hospital).

**Conclusions:** A health policy intervention incentivizing the use of virtual care may have increased acute healthcare use near the end-of-life, while maintaining the ability to die outside of hospital.

**Title of Work:** Filling a Communication Gap: Teaching Advance-Care-Planning skills in family medicine

**Investigator Name(s):** Warren Lewin, Joyce Nyhof-Young, Natalie Pulenzas, Stuart Murdoch, Batya Grundland, Camilla Zimmermann, and Paul Krueger.

**Presenter(s):** Natalie Pulenzas

**Background:** Advance Care Planning (ACP) is essential for high-quality care. Despite being in a position to initiate ACP, most family doctors do not, in part, because they received little evidence-based communication skills training. No national standard exists to teach these fundamental skills.

**Purpose:** We explored the serious illness communication (SIC) literature and the current state of teaching at the University of Toronto (UofT). Graduating UofT family medicine residents were surveyed to assess their preferences for teaching and feedback methods on this topic.

**Methods:** Online survey sent to graduating family medicine residents at UofT

**Results:** Survey completion rate was 60% (93/155) and it provided a description of current SIC teaching across 14 training sites. Most residents prefer direct observation and feedback and using a structured approach to learn how to lead serious-illness-conversations. Most were not taught such an approach and were not frequently observed and given feedback when leading these conversations.

**Conclusions:** This highlighted the importance of using an evidence-based approach to teaching communication skills to promote ACP conversations that can be adapted to any medical specialty. These tools should be incorporated into curriculum to improve high-quality care for an aging population. To fill this educational gap, we created two 20-minute e-learning modules introducing residents to an evidence-based structured conversation guide and empathic communication skills. >95% of residents recommended the material to peers and intend to change their practice. To further enhance training, we are conducting focus groups to further explore resident and faculty preferences for serious illness communication skills teaching.

**Title of Work:** Socio-political Forces Shaping EOL Conversations

**Investigator Name(s):** Celina Carter

**Presenter(s):** Celina Carter

There is growing emphasis for primary care clinicians to initiate and engage in end-of-life (EOL) conversations with medically frail older adults. However, EOL conversations happen most often when death is imminent or are avoided altogether. The objective of this study was to understand the socio-political forces shaping EOL conversations between clinicians, medically frail older adults and/or their care partners within an urban primary care setting, a Family Health Team in Ontario, Canada. We conducted an eight-month critical ethnography in 2019 involving observations and interviews of clinicians, patients, and care partners (n=35). Analyzing this data for discourses and power-knowledge systems we found that two discourses, frailty and 'more life' shape EOL conversations in this setting. 'More life' is the dominant discourse that disrupts EOL conversations by making it more difficult to talk about decline and dying as well as personal goals. The two power-knowledge systems contributing to 'more life' dominance are biomedicine and its clinical practice guidelines and the culture of life extension in the West. Improving EOL conversations is complex and requires addressing the power-knowledge systems that perpetuate 'more life' as well as a discursive shift towards prioritizing relationships and people's life worlds. This might require primary care as a specialty to critically reflect on the ways it is entrenched in a culture of care that valorizes 'more life' and (re)create clinical practice guidelines and evaluations to align with person-centredness. Future research should involve patients, care-partners, and interprofessional clinicians to co-create models of care that support ways of bringing a life to a close.



**Title of Work:** Exploring End-of-Life Decision-Making and the Experience of Care for Seriously Ill and Ethnoculturally Diverse Patients and their Families

**Investigator Name(s):**

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**Presenter(s):** Ayah Nayfeh

Among patients who have died in Ontario, people who have recently immigrated or who are ethnic minorities appear more likely to receive aggressive medical treatments in the last six months of life and more likely to die in intensive care units in comparison to other patients. It is not clear whether differences in healthcare are attributable to *diverse preferences* for end-of-life care, or whether there are *specific gaps/disparities* in the quality of care that may occur along the end-of-life trajectory.

This three-component PhD thesis aims to explore factors that influence the medical decision-making process and quality of care for family members of seriously ill patients from diverse ethnocultural

backgrounds. A survey-based analysis (project 1) found that satisfaction with quality-of-care at the end of life was lower among family members of Muslim patients who died at Sunnybrook Hospital or when there were language/communication barriers. A systematic review (project 2) identified several tools to support end-of-life decision-making with patients and families from racial/ethnic minority backgrounds, with impacts on documentation of end-of-life care plans and reduced preference for life-prolonging care. However, the impact of these tools on healthcare utilization and satisfaction with care remain uncertain. Complementary qualitative interviews (project 3) with family members of recently deceased Muslim patients who were admitted in ICU will provide an in-depth understanding of the medical decision-making process and perceptions of quality of care at the end of life.

**Title of Work:** Development and validation of clinical prediction tool to estimate 1-year mortality in hospitalized patients with dementia

**Investigator Name(s):** Michael Bonares, Stacey Fisher, Kieran Quinn, Kirsten Wentlandt, Peter Tanuseputro

**Presenter(s):** Michael Bonares

**Purpose:** Patients with dementia are frequently admitted to hospital. Prognostic uncertainty in this patient population may inform clinical care decisions during hospitalization, including whether or not to engage specialist palliative care services. Therefore, this study seeks to develop and validate an algorithm to predict 1-year mortality in hospitalized patients with dementia.

**Methods:** This study will use population-level health administrative data from Ontario to study a cohort of hospitalized patients with dementia between March 31<sup>st</sup>, 2009 and April 1<sup>st</sup>, 2019. Candidate predictor variables were selected a priori based on a literature review of existing models and on clinical expertise. The cohort will be divided into derivation and validation cohorts. Model development, including data cleaning, model specification, and model estimation, will be performed in the derivation cohort. Model performance, measured by predictive accuracy, discrimination, and calibration, will be assessed in the validation cohort.

**Results:** Among the 298,586 hospitalized patients with dementia, 34.7% died within 1 year of admission. Mean age was 83.6 years. Most patients were female (58.9%) and living at home without home care (67.2%). Most hospitalizations were urgent via ambulance (69.8%) and under the service of general internal medicine (66.4%). The remainder of the statistical analysis will be completed by Spring 2022.

**Importance:** Development of a clinical prediction tool that provides an accurate and personalized risk of 1-year mortality among hospitalized patients with dementia may increase access to specialist palliative care services, assist in the identification of eligible participants for clinical trials, and inform quality reporting for healthcare institutions and health policy.

**Title of Work:** What Don't We Know about Palliative Care for Persons with Multiple Sclerosis (MS)?

**Investigator Name(s):** U Ramanathan, P Tang, W Kim, D Rotstein, P Tanuseputro

**Presenter(s):** U Ramanathan

Project Purpose:

1. Describe receipt of palliative care by decedents with MS, in Ontario, in their last year of life. We will focus on identifying gaps in care or areas where care can be optimized (e.g., timing, intensity and location of care).
2. Identify the demographic (e.g., age, sex, income quintile, immigrant status/ethnicity) and clinical predictors (e.g. disease severity and progression, symptom burden) for persons with MS to receive palliative care. Does receipt of palliative care determine place of death for persons with MS?

Methods: This project will use retrospective, population-based, patient-level data held at ICES in Ontario. Deaths will be captured through the Registered Persons Database and cause of death through the Ontario Registrar General – Deaths database. Study population will include all Ontario decedents with evidence of MS prior to death, using a previously validated algorithm.

Importance: Current research is fragmented in that there are some studies on advanced care planning for persons with MS, and others assessing specific MS-Palliative care interventions. With the establishment of baseline gaps in care, including predictors of such gaps at the individual (e.g., patient characteristics, disease course) and system-level (e.g., involvement of neurology, health region resource availability) – more reliable evaluations of the effectiveness and cost-effectiveness of neuropalliative care interventions can be performed. Moreover, the study data can inform innovative service development opportunities such as an integrated outpatient MS neuropalliative care clinic that can provide advanced care planning, symptom management, and improvement of the dying experience for this population.

**Title of Work:** Perspectives of patients with metastatic lung cancer on symptom screening and patient-reported symptom trajectory data

**Investigator Name(s):** Emily Bryson, Amir H. Safavi, Victoria Delibasic, Frances C. Wright, Ambika Parmar, Natalie Coburn, Alexander V. Louie

**Presenter(s):** Emily Bryson

### **Purpose**

We explored the perspectives of patients with metastatic non-small cell lung cancer (mNSCLC) on symptom screening and patient-reported outcome (PRO) data regarding symptom trajectory through treatment and recovery.

