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HEALTH DISPARITIES

Current Challenges & Future Directions

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ATTITUDES AND DIFFERENCES BETWEEN PATIENTS WITH CANCER AND NON-CANCER PATIENTS ON ADVANCE DIRECTIVES

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Background: Advance directives (AD) enable healthcare professionals to ascertain patient preferences for care both legally and ethically (1). These directives need to be made jointly by well-informed, competent patients and physicians. Studies have shown that advanced care planning increases the utilization of hospice and palliative care, and results in better compliance with patients' end-of-life wishes [reviewed in (2)]. Even then, the rate of completion of AD is very low and physician involvement is minimal. *Aim:* To explore the attitudes of the hospitalized patients regarding AD and to understand the factors affecting completion of AD. *Materials and Methods:* Thirty patients with cancer and 30 patients without cancer, admitted to the hospital for medical reasons were randomly selected. A questionnaire was administered to ascertain their attitude towards and completion of AD. Patients with dementia, encephalopathy of any etiology, or if determined to be medically incompetent, were excluded from the study. *Results:* A total of 18/30 patients with cancer and only 10/30 without cancer had AD. Only a small percentage of cancer patients (16%) recalled that a physician-patient discussion was held on AD. The majority of patients completed AD on their own initiative with their family and friends. While 93% of patients with cancer had knowledge regarding AD, only 66% in those without cancer had similar knowledge. In both groups, 50% of patients who did not have AD expressed interest in finishing them during their hospital stay. A discussion was made with these patients regarding the importance of AD and social services was involved to facilitate the process. *Conclusion:* Patients with cancer are more likely to have knowledge about AD, despite minimal physician involvement. Moreover, they are more likely to complete AD. A commonly misunderstood perception among physicians is that discussing AD is a taboo topic. Considering that a large proportion of patients are interested in making AD, more resources if allocated could result in good outcomes. As phase two of this project, we are working on a multi-disciplinary approach to improve patient outcomes.

1 Wang CW, Chan CLW and Chow AYM: Social workers' involvement in advance care planning: a systematic narrative review. *BMC Palliat Care* 17: 5, 2017.

2 Brinkman-Stoppelenburg A, Rietjens JA and van der Heide A: The effects of advance care planning on end-of-life care: a systematic review. *Palliat Med* 28: 1000-1025, 2014.

SPOT ON CML

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Background: Chronic myeloid leukemia (CML) is a myeloproliferative disorder with an incidence of 1-2/100,000 that appears to be constant across geography and ethnicities. The breakpoint cluster region-Abelson murine leukemia gene translocation (BCR-ABL), the tyrosine kinase resulting from the t(9;22) characteristic of CML, is also the target of a new family of drugs (tyrosine kinase inhibitors) that have dramatically improved outcomes of patients with CML. The identification of BCR-ABL is necessary for the diagnosis of CML, but this testing is frequently unavailable in developing countries. *Materials and Methods:* Our group developed and published a low-cost method that allows the diagnosis of CML from dried blood spots (DBS) weeks (even months) after the blood is placed on filter paper, thus allowing specimens to travel across the globe in regular mail. In September 2017, we launched the SPOT on CML program, a collaboration between the Fred Hutchinson Cancer Research Center, The Max Foundation, Cepheid, and the International CML Foundation to provide this low-cost paper test diagnosis for CML for patients. DBS are distributed overseas by Max, and returned to our laboratory by mail. If BCR-ABL is detected, the patient obtains treatment free of charge *via* the Max foundation. *Results:* Since the start of the program in September, we have received specimens for 66 patients from seven institutions in six countries (Tajikistan, Uganda, Nigeria, Cambodia, Timor Leste, and Mongolia). More than 100 additional cards have been distributed to physicians in eight countries for testing (Tajikistan, Mongolia, Burkina Faso, Cote d'Ivoire, Timor Leste, Fiji, Madagascar, Niger). All specimens received thus far have been adequate for analysis. Of the 63 specimens p210 BCR-ABL testing was performed on, 54 were positive (86%) with BCR-ABL ranging from 0.0023 to 110%. *Conclusion:* Our method and collaborative model supplies the molecular testing for CML diagnosis needed to access tyrosine kinase inhibitors in developing countries.