### **Methods**

Ten patients with mNSCLC were selected through convenience sampling to participate in this qualitative study at a tertiary cancer centre. Participant and treatment information was collected through chart review. One-to-one semi-structured interviews were conducted by two investigators, audio recorded, and transcribed verbatim. Anonymized transcripts underwent inductive coding and thematic content analysis was performed.

### **Results**

Participants were 50% female with a median age of 68 years (56-77). Sixty percent of participants had smoking histories. Median time since diagnosis was 28.5 months (6-72).

Seven themes were identified:

- 1) Symptom screening is useful for symptom self-monitoring and disclosure to healthcare providers.
- 2) Screening tools are variably utilized by patients and providers.
- 3) Screening of additional quality-of-life domains (smoking stigma, sexual dysfunction, and financial toxicity) is desired.
- 4) Symptom trajectory PRO data provide reassurance and motivation to improve symptoms.
- 5) Symptom trajectory data should be disclosed after an oncologic treatment plan is developed.
- 6) Symptom trajectory data should be communicated in-person with patient education resources.
- 7) Communication of symptom trajectory data should include reassurance about symptom stabilization, acknowledgement of experience variability, and strategies to improve symptoms.

### **Conclusions**

Symptom screening tools require more standardized utilization and should include common quality of life concerns of patients with mNSCLC. Symptom trajectory PRO data should inform novel knowledge translation tools to satisfy an unmet need for patient education.

**Title of Work:** Specialist palliative care for patients with dementia admitted to hospital: a systematic review

**Investigator Name(s):** Ilana Birnbaum, Rawaa Olwi, Melissa, Li, and Michael Bonares

**Presenter(s):** Ilana Birnbaum & Rawaa Olwi

**Purpose:**

Improving quality of life of people living with dementia is a key objective in the 2019 Canadian National Dementia Strategy. Despite evidence supporting palliative care for people living with dementia and the high rates of hospitalization among this population, little is known about the specific role of inpatient palliative care. This systematic review explores the association between inpatient specialist palliative care intervention and outcomes among patients with dementia admitted to hospital.

**Methods:**

This systematic review will adhere to the PRISMA guidelines and the protocol was registered in PROSPERO (CRD42021279047). Four electronic data bases (CINAHL, Cochrane, Embase, Medline) were searched and 2,744 abstracts were identified meeting inclusion criteria. After removing duplications, 2,514 abstracts were included for review. Of the abstracts reviewed, 58 were included, with 32 remaining studies for full-text review after removing duplications. These articles are currently undergoing data extraction and quality appraisal using the EPHPP Quality Assessment Tool.

**Results:**

Based on a preliminary review of the articles, we anticipate being able to summarize the existing literature on the association between inpatient specialist palliative care and the following outcomes: length of stay, discharge destination, symptom management, quality of life, documentation of advance care planning and code status, healthcare costs, and healthcare utilization. Comparisons between studies may be limited by variability of interventions and poor quality of some studies.

**Conclusion:**

The results of this study will summarize any potential impacts of inpatient specialist palliative care on people living with dementia, and may substantiate increased utilization of this service.

**Title of Work:** The Role of ICAM1 in Tumor Associated Macrophages in Glioblastoma Under Hypoxia

**Investigator Name(s):** Gelareh Zadeh

**Presenter(s):** Kaviya Devaraja

**Purpose:** To determine if ICAM1 expression in tumor associated macrophages (TAMs) contributes to glioblastoma (GBM) tumorigenicity, uncover the mechanism of this behavior and if there are biological-sex related differences associated with its function in macrophages in order to develop new treatment methods that improve GBM patients' quality of life and overall survival.

**Methods:** Assess the expression of ICAM1 in primary and immortalized human and mouse macrophages under hypoxic conditions. Analyze the effect of silencing and over-expressing ICAM1 and ICAM1 deficiency on macrophage behavior, including migration, proliferation, phagocytosis, and adhesion to tumor cells. Examine how hypoxia regulates ICAM1 expression by examining the role of signaling pathways that are thought to regulate ICAM1 transcription. Lastly, I will use a commercially available ICAM1 knockout mouse model, and intracranially inject them with GBM tumor cells, followed by analysis of tumor growth, overall survival of the mice, and the composition of the tumor microenvironment in males and females by RNA sequencing and serial IHC using antibodies specific markers for macrophages, cell proliferation, angiogenesis, and apoptosis.

**Importance:** My proposed research project directly relates to the improvement of health in patients affected by GBM as by determining the role of ICAM1 expression in TAMs on GBM tumorigenicity, it can be targeted as a treatment method to lower the rate of tumor growth or its recurrence after treatment. In addition, by determining the sex-specific molecular differences between males and females we can design individualized treatment plans. These findings will ultimately increase the survival and quality-of-life of individuals suffering from GBM.

**Title of Work: Patient Screening and Resource Matching for Vulnerable patients**

**Investigator Name(s):** Mariam Omilabu, Alissa Tedesco, Kavita Algu, Evan Schneider, Paolo Mazzotta, Amy Clarke, Vivian Hung, and Allison Kurahashi

**Presenter(s):** Mariam Omilabu

Purpose: To improve the identification of patients and caregivers with specific socio-demographic needs in a palliative care (PC) context, and to improve healthcare providers' abilities to facilitate the resolution of the needs.

Background/Importance:

The social determinants of health (SDOH) are the societal factors that shape one's health. These include social inequities such as poverty, food insecurity and housing instability. These inequities are prevalent in Toronto, they can negatively impact health outcomes and complicate how people receive care.

PC providers strive to improve their patients' quality of life, which should include providing care responsive to social needs. However, the need must be identified first. Presently, screening and knowledge about supports for these needs are inconsistent at TLCPC and there are few tools available that screen multiple SDOH domains in a PC setting. Consequently, we are creating a tool to fill this gap.

Methods:

We are using a quality improvement (QI) approach to design and implement a novel screening tool. During phase 1, we reviewed literature and engaged stakeholders to identify SDOH screening questions and resources within the Toronto area. We assembled 10 questions across 8 domains, and corresponding resources, into a screening tool.

The second phase involves implementing the tool. We will use standard QI approaches, such as Plan-Do-Study-Act (PDSA) cycles, to: 1) engage internal and external stakeholders to understand existing practices and 2) test the screening tool with physicians and their patients. Using participant feedback, we will refine the tool and the implementation strategy to maximize potential for uptake.



**Title of Work:**

Palliative Care in Advanced Systemic Rheumatic Diseases: An Integrated Approach to the Management of Systemic Autoimmune and Connective Tissues Diseases at the End-of-Life

**Investigator Name(s):**

<sup>1</sup>Adam Amlani MD, <sup>2</sup>Kirsten Wentlandt MD PhD, <sup>3</sup>Alexandra P. Saltman MD

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**Presenter(s):** Alexandra Saltman

Despite advances in the field of rheumatology over the last 30 years, a patient population exists who suffer from chronic and debilitating connective tissue diseases, with a high symptom burden and limited life expectancy, despite optimal treatment of their underlying autoimmune rheumatic disease. These symptoms may be the result of long-standing disease, compounded at times by side effects of medical therapies, and may result in a symptom burden and level of functional impairment that is comparable to patients with advanced cancer. To date, only a small proportion of these patients are referred to palliative medicine, and, this is often very late in the disease course, even within the last days of life. In this paper, we describe common rheumatic diseases including their epidemiology, pathophysiology, symptoms, and treatment, and highlight important precautions, pharmacokinetics, and interactions among rheumatologic medications with commonly used therapies in palliative care. When approaching patients with rheumatological disease from a palliative care perspective, it is important to identify patients who would benefit from a palliative approach to care, and to consider a gradual introduction of this approach alongside disease-directed therapies. We advocate for clinicians to be mindful of patient preferences regarding symptom management and ongoing active medical care when making decisions regarding immunomodulatory disease-directed therapies and their potential interactions with symptomatic treatments. Further research is needed to best identify the needs of this underrecognized, high needs patient population, with a view to providing a holistic approach to care for those with life-limiting systemic rheumatic diseases.

Title of Work: Association between collaborative home-based palliative care and healthcare outcomes in adults who died with chronic heart failure: a matched cohort study

Investigator Name(s): Kieran L. Quinn MD PhD, Thérèse A. Stukel PhD, Erin Campos MD, Casandra Graham MD, Dio Kavalieratos PhD, Susanna Mak MD PhD, Leah Steinberg MD, Peter Tanuseputro MD MPH, Meltem Tuna PhD, Sarina R. Isenberg MA, PhD

Presenter(s): Kieran Quinn, Sarina Isenberg

Purpose: To measure the association of an innovative model of regionally organized collaborative home-based palliative care involving cardiology, primary and palliative care with location of death among adults who died with chronic heart failure.

Methods: A population-based matched cohort of 1417 adults who died with chronic heart failure (mean age 88.1 years, 55% female, median duration of heart failure 4.5 years) from two large health regions in Ontario, Canada were studied between 2013 and 2019. Linked electronic medical record and health administrative data were used to match individuals 1:5 on duration of heart failure, health region, death date, presence of dementia, and the propensity to receive palliative care based on age, sex, living arrangement, chronic conditions, and insertion of an implantable cardioverter defibrillator within 10 years of death.

Results: The 245 people who received regionally organized collaborative home-based palliative care had a 48% lower associated risk of dying in hospital (relative risk 52%; 95%CI 41 to 66%) compared to 1172 matched controls receiving usual care (hospital death: 28% [n=68] vs 69% [n=803];  $p < 0.01$ , number needed to treat=3). Additional benefits included higher rates of clinician home visits, longer times to first hospitalization, shorter hospital lengths of stay, and a higher number of days spent at home.

Conclusions: Adoption of a model of regionally organized collaborative home-based palliative care may improve end-of-life outcomes in people with chronic heart failure.

**Title of Work:** Reducing Emergency Department use for ambulatory oncology patients requiring palliative care: a quality improvement initiative

**Investigator Name(s):** Lise Huynh, Amy Nolen, Michael Bonares, Christine Lau, Fanchea Lau, Erika Freund, Sirine Dos Santos, Elaine Rapp

**Presenter(s):** Lise Huynh

*Purpose:* At the Odette Cancer Centre in Toronto, 1 in 5 ambulatory palliative oncology patients presents to our local Emergency Department (ED) every month. Of these visits, approximately 50% are potentially avoidable as they result in a direct discharge home, or in an acute care admission of  $\leq 48$  hours. For this population, ED visits are frustrating, costly and are considered an indicator of poor-quality end-of-life care. To improve end-of-life care for this vulnerable population, reducing ED visits is imperative.

*Methods:* We conducted an interrupted time series following the model for improvement with an aim to reduce the monthly ED visit rate for the patients of our oncology palliative care clinic by 20% over 1 year. A patient-informed root cause analysis was performed to guide the implementation of a bundle of three change concepts: (1) improving after-hours access to hospital and home care (2) increasing video virtual visits; and (3) enabling early identification of caregiver burnout.

*Results:* Monthly ED visit rates declined by 24% ( $p < 0.001$ ) with evidence of sustained improvement. The percentage of ED visits that resulted in a hospital admission of  $\leq 48$  hours remained unchanged. Fidelity was attained by the interventions associated with the first change concept.

*Conclusion:* Improving patients' after-hours access to hospital and home care was associated with a clinically and statistically significant reduction in ED visits. This is the first study in the palliative oncology population to implement patient-informed interventions to reduce ED use. The study occurred during the COVID-19 pandemic which constitutes a significant confounding factor. Continued evaluation post-pandemic will serve to better understand ongoing trends in ED use.

**Title of Work:** Fighting fires and battling the clock: theorizing resident approaches to advance care planning in family medicine

**Investigator Name(s):** Tavis Apramian, Olivia Virag, Erin Gallagher, Michelle Howard

**Presenter(s):** Tavis Apramian

**Purpose:** In this qualitative grounded theory study we explored family medicine residents' experiences engaging patients in advance care planning (ACP) to develop an empirically grounded rich description of educational experience.

**Method:** We collected semi-structured interviews (n=9), reflective memos (n=9), and auto-ethnographic fieldnotes (n=37) which we coded using the constant comparative approach of constructivist grounded theory. Ultimately, we used the coding framework to develop two composite descriptive narratives.

**Main findings:** Residents struggled to overcome logistical and cultural barriers to ACP and largely described their efforts using the language of struggle. Logistically, residents encountered a previously undescribed set of barriers unique to training that led them to request more targeted learning and teaching from their training programs. Culturally, they encountered avoidance of discussion of prognosis in progressive life-limiting illness. This avoidance led to reliance on off-service rotations in acute care to practice such conversations and, ultimately, to conflation of ACP conversations about values and illness understanding with conversations about goals of care and consent for invasive resuscitation measures.

**Conclusion:** Future family medicine ACP education research should consider testing interventions such as flexible clinic schedules, dedicated ACP time, deliberate observed practice, and structured teaching. Family medicine educators may wish to consider directly teaching residents and preceptors about crucial differences between ACP and goals of care discussions. Teaching residents to focus their ACP efforts on values and illness understanding rather than on resuscitative interventions could resolve the observed cultural avoidance of prognosis that appears to be limiting family medicine residents' attempts to engage in ACP.

**Title of Work:** Pediatric and adult cardiologists' and respirologists' beliefs about and referral practices to specialized palliative care

**Investigator Name(s):** Natalie Jewitt MD, MHSc, Kenneth Mah PhD, Michael Bonares MD, Kevin Weingarten MD, MHSc, Heather Ross, Reshma Amin MD, MSc, Conall Thomas Morgan MD, Camilla Zimmermann MD, PhD, Kirsten Wentlandt MD, PhD, MHSc

Presenter(s): **Natalie Jewitt**

**Background:** Children and adults with advanced cardiac or respiratory disease may benefit from specialized palliative care (SPC), but there has been relatively little SPC research in this area.

**Purpose:** To explore pediatric cardiologists' and respirologists' (PCRs') beliefs about and referral practices to SPC and compare these results to adult cardiologists and respirologists (ACRs)

**Methods:** PCRs and ACRs were sent a survey exploring SPC referral practices and beliefs. Responses were summarized with descriptive statistics. PCRs' and ACRs' responses were compared using Pearson's chi-square test.

**Results:** The response rate was 56.2% (989/1759); 8.8% (87/989) were PCRs. PCRs were more likely than ACRs to be younger ( $p=0.003$ ), female ( $p<0.001$ ), work in an academic centre ( $p<0.001$ ), and experience fewer patient deaths ( $p<0.001$ ). PCRs reported better access to most SPC disciplines ( $p<0.001$ ), while ACRs reported better access to palliative care units ( $p<0.001$ ). PCRs referred to SPC earlier, while ACRs were more likely to refer after disease directed therapies were stopped ( $p<0.001$ ). More than half of all CRs felt patients had negative perceptions of the phrase "palliative care". Although most CRs were satisfied with SPC quality (72.7-81.6%), fewer ACRs were satisfied with SPC availability (74.4 vs. 47.3%;  $p<0.001$ ). Fewer PCRs felt that SPC prioritized oncology patients (12.6 vs. 53.0%;  $p<0.001$ ).

**Conclusion:** There are important similarities and differences between PCRs and ACRs' beliefs about and referral practices to SPC. This may reflect unique features of pediatric diseases (e.g., prognosis), provider characteristics, care philosophies, or service availability.

**Title of Work:** Episodes of Critical Illness and Mortality among Children with Neurologic Impairment

**Investigator Name(s):** Katherine E. Nelson, Jingqin Zhu, James A. Feinstein, Joanna Thomson, Sanjay Mahant, Chris Feudtner, Kimberley Widger, Eleanor Pullenayegum, Vishu Chakravarti, Eyal Cohen

**Presenter(s):** Kate Nelson

**Purpose:** Children with neurologic impairment (NI) have high rates of admissions and readmissions to the pediatric intensive care unit (PICU). Critical care prognostic models provide mortality risk estimates during PICU admissions, but no studies describe survival after PICU discharge. The goal of this study was to describe survival after PICU discharge among children with NI to facilitate advanced care planning conversations.

**Methods:** We used linked health administrative data sources from ICES to identify children born between 2002 and 2019 with an ICD-10 code for NI on a hospitalization record prior to age 16. Included children had their first PICU admission between April 1, 2002 and March 31, 2020. Brief post-operative PICU visits were excluded. We analyzed survival from the discharge date of the first PICU visit stratified by age.