THE VIRTUAL TUMOR BOARD OF THE FUTURE: A REVIEW OF A PROMISING NEW TECHNOLOGY FOR BETTER ENABLING REMOTE CLINICAL COLLABORATION

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Background: Virtual tumor boards, which allow providers to discuss cancer cases remotely using IT, have been shown to increase quality of patient care. Most virtual tumor boards utilize ubiquitous video-conferencing or chat technologies such as WhatsApp that were not designed for clinical effectiveness and use. We share an implementation of an emerging new mobile Electronic Medical Record (EMR) product and its implementation in a well-documented rural cancer care delivery model spanning four states in India. **Materials and Methods:** Relay is a smartphone-based EMR and clinical collaboration tool developed by Invoq Health Inc. It lets providers quickly input patient case information – notes, photos of records, pathology, and radiology – and lets them asynchronously communicate about these cases with other providers remotely in a chat-like interface, storing and forwarding their queries and notes. In mid-March 2018, Relay will be implemented in Dr. Pendharkar's rural oncology mission, where he and two other oncologists in Mumbai provide 10,000+ remote oncology consultations through a network of 125 trained doctors in government hospitals across the Indian states of Madhya Pradesh, Odisha, and Himachal Pradesh in one year. This system, previously based on WhatsApp, will be beta tested with eight doctors, and then deployed to all 125 doctors in Dr. Pendharkar's network for all oncology case discussions. **Results:** Pilot test data in April from the 125 doctors and three oncologists using the app are presented. We report about the time needed for patient record retrieval, overall participation, number of patient data points reviewed, participation in case learning, and quality of case learning. **Conclusion:** Relay shows early promise as a platform for clinical collaboration and information sharing for remote consultations and tumor boards. As methods of collecting more structured data are incorporated into future versions, more tools that reduce the oncologist's review time and increase quality of consultation can be implemented, such as clinical decision support, clinical trial enrollment, and workflows and checklists based on national guidelines.

USING EFFECTIVE WEB-BASED TOOLS TO ADDRESS CANCER HEALTHCARE DISPARITIES

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Background: Most of the World's patients with cancer live in the non-English-speaking world. However, there is a lack of authentic web-based cancer informational tools in languages other than English, especially in low- and middle-income countries. With increasing access to the Internet, there is an emergent need to democratize health information in native languages. The senior author was sensitive to this unmet need and created a comprehensive cancer website in Malayalam, a language spoken by more than 35 million people (www.keralacancercare.com). The steps in creating the web resource are described and data provided on its use across various web and social media platforms. **Materials and Methods:** The senior author produced educational video sessions and cancer literature in Malayalam language. The website has three main sections – Cancer Basics, Cancer A-Z and Cancer FAQs. The Cancer Basics section contains basic cancer information such as types of malignancies, definitions, staging, symptoms, risk factors, diagnostic tests and screening. It also included sections on treatment modalities, treatment side-effects and information on cancer risk reduction, genetics and prevention. The Cancer A-Z section contains instructional videos on major cancer types. Cancer FAQs addressed common cancer myths and questions. A social-media profile along with contact information through e-mail service was also launched. The total cost incurred for development of such a web-based tool with presence on social media was less than 1,500 USD. **Results:** Since the launch of the web resource in May 2017, the website has now been accessed by more than 5,000 unique visitors from 84 countries. More than 50 cancer-related questions have been addressed since the launch. The web views of some of the brief informational videos such as 'How to reduce risk for cancer' total more than 150,000 in social-media pages. **Conclusion:** Creating authentic cancer informational web-based tools will have an immediate impact on addressing cancer healthcare disparities around the world. National and regional cancer societies must foster and encourage creation of novel healthcare informational tools that can truly democratize and empower people.

A SMALL GRANTS PROGRAM TO ADDRESS HEALTH DISPARITIES IN WASHINGTON STATE

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Background: In community-based participatory research used to address health disparities in community settings, all entities (researchers, organizational representatives, and community members) are equitably involved in all aspects of the research project. This approach builds on a community's strengths and facilitates co-learning across entities. *Materials and Methods:* The Fred Hutchinson Cancer Research Center (Fred Hutch) Health Disparities Research Program (HDRC) began a small Community Grants Program in 2014. The program offers a two-day grant-writing workshop for representatives from community-based organizations (CBOs), which are then matched with a Fred Hutch mentor to develop a grant proposal to address an identified need in the community. A Request for Applications invites applications from CBOs for innovative projects to address and potentially improve health disparities among underserved populations in Washington State. *Results:* Representatives from 21 different CBOs have participated in grant-writing training. Fred Hutch has funded 14 small grants since 2014. Grant awards have ranged from \$2,500 to \$7,500 for 1-year projects. CBOs have implemented projects with different communities in the state, including African-American women, American Indians, Asians (Chinese, Korean, and Vietnamese), faith-based African-American community organizations, Hispanics/Latinos, Lesbian, Gay, Bisexual, Transgender, and Queer community organizations, and a Somali immigrant group. Projects have included needs assessments, intervention work, adaptation of evidence-based programs, and evaluation of existing programs, and samples of these are discussed. *Conclusion:* The Community Grants Program has strengthened relationships between Fred Hutch's HDRC with CBOs serving diverse racial, ethnic and underserved communities in Washington State. These efforts can enhance each organization's abilities to plan, develop, disseminate and evaluate culturally appropriate, evidence-informed programs that are tailored to meet the specific needs and expectations of diverse, racial, ethnic, and underserved communities. Involving communities in solving their own problems can expand the implementation of interventions that address overall health disparities.