**Results:** 5233 children with NI were admitted to the PICU 9454 times. Most initial PICU admissions (55.6%) occurred during the child's first year of life. Almost half (46%) of PICU admissions included invasive mechanical ventilation. For children under age 1, 5-year survival after the first PICU discharge was ~75%, and it was ~80% for children over age 1, with most risk within one year.

**Conclusions:** Children with NI discharged from an initial PICU stay have a substantial 5-year mortality risk, which is greater for those under age 1. Estimations of mortality risk can help facilitate evidence-based goals of care conversations with families at the time of PICU discharge.

**Title of Work:** A Virtual Simulation-Based Communication Skills Workshop for Residents

**Investigator Name(s):** 1. Leora Branfield Day 2. Jalal Ebrahim 3. Rebecca Colman 4. Alexandra Saltman  
5. Jeffrey Myers 6. Leah Steinberg

**Presenter(s):** Leora Branfield Day, Jalal Ebrahim

**Purpose:**

Goals of care (GoC) and advanced care planning conversations are associated with higher quality care for patients with serious illness. Although trainees frequently lead these conversations, they report feeling unprepared and uncomfortable, desiring early direct observation and feedback to master patient-centered GoC communication skills.

**Methods:**

As palliative care and internal medicine physicians with expertise in teaching communication skills, we developed a series of 3-hour virtual communication simulation-based workshops for second-year internal medicine residents (n = 81). Workshops provided opportunities for virtual simulated practice of patient-centered communication skills (e.g., listening skills, exploring illness understanding, responding to emotions) derived from an evidence-based framework for leading GoC conversations. Prior to each workshop, residents completed preparatory exercises. During workshops, after a large-group session to review the framework and a set of communication skills, residents were split into small groups with 1-2 trained facilitators. Here, residents took turns engaging in one-on-one simulated conversation with either a facilitator or a standardized patient to practice specific communication skills, with frequent time-outs for immediate coaching. Facilitated debriefs then followed which included guided feedback and self- and group-reflection.

**Results and Conclusions:**

Resident evaluations were highly favourable. Residents strongly valued simulation-based practice in emotionally complex situations, and perceived a strong benefit of direct observation and real-time feedback from coaches and peers. Example feedback: "I thought it was so helpful to actually speak out loud and role play the scenarios." Learners described enhanced confidence and knowledge of patient-centered communication skills. Simulation-based virtual workshops may offer a novel way to teach patient-centered communication skills.

**Title of Work:** Impact of COVID-19 pandemic on the palliative care consult service at St. Joseph's Health Centre in Toronto (SJHC)

**Investigator Name(s):** Drs. Jacob Wong, Lucy Ni. Supervised by Dr. Jennifer Hopfner

**Presenter(s):** Jacob Wong, Lucy Ni

Pandemics, like mass casualty events, can cause a surge of medical demands that overwhelms the healthcare system. In particular, the palliative care service was uniquely affected by the COVID-19 pandemic given the need for end-of-life services in the context of rising COVID-19-related deaths. Interestingly, community based palliative care services reported increased clinical loads in Toronto, while inpatient services reported a decrease in clinical loads [1]. A similar trend was also noted in New York City [2]. Potential contributors to reduced inpatient palliative care could be the fear of visiting hospitals during a pandemic or reduced human resources due to staff redeployment, sick leave or COVID-19 specific work policies [3].

Palliative care is an important branch of family medicine, providing symptom management, supporting goals of care discussions, and supporting family members in difficult times. SJHC serves a diversity of patients, many of whom are from vulnerable populations, which may affect how readily these patients access the inpatient palliative care services during the pandemic. By learning about the trends of patient data during the pandemic and comparing it to pre-pandemic year, we can postulate possible reasons behind these trends, and make suggestions to the inpatient palliative team to improve patient care. We hypothesize that there is a decrease in palliative care consult, during the first wave of COVID-19 pandemic between Jan 1, 2020 to July 1, 2020, compared to pre-pandemic period Jan 1, 2019 to July 1, 2019. This is a retrospective chart review currently in progress, based on the patients who received Palliative Care inpatient consult at SJHC during the aforementioned time periods.

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**Title of Work:** Evaluation of Point of Care Ultrasound (POCUS) in the diagnosis and management of ascites in home-based palliative care

**Investigator Name(s):** Hershl (Hal) Berman, Marnie Howe, Vivian Hung, Joy Zeng, Desiree Vaz, Bhadra Lokuge, Natalie Parry, Zhimeng Jia, Jeff Myers

**Presenter(s):** *Hershl (Hal) Berman*

**Purpose:** Historically, home-based palliative care patients needing abdominal ultrasound to diagnose or manage ascites required either hospital transfer or the risk of a home procedure without imaging guidance. In 2016, the POCUS program within the Temmy Latner Centre for Palliative Care was established. This involved several physicians completing POCUS training and has become the standard of care for home-based patients with potential or confirmed ascites. The purpose of this study was to explore the impact of POCUS on patients spending healthy days at home.

**Methods:** For this retrospective open cohort study, all TLCPC patients requiring ultrasound for an ascites-related investigation or procedure within two 2-year timeframes (Pre-POCUS and POCUS) were compared. The primary outcome was the incidence rate of ascites-related days outside the home with secondary outcomes including procedural wait times and likelihood of death in preferred setting.

**Results:** This project is in its final phase of analysis, however inclusion criteria were met for 103 and 129 Pre-POCUS and POCUS patients in 2014/15 and 2019/20 respectively. Preliminary results show the rate of Pre-POCUS patients spending ascites-related days outside the home as twice that of POCUS patients. Additionally, wait times for an ascites-related procedure were three times longer for Pre-POCUS patients and POCUS patients were significantly more likely to die in their preferred care setting.

**Conclusions:** To our knowledge this is the first evidentiary report addressing the impact of a POCUS program for home-based palliative care patients. These findings can inform both future quality standards as well as prospective studies moving forward.

**Title of Work:** The Quality of End-of-Life Cancer Care and Its Relationship to Palliative Care and Place of Death in Mainland China

**Investigator Name(s):** Fei Yang, PhD(c), Anli Leng, PhD, Jun Jing, PhD, Richard Leiter, MD, MA, Rashmi K. Sharma, MD, MHS, Justin J. Sanders, MD, MSc, Eric Krakauer, MD, PhD, Zhimeng Jia, MD

**Presenter(s):** Zhimeng Jia

#### Background

Palliative care, hospice utilization and home deaths have been associated with higher quality of end-of-life care for patients with advanced cancer in Western countries. However, these associations in the setting of mainland China are unclear.

#### Purpose

To examine the relationship between palliative care or hospice utilization, place of death and quality of end-of-life cancer care in mainland China.

#### Methods

We conducted a survey of bereaved family caregivers who cared for 792 cancer decedents between July 2013 and August 2016. The survey asked: “Did the patient receive palliative or hospice care,” “What was the place of death,” and “Are you satisfied with the medical services that the patient received in the last three months of life?” Using multivariable logistic regression, adjusting for theory-defined covariates, we examined the association between care satisfaction with place of death and palliative care or hospice utilization.

#### Results

Most patients were male(67.2%), ≥60 years old(64.0%), married(82.2%), insured(94.8%), lived rurally(61.5%), lived with family(98.2%), earned below-average income(53.5%), diagnosed with gastrointestinal cancer(50.8%), had caregivers as primary decision-makers(70.6%), died at home(71.5%), and didn't receive palliative care(89.0%). Only 29.4% of respondents were “satisfied or very satisfied” with care. In multivariable analysis, palliative care or hospice utilization was independently associated with higher satisfaction with end-of-life medical care (adjusted odds ratio 4.53, 95%CI:2.71-7.57).

#### Conclusions

Despite its scarcity, palliative care predicted higher satisfaction with end-of-life cancer care. These findings suggest the need for improved palliative care access and to better understand the lived palliative care experiences of patients with advanced cancer in mainland China.

**Title of Work:** Improving Advance Care Planning for Patients Admitted to Cardiology with Congestive Heart Failure Exacerbations

**Investigator Name(s):** 1. Jalal Ebrahim 2. Jonathan Ailon

**Presenter(s):** Jalal Ebrahim

### **Purpose**

Congestive heart failure exacerbation (CHFe) is common and carries enormous symptom burden. Hospital admission portends a poor prognosis, however, literature demonstrates low rates of inpatient Advance Care Planning (ACP). We designed a simple, cost-effective, and reproducible intervention to enhance ACP documentation for patients admitted with CHFe.

### **Methods**

Interventions included: 1) Educational sessions for nurses and medical trainees, 2) Project champions (two nurse practitioners, one palliative care fellow), and 3) Educational materials for patients and clinicians. Our sample included all patients admitted for CHFe under cardiology at St. Michael's Hospital. We measured outcomes through comprehensive chart review comparing: 1) Four-weeks baseline, 2) Four-weeks intra-intervention, and 3) Four-weeks post-intervention with removal of active interventions for three months. Our primary outcome was rate of documented discussions around ACP. Our secondary outcome was rate of undocumented code status.

### **Results**

Sample size was 51 patients. Documented ACP rates were 32% (6/19) at baseline, 60% (9/15) intra-intervention, and 35% (6/17) post-intervention. Undocumented code status rates were 32% (6/19) at baseline, 20% (3/15) intra-intervention, and 0% (0/17) post-intervention. Feedback revealed positive experiences using clinician materials. Barriers included lack of time to deliver materials, fear of reducing patients' hope, and a culture focused on 'fixing'.

### **Conclusions**

Our intervention improved rates of ACP and code status documentation for patients admitted with CHFe. However, there was not sustained benefit without active interventions in place. Feedback suggests an ongoing need for cultural shifts. Next steps include further relationship building and weekly joint patient rounds (Cardiology and Palliative Care) as a supplemental intervention.

**Title of Work:** Anticoagulant use and associated outcomes in older patients receiving home palliative care: a retrospective cohort study

**Investigator Name(s):** Nicolas Chin-Yee, Tara Gomes, Peter Tanuseputro, Robert Talarico, Andreas Laupacis

**Presenter(s):** Nicolas Chin-Yee

**Purpose:** We aimed to characterize anticoagulant use in older home palliative care recipients, and describe characteristics and outcomes associated with anticoagulant discontinuation in this group.

**Methods:** We conducted a population-based cohort study of home palliative care recipients  $\geq 66$  years old in Ontario from 2010-2019 using linked administrative health databases. The prevalence of anticoagulant use was calculated. Among patients taking anticoagulants, we studied patient and provider factors associated with discontinuation after initiation of home palliative care by multilevel logistic regression. We used cause-specific hazards models to study subsequent thrombosis, bleeding, and mortality, and multivariable logistic regression to study location of death associated with anticoagulant discontinuation.

**Results:** Of 98,089 older adults who initiated home palliative care from 2010-2018, 15.5% were taking anticoagulants. Neither baseline comorbidity nor indications for therapeutic anticoagulation were associated with discontinuation. Discontinuation was associated with similar rates of thrombosis (hazard ratio [HR] 1.06, 95% confidence interval [CI] 0.81-1.39), lower rates of bleeding (HR 0.75, 95% CI 0.62-0.90), increased mortality (HR 1.35, 95% CI 1.28-1.42), and a higher likelihood of a home death (odds ratio 1.22, 95% CI 1.09-1.36).

**Conclusions:** In home palliative care, anticoagulant use is common and discontinuation may be influenced by physician and/or patient preference rather than comorbidity. Lower rates of bleeding without an elevated risk of thrombosis and higher likelihood of death at home are potential benefits to discontinuation. Increased mortality among those who discontinued may be explained by selection bias related to anticipated prognosis. Whether anticoagulants can be safely discontinued in this population requires further study.

**Title of Work:** Evaluating the impact of a health navigator on improving access to care and addressing the social needs of palliative care patients experiencing homelessness in Toronto, Ontario

**Investigator Name(s):** Lilian Robinson MD MSc, Leeann Trevors MSW, Alissa Tedesco, Donna Spaner, Trevor Morey MD CCFP, Naheed Dosani MD CCFP(PC)

**Presenter(s):** Lilian Robinson

*Background:* Health navigators are healthcare professionals who specialize in care coordination, case management, navigating transitions, and reducing barriers to care. There is limited literature on the impact of health navigators on community-based palliative care people experiencing homelessness.

*Aim:* In July 2020, the Palliative Education and Care for the Homeless program in Toronto, Ontario created a new health navigator position. We devised key performance indicators (KPIs) in nine categories to quantify the impact of a health navigator on the delivery of palliative care to structurally vulnerable populations.

*Design:* Data were collected prospectively for all patient encounters from July 2020-21 and reviewed to determine total events per KPI. KPIs were also designated as outcome or working measures and categorized according to frequency of completion. Impact was measured using three methodologies to construct a data story.

*Results:* KPIs achieved most often represented 5 key areas of the health navigator role, including (1) facilitating access (2) coordinating care (3) addressing the social determinants of health (4) advocating for patients, and (5) counselling patients and their loved ones. The health navigator role was split evenly between activities pertaining to palliative care for structurally vulnerable populations and general community-based palliative care. To achieve high impact outcomes, a considerable investment of time and energy was required of the health navigator, speaking to the importance of adequate and sustainable funding for equity-oriented community-based palliative care.

*Conclusions:* These findings underscore the potential for a health navigator to add value to community-based palliative care teams, especially those caring for structurally vulnerable populations.

**Title of Work:** Clinical Outcomes of an Integrated Palliative Care and Psychiatry Clinic for Adolescents and Young Adults Cancer Patients

**Investigator Name(s):** Dr. Mohamed Abdelaal, Dr. Pamela Mosher, Dr. Ahmed Al-Awamer

**Presenter(s):** Dr. Mohamed Abdelaal

### **Importance and Purpose**

Adolescents and young adults (AYA) with cancer experience a high level of distress and have unique unmet palliative and supportive care needs. Clinical guidelines aimed at cancer care for the AYA group (aged 15-39 years) encourage early integration of palliative care. Yet, there are scarce data about symptom burden, quality of life and the type of care that AYA patients receive at Princess Margaret Cancer Center. This research project aims to explore the palliative and end-of-life care needs for AYA patients with advanced cancer and the type of care they receive.

### **Methods**

In this retrospective study, we conducted chart review for all AYA patients who were referred to the Integrated AYA Palliative Care and Psychiatry Clinic at the Princess Margaret Cancer Centre between May 2017 and November 2019. Socio-demographic characteristics, symptoms prevalence, and intensity of medical care at end-of-life were collected. Descriptive analysis of continuous and categorical variables, and longitudinal analysis of the pattern of symptoms scores change over time were performed.

### **Results**

Of the 69 patients seen during the study period, sarcoma was the most common cancer type. More than 80% of the patients had at least one symptom scored as moderate to severe. Tiredness, pain, and insomnia were the highest scored symptoms. Symptom scores have improved in 61% of the patients after the first clinic visit. Median time between clinic referral and end-of-life was 5 months.

### **Conclusion**

A collaborative approach between palliative care and psychiatry at our center has demonstrated promising results in improving symptom burden and end-of-life care for the AYA population. Further research is needed to explore areas for improvement of the current model, and promote early palliative care referrals among this age group.

**Title of Work:** Intranasal Ketamine for Depression in Patients with Cancer Receiving Palliative Care (INKeD-PC): A Phase II, Open-label Clinical Trial

**Investigator Name(s):**

Madeline Li, Joshua Rosenblat, Camilla Zimmermann, Gary Rodin, Roger McIntyre, Breffni Hannon, John Bryson, Ernie Mak, Christian Schulz-Quach, Froukje deVries, Zoe Doyle, Aida Al Kindy

**Presenter(s):** Madeline Li

**Purpose:** Ketamine has been shown to have rapid and robust antidepressant effects, however, has yet to be adequately evaluated in palliative care. Our objective was to evaluate intranasal ketamine for depression in palliative care.

**Methods:** We conducted an open label pilot trial to evaluate the feasibility, safety and antidepressant efficacy of intranasal ketamine for major depression in participants with terminal cancer. Participants received three doses of intranasal ketamine (escalating, flexible dose 50-150mg) over a one-week period. The primary outcome was change in depression severity as measured by the Montgomery-Åsberg Depression Rating Scale (MADRS) comparing baseline to the day 8 primary endpoint.

**Results:** Twenty participants were enrolled from 2018-2021. The mean MADRS score decreased from the 31 at baseline to 11 at the day 8 primary endpoint (mean reduction 20; standard deviation 8;  $p < 0.00001$ ). Day 8 response criteria (MADRS decrease  $>50\%$ ) was met by 14/20 participants (70%) with remission criteria (MADRS  $<10$ ) met by 9/20 (45%). The day 14 mean MADRS score was still significantly lower than mean baseline MADRS (baseline = 31 versus day 14 = 14;  $p < 0.0001$ ), suggesting that antidepressant effects may have been partially sustained 7 days after the last ketamine dose. The all-cause dropout rate before the primary day 8 endpoint was 4/20 (20%) with no serious adverse events observed.

**Conclusions:** Intranasal ketamine was associated with rapid, robust and partially sustained antidepressant effects with adequate tolerability. Therefore, evaluating intranasal ketamine for depression in patients with terminal cancer in a larger, randomized, placebo-controlled trial is merited.

**Title of Work:** A Longitudinal Study of Medical Assistance in Dying (MAiD): Family Caregiver Relationships

**Investigator Name(s):**

Athena Li<sup>1</sup>  
Anne Barbeau<sup>1</sup>  
Jennifer A.H. Bell<sup>1,2,4</sup>  
Kyle Fitzgibbon<sup>1</sup>  
Cassandra Graham<sup>1,5</sup>  
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Roberta Y. Klein<sup>1</sup>  
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**Presenter(s):** Athena Li

**Purpose:** Little is known about the dyadic relationship between the desire for death (DD) in patients with advanced cancer and their family caregivers. This longitudinal study is designed to determine the prevalence, predictors, and experience of DD and requests for Medical Assistance in Dying (MAiD) in patients with advanced cancer and their primary caregivers.

**Methods:** In this CIHR-funded 5-year study, a cohort of 600 patients with advanced cancer and their primary caregivers are being recruited at the Princess Margaret Cancer Centre in Toronto, Canada, to a mixed methods study. Participants are assessed at baseline and every 6 months for medical, psychological and physical variables, the desire for death (DD), and attitudes about MAiD. Caregivers are additionally assessed for relationship quality and caregiving experience. Preliminary results of quantitative baseline data are reported.



**Results:** To date, 42 caregivers have consented to participate in the study. Baseline data is available for 28 participants, with a mean age of 61 years. 76% are Caucasian, 62% are female, and 61% identify as Christian. Baseline data is available for 26 patient-caregiver dyads to date. Among dyads, 50% of the patients would consider MAiD for themselves; dyadic relationships with caregiver depression, attachment style, marital satisfaction, social support, religiosity and caregiving experience will be analyzed.

**Conclusions:** The findings from this study will shed light on the relationships between caregiver relational variables and patient's DD and attitudes about MAiD. Findings may also assist in guiding supportive care interventions for caregivers of patients with advanced cancer.

**Title of Work:** A Longitudinal Study of Medical Assistance in Dying (MAiD) in Patients with Advanced Cancer

**Investigator Name(s):**

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**Presenter(s):** Robin Graham

**Purpose:** This longitudinal study is designed to determine the prevalence, predictors, and experience of the desire for death (DD) and MAiD in patients with advanced cancer.

**Methods:** In this CIHR-funded 5-year study (CIHR #PJT 15946; Co-Principal Investigators: Madeline Li, Gary Rodin), a cohort of 600 patients with advanced cancer are being recruited at the Princess Margaret Cancer Centre in Toronto, Canada, to a mixed methods study. Patients are assessed at baseline and every 6 months for medical status, quality of life, physical and psychological distress, attitudes about the DD and MAiD, communication with physicians, advance care planning, and use of psychosocial and palliative care interventions. Preliminary results of quantitative baseline data are reported.

**Results:** To date 109 patients have consented to participate in the study, with baseline data available for 64 patient participants. Patients are 87% Caucasian, 62% female, 74% married, and 57% university

educated. 62% have received mental health services. Overall, 49% of the sample reported MAiD is something they would consider for themselves and 63% of the sample reported it is appropriate for healthcare providers to raise the topic of MAiD, while 20% of the sample had discussed MAiD with their healthcare provider. We will examine relationships between attitudes toward MAiD and distress outcomes.

**Conclusions:** Preliminary data from this study suggest normalization of interest in MAiD among patients with advanced cancer. These findings may assist healthcare providers in their initial conversations with patients about MAiD.

Title of Work: A comparison of palliative care practices for patients dying of COVID-19: A multi-site retrospective chart review.

Investigator Name(s): Madelaine Baetz-Dougan, Jennifer Guan, Blair Henry, Kalli Stilos, Desmond Leung, Niren Shetty, Shruti Gupta, Anita Chakraborty

Presenter(s): Anita Chakraborty

**Purpose:** COVID-19 is associated with high rates of morbidity and mortality. Previous work has described symptom management provided by specialists in palliative care for COVID-19 patients. However, there is a paucity of literature describing the primary palliative symptom management provided by general internal medicine and hospitalist teams in this population. Our aim with this research and subsequent learning objectives are: 1) to describe and compare symptom management by acute care providers and palliative care specialists, and 2) to describe patterns of palliative care consultation across institutions.

**Methods:** We undertook a retrospective chart review of 45 adult inpatients diagnosed with COVID-19 between January 23, 2020 to May 19, 2020 who died, and/or were referred for palliative care consultation at two acute care hospitals in a large urban centre.

**Results:** Pharmacologic symptom management was not significantly different between primary and specialist palliative providers with respect to shortness of breath and agitation. Most consultations were for end-of-life care. There were significantly more palliative care consults for COVID-19 patients at one hospital ( $p=.001$ ). These results are compared to historical patterns of referral sources at each institution which is postulated to be a major driver of this finding.

**Conclusions:** The findings highlight the significant discrepancy in involvement of specialist palliative care between institutions for patients dying of COVID-19. However, symptom management from an internal medicine perspective was not significantly different from patients managed by palliative care specialists. More research is needed to understand the practices and needs of primary palliative care providers during pandemics.

**Title of Work:** Evaluating the quality of end-of-life care at a private hospital in Mexico City: a retrospective observational study.

**Investigator Name(s):** Alejandra Ruiz Buenrostro, Jorge Guajardo Rosas, Moises Mercado Atri, Alain Sanchez Rodriguez, Regina Villalobos Alanis, Carla Valenzuela Ripoll, Alonso Gonzalez Ares, Alejandro Guillermo Gallegos Tejeda

**Presenter(s):** Alejandra Ruiz Buenrostro

**Purpose:** To evaluate the quality of end-of-life (EOL) care in our Cancer Institute.

**Methods:** We performed a retrospective analysis of electronic medical charts of all patients with cancer who died at Centro Medico ABC Observatorio between January 2015 and February 2018. Quality of cancer care indicators were calculated for the use of chemotherapy during the last 14 days of life, emergency room (ER) visits, intensive care unit (ICU) admissions, prolonged hospitalizations, cardiopulmonary resuscitation (CPR), and the use of invasive or non-invasive ventilation (NIV) within the last month of life.

**Importance:** Timely cessation of chemotherapy and life-sustaining treatment is essential to avoid harm and provide quality care to patients with advanced cancer.

**Results:** 243 patients were included. Sixty-seven patients (27.6%) received chemotherapy in the last 14 days of life. The ECOG performance status was 3 in 38.8% and 4 in 16.4% of patients. During the last 30 days of life, 37 patients (14.5%) had two or more ER visits, 106 patients (43%) were admitted to the ICU, of whom 75 (30.9%) died there. Seventy-one patients (29.2%) had prolonged hospitalizations, 60 patients (24.7%) received invasive ventilation, 69 (28.4 %) NIV, and 23 patients (9.5%) underwent CPR.

**Conclusions:** According to proposed indicators of quality of cancer care, we are providing overly aggressive EOL care to patients with advanced cancer. Adopting an early palliative care approach could avoid unnecessary harm to patients and improve the quality of EOL care in our health care system.

**Title of Work:** An Interprofessional Longitudinal Wellness Curriculum to Build Resiliency and Find Joy in Work During and Beyond the COVID-19 pandemic

**Investigator Name(s):** Warren Lewin, MD, CCFP (PC); Daphna Grossman, MD, CCFP (PC); Rabbi Rena Arshinoff, PhD, RP; Kanae Kinoshita, MA, RP

**Presenter(s):** Warren Lewin

#### Introduction and purpose

Burnout is a psychological syndrome affecting over 50% of the clinician workforce, leading to job dissatisfaction, workplace turnover, and increased clinician error. Strategies to prevent burnout are critical among palliative care providers.

#### Methods

Canadian local and national postgraduate burnout/wellness core competencies were used to revamp a year-long Palliative Care postgraduate wellness curriculum at the University of Toronto during COVID-19. Learners were introduced to theory as well as practical tools to implement in their daily practice. The course included a virtual trip to the Art Gallery of Ontario to enhance observation, reflection and communication skills.

#### Results

23 learners have completed the course to date; 14 have completed anonymous surveys (5 males and 9 females). All reported greater comfort recognizing signs of burnout following course completion, and would recommend it to future learners. A majority (93%) agreed that the course provided them with enhanced skills to manage burnout, and skills to assist with managing pandemic-related stressors at work and at home. The open and protected learning environment, situated outside of clinical work, and the opportunity to link with a formal 'buddy' for additional support, were valued.

#### Conclusion

Relentless clinical and pandemic-related demands highlight an urgent need to equip palliative care providers with skills to prevent burnout. Novel longitudinal curricula appear to be beneficial and can likely also be adapted to promote learner and faculty wellness. Measuring course participant burnout and exploring patient- and system-level impact is needed.

**Title of Work:** Developing a “palliative rehabilitation” approach to support young adults living with advanced cancer

**Investigator Name(s):** Jonathan Avery, Kristin Campbell, Pamela Mosher, Ahmed Al-Awamer, Karen Goddard, Annemarie Edwards, Laura Burnett, Breffni Hannon, Abha Gupta, Fuchsia Howard

**Presenter(s):** Jonathan Avery

**Objective/purpose:** Adolescent and young adults (defined as individuals between the ages of 15-39 years of age) are a group who experience unique challenges when diagnosed with advanced/incurable cancer. The purpose of this study is to design an evidence-based model of care that combines palliative care with rehabilitation to address the unique needs of this population.

**Method:** To design the model, the social constructivist grounded theory approach was chosen to interview AYAs diagnosed with advanced/incurable cancer (phase 1) and 15 healthcare providers/decision-makers/administrators involved in AYA care (phase 2). The World Health Organization’s International Classification of Disability and Health was chosen as conceptual frameworks to guide the data collection and analysis of this work.

**Results:** A sample of 25 AYAs (age range 22 – 39 years; 19 women, 6 men) with varying types of cancer participated in phase 1. The AYAs described living with an advanced cancer as oscillating between two points: 1) accepting the uncertain but incurable nature of their disease; 2) having a glimmer of hope of living with no evidence of disease for periods of time. Oscillating between acceptance and hope was described as living in a liminal space wherein it was difficult to make sense of their circumstance. Slowing the back and forth by enhancing timely access to palliative care, rehabilitation, and mental health support helped AYAs adapt and live meaningfully from one day to the next.

**Conclusions/clinical implications:** These results will be taken into phase 2 to understand how to incorporate these results into clinical practice.

**Title of Work:** Preliminary Evaluation of the Double Awareness Scale (DAS) in Patients with Advanced Cancer Receiving Outpatient Palliative Care

**Investigator Name(s):** Melissa Miljanovski, Athena Li, Breffni Hannon, Camilla Zimmermann, Gary Rodin

**Presenter(s):** Melissa Miljanovski

**Purpose:** Individuals with advanced cancer are challenged with remaining meaningfully engaged in life, while also preparing for end-of-life. Sustaining this duality, or “double awareness,” may reflect optimal psychological adaptation, but no validated measure exists. The aim of this study was to conduct a preliminary evaluation of a novel measure of double awareness, the Double Awareness Scale (DAS).

**Methods:** 143 patients with advanced cancer were recruited from an outpatient palliative care clinic. Self-reported measures assessed double awareness and related constructs. Exploratory factor analysis, tests of construct validity, and internal consistency (Cronbach’s alpha) were performed.

**Results:** The items of the DAS loaded onto two domains, **Life Engagement** ( $\alpha=0.89$ ) and **Death Contemplation** ( $\alpha=0.74$ ). The first domain was comprised of two subdomains, **Joy/Connection** (9 items;  $\alpha=0.86$ ) and **Apathy/Life Constriction** (9 items;  $\alpha=0.84$ ). The second was also comprised of two subdomains, **Legacy Remembrance** (4 items;  $\alpha=0.74$ ) and **Death-related Thoughts** (6 items;  $\alpha=0.80$ ). **Life Engagement** demonstrated convergent validity with quality of life (QUAL-EC;  $r=0.60$ ) and life completion (QUAL-EC Subscale;  $r=0.60$ ), but not with satisfaction with life (SWLS;  $r=0.47$ ). **Death Contemplation** demonstrated discriminant validity with death anxiety (DADDS;  $r=-0.25$ ) but did not show convergent validity with preparation for end-of-life (QUAL-EC Subscale;  $r=0.40$ ).

**Conclusion:** The results of this preliminary evaluation of the DAS are promising and formal validity testing will be conducted with the complete dataset ( $n \geq 200$ ). A validated measure of double awareness would be of value to assess psychological adaptation to advanced cancer and to determine the responsiveness of this capacity to therapeutic interventions.



**Title of Work:** Role of Ensure Protein Max on Calorie and Protein Intake, Appetite, and Body Weight in Patients with Advanced Cancer Receiving Chemotherapy

**Investigator Name(s):** Donny Li, Martin Chasen, Ravi Bhargava, Liliana Astorino, Rupdiner Deol, Deepanjali Kaushik

**Presenter(s):** Donny Li

### **Introduction/Purpose**

People with cancer are at a higher risk of malnutrition compared with the rest of the population. Therefore, this study investigates the effects of Ensure Protein Max supplementation for patients with advanced cancer receiving chemotherapy.

### **Methods**

This was a pilot, prospective, single-center, open-label feasibility study. Patients with a metastatic cancer, Karnofsky performance status of > 40%, and ability to drink Ensure orally were included. Patients with brain metastases or weight loss of > 10% in the preceding 3 months were excluded. Ensure was given in 235 mL portions twice daily for 90 days—appetite and symptoms were measured using the Patient Generated Subjective Global Assessment (PG-SGA) and Edmonton Symptom Assessment Scale (ESAS). Calorie and protein intake were measured using the 24-Hour Dietary Recall Assessment.

### **Results**

Of the recruited patients (n=29), 20 were male and 9 were female, with the most common diagnosis being lung cancer (n=12). 20 participants dropped out before the 90-day conclusion most commonly due to disease progression (n=9). Compared to baseline, patients after 90 days experienced reduced nutritional intervention needs and symptoms in tiredness, depression, anxiety, appetite, and well-being ( $p < 0.01$ ). Patients also experienced an increase in daily protein intake from 51.14 g at baseline to 123.55 g ( $p < 0.05$ ) and total body weight from 63.77 kg to 64.54 kg ( $p < 0.05$ ).

### **Conclusions**

Overall, patients with advanced cancer taking Ensure Protein Max over the 90-day trial experienced fewer symptoms related to cancer, improved physical functions, increased protein intake, and improved appetite and total body weight.

**Title of Work:** Understanding gender and depressive symptoms in patients with advanced cancer

**Investigator Name(s):** Gilla K. Shapiro, Kenneth Mah, Froukje De Vries, Madeline Li, Sarah Hales, & Gary Rodin.

**Presenter(s):** Gilla K. Shapiro

**Purpose:** Patients with advanced cancer commonly report depressive symptoms. Examinations of gender differences in depressive symptoms in patients with advanced cancer has yielded inconsistent findings. This work investigates whether the presence and correlates of depressive symptoms differ by gender.

**Methods:** Patients with advanced cancer were recruited from outpatient oncology clinics at a comprehensive cancer center for a psychotherapy trial. Patients completed measures assessing sociodemographic and medical characteristics, disease burden, and psychosocial factors (including the Death and Dying Distress Scale, Demoralization Scale, Quality of Life at the End of Life Cancer Scale, and Patient Health Questionnaire-9). A cross-sectional analysis examined the univariate and multivariate relationships between gender and depressive symptoms.

**Results:** 305 patients were included in the data analysis (40% men and 60% women). There were no significant difference between depressive symptoms in men ( $M=7.09$ ,  $SD=4.59$ ) and women ( $M=7.66$ ,  $SD=5.01$ ),  $t(303)=1.01$ ,  $p=.314$ . Women were significantly more likely to report greater death anxiety, dysphoria, and disheartenment; and less likely to report feeling prepared for the end of life (all  $p<0.05$ ). Older age, severity of cancer symptoms, death anxiety, and feeling like a failure were associated with depressive symptoms in men, while greater disheartenment and worse physical functioning were associated with total depressive symptoms in women.

**Conclusions:** Women with advanced cancer are not more likely than men to report depressive symptoms but the pathways to depression may differ by gender. These differences suggest the potential for gender-based preventive and therapeutic interventions in this population.

**Title of Work:** Correlation between the efficacy of hemodialysis and quality of life in patients with chronic kidney disease in ABC Medical center in Mexico City.

**Investigator Name(s):** Sofia Canales Albarrán, Fernando Magaña Campos

**Presenter(s):** Sofia Canales Albarran

***Purpose:***

Chronic kidney disease (CKD) is a public health issue worldwide and survival of this population is only possible due to dialysis or kidney transplant. Since renal replacement therapies (RRT) became available, the “correct dose” of dialysis continues to be studied. A Kt/V (measure for quantifying dialysis adequacy) value of >1.2 correlates to better outcomes. With this study we aimed to find the correlation between an adequate dose of hemodialysis and quality of life (QOL).

***Methods:***

Cross-sectional, prospective study, in a single center that included all adult patients, who received RRT for >6 months, with capacity to answer the QOL questionnaires (EQ-5D-3L, KDQOL-36, BDI-II, CCI) and informed consent. Kt/V was calculated. The correlation between clinical, laboratory parameters and QOL was performed by Pearson correlation coefficient.

***Results:***

We included 37 patients, mean age of  $70.8 \pm 13.7$ . No correlation observed between all the QOL sub-scores, depression scores and Kt/V scores. Multivariate analyses by linear regression and binary logistic regression did not reveal independent predictive factors from metabolic variables, dialysis or clinical history.

***Conclusions:***

Variables related to QOL and depression have little correlation with clinical laboratory variables. It could be because they refer to different dimensions of a patient's assessment and because the goals/priorities of patients and physicians sometimes differ. We corroborated that depression is an under-diagnosed entity in this population. We suggest a comprehensive assessment of patients including a routine evaluation of QOL and factors associated with depression.

**Title of Work:** Measuring Impact of Palliative Care Intervention in Patients with Advanced Heart Failure Living with Ventricular Assist Devices (VADs)

**Investigator Name(s):** Michael Shin, Rachel Nimmo, Darshan Brahmbhatt, Filio Billia, Kirsten Wentlandt (supervisor).

**Presenter(s):** Dr. Michael Shin, MD, FRCPC Internal Medicine, Palliative Care Fellow, University of Toronto

**Purpose:** To describe the characteristics, interventions and outcomes for patients seen at the Toronto General Hospital (TGH) VAD Palliative Care Clinic (VPCC), including those receiving VAD as destination therapy (DT) or bridge-to-transplant (BTT). Measurement of impact will include evaluating change in symptom burden over time, functional status and patient outcomes (eg, declining VAD implantation, progression to heart transplant, ongoing VAD support, death). In cases of death, the location and cause of death (including intentional withdrawal of VAD support) will be identified and compared with prior advance care planning discussions (general and VAD-specific).

**Methods:** In this single-center, retrospective cohort study, we reviewed the charts of patients with advanced heart failure who attended the VAD Palliative Care Clinic (VPCC) at the University Health Network over a 6-year period (October 2015 to January 2022). Patient characteristics (eg, patient demographics, VAD pump type, VAD indication and heart failure diagnosis), details on the palliative care (PC) interventions (eg, the number of PC assessments, whether they occurred pre- or post-VAD implantation, ESAS and PPS scores, as well as documentation of advance care planning discussions, both general and VAD-specific) and patient outcomes were all documented.

**Results:** Based on preliminary review of the data, this retrospective study did not identify a statistically significant change in symptom burden over time (as measured by the ESAS). There was limited follow-up data and wide variability in symptoms pre- and post-VAD and after VAD complications. In those who died, a small but significant proportion of patients received end-of-life care consistent with their expressed wishes (including intentional withdrawal of VAD support).

**Conclusions:** Our study has several limitations. The retrospective study design does not allow definitive conclusions about cause and effect; as an exploratory study, multiple comparisons and end-points were evaluated. Nonetheless, the results support and may inform randomized trials to further evaluate the effects of palliative care in patients with advanced heart failure living with ventricular assist devices (VADs).

**Title of Work:** Referrals to an Inpatient Palliative Care Consultation Team Before and During the COVID-19 Pandemic

**Investigator Name(s):** Kelly McGuigan, Brenda O'Connor, Sofia Canales Albarran, Breffni Hannon

**Presenter(s):** Dr. Brenda O'Connor

**Purpose:**

The COVID-19 pandemic was declared by the World Health Organisation on March 11<sup>th</sup>, 2020. Patients with advanced cancer were identified as a high-risk group. Significant changes were made to cancer care at the Princess Margaret Cancer Centre (PM) to minimise risk. In 2020, there was a surge in referrals to the PM palliative care inpatient consultation service, which was a likely consequence of the pandemic. This study aims to quantify the impact of COVID-19 on the consultation service.

**Methods:**

We conducted a retrospective review of all consultation referrals over two time periods: March 1<sup>st</sup>-August 31<sup>st</sup> 2020, the initial 6 months period of the pandemic, compared to March 1<sup>st</sup>-August 31<sup>st</sup> 2019. Data collected includes demographics, length of stay, time to palliative care referral and patient outcomes.

Descriptive statistics will be calculated. Patient characteristics and discharge outcomes will be compared using the Mc Nemar-Bowker test and the Wilcoxon-signed rank test. Logistic regression will assess factors associated with patient outcomes.

**Results:**

Data collection is ongoing.

**Conclusions/Importance:**

This study represents one of the first to explore the impact of the pandemic on an inpatient palliative care consultation service not providing care directly to patients with COVID-19. It will highlight the magnitude of the impact of the COVID-19 pandemic on the care of cancer patients. Locally, the findings will inform program expansion and highlight potential areas for further formal integration with admitting teams. The findings may also be useful more broadly for the development and expansion of palliative care consultation services elsewhere.

**Title of Work:** Use of Artificial intelligence in Palliative Care: A Review

**Investigator Name(s):** Arun Ghoshal, Shenhab Zaig, Ahmed Al-Awamer, Brenda O'Connor, Breffni Hannon, Benjamin Haibe-Kains, Camilla Zimmermann

**Presenter(s):** Arun Ghoshal

**Introduction:** Artificial intelligence (AI) has an application to palliative care, particularly machine learning (self-improving algorithms) and natural language processing (analysis of text and spoken words). There has been no systematic review of research regarding AI and palliative care.

**Methods:** PRISMA guidelines were followed to systematically search literature from 6 databases (EMBASE, MEDLINE, PsychINFO, Web-of-science, SCOPUS, Cochrane) from inception to 28/2/2022. *Palliative care* and *Artificial intelligence* were used as broad terms; keywords were *palliative*, *machine learning*, *deep learning*, *neural network(s)*, *natural language processing*. Peer reviewed articles in English were selected; abstracts/grey literature were excluded.

**Results:** The search identified 528 citations; 44 were selected for full text review (in progress). Of these, 35 were original research, 5 reviews, and 4 opinion articles. Fourteen (32%) included only cancer, 8 (18%) non-cancer (e.g., COPD, CHF, dementia, diabetes), 11 (25%) both, and 11 (25%) did not specify. Twenty-seven (61%) used machine learning and 16 (36%) natural language processing. Studies using machine learning focused on survival prediction (11/44, 25%); improving access to palliative care (5/44, 11%), symptom trajectories (2/44, 9%), following palliative care best-practices (2/44, 9%), or combinations of these (10/44, 24%); studies using natural language processing focused on goals-of-care understanding (8/44, 18%), serious illness conversations (3/44, 7%), or aiding decision-making (3/44, 7%).

**Conclusion:** One third of the studies were in oncology and most used machine learning to predict survival or natural language processing to analyze conversations about end-of-life planning. Given the relatively small number of studies, further research in this area is warranted.