INCREASED COST OF TREATMENT OF PATIENTS WITH ACUTE MYELOID LEUKEMIA IN NEPAL AFTER THE 2015 EARTHQUAKE

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Background: On April 25 2015, Nepal experienced a violent earthquake that caused major destruction and close to 9,000 deaths. In this study, the impact of the earthquake on Nepalese patients newly diagnosed with acute myeloid leukemia (AML) was analyzed. *Materials and Methods:* A retrospective study was designed of 18 consecutive patients diagnosed with AML at the Civil Service Hospital in Kathmandu within 60 days from the earthquake and, as controls, 22 cases diagnosed with AML at the same hospital in the 2 months prior to the earthquake. The two groups were compared for patient characteristics, incidence of lung infections and cost of treatment. *Results:* The median age of the 18 patients (six females and 12 males) diagnosed with AML after the earthquake was 33 (range=18-72) years and was comparable to that of 22 patients (11 males and 11 females) diagnosed before the earthquake [median age=34 (range=16-59) years]. Of the 18 patients diagnosed after the earthquake, 13 (72%) presented with respiratory symptoms and lung nodules detected by computed tomographic scan, radiologically consistent with fungal infections. In the pre-earthquake group, in contrast, only 3/22 patients (14%) presented with lung nodules at diagnosis ($p=0.0002$). Patients were treated with an empirical antifungal treatment with amphotericin B and intravenous lipids as previously described (1) due to unaffordable cost of standard antifungal agents. The cost of standard chemotherapy was \$2,500. However, in 15 patients, post-earthquake treatment of lung infection caused a 6-week delay of standard chemotherapy and the use of 5-azacytidine treatment to temporarily control leukemia; this led to an additional cost of \$3,000/patient. *Conclusion:* The 2015 earthquake significantly increased the risk of lung infection in patients diagnosed with acute leukemia in Nepal. Additional chemotherapy while treating infections caused a huge financial burden on patients and their families.

1 Poudyal BS, Gyawali B, Sapkota B, Tuladhar S, Shrestha GS and Rondelli D: Antifungal prophylaxis with amphotericin B deoxycholate emulsified in lipids for acute myeloid leukemia patients treated in low economy countries. *Leuk Lymphoma* 57: 474-476, 2016.

MINORITY EQUITY AND RECRUITMENT INTO TRIALS PROGRAM: SELF-ASSESSMENT OF DISEASE-SPECIFIC CANCER CLINICAL TRIAL RECRUITMENT PATTERNS AT A COMPREHENSIVE CANCER CENTER

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Background: Cancer disparities research has largely focused on access to care, treatment, and outcomes. Disparities based on race/ethnicity in clinical trial (CT) participation are less well understood. In the era of precision medicine, CTs require a larger number of racially/ethnically diverse patients in order to be able to identify distinct molecular and genetic profiles. The goal of this study was to examine the demographic accrual patterns in cancer CTs at an academic cancer center. **Materials and Methods:** A retrospective

analysis from 2010-2014 of demographic data of cancer cases per year was performed from: i) the central California Cancer Registry; ii) new patients ('analytic cases') identified in the University of California, San Francisco (UCSF) cancer registry; and (iii) the UCSF Clinical Trials Management System database. The Catchment Area for the center was prospectively defined, and patients from this region comprised 98% of all cancer cases seen at UCSF. Descriptive statistics were applied to characterize CT accruals for patients with cancer relative to cases in our Catchment Area based on race/ethnicity and disease group. **Results:** Overall, there were 332,677 new cancer cases of all types in the Catchment Area, of which 20,305 were patients at UCSF, and 3,580 enrolled in a cancer CT. The distribution of patients by ethnicity/minority status and disease group are summarized in Table I. **Discussion:** The distribution of minority accruals to cancer CTs conducted at one academic cancer center may not reflect overall accruals to all CTs. At UCSF, the proportion of Latinos and African Americans in cancer CTs was slightly lower than the proportion of UCSF patients. Enrollment of minorities varies by disease group. These results suggest that tailored, disease-specific interventions are required to achieve equitable CT recruitment.

Table I. Comparison of Helen Diller Family Comprehensive Cancer Center catchment area, cancer patients, and participants in therapeutic clinical trials by race/ethnicity – selected disease group 2010-2014.

Disease group	Race	Catchment area (cancer patients)	Cancer patients	Participants in clinical trials
Breast		n=52304	n=1910	n=609
	White	65.6%	67.9%	72.2%
	African American	5.8%	5.3%	3.6%
	Asian	14.2%	18.3%	16.3%
	Latino	13.0%	7.5%	7.4%
	Other	1.5%	1.0%	0.5%
Prostate		n=37129	n=2883	n=590
	White	65.4%	78.5%	80.7%
	African American	8.4%	6.3%	6.1%
	Asian	9.1%	8.1%	7.8%
	Latino	12.5%	5.4%	4.4%
	Other	4.6%	1.8%	1.0%
Gastrointestinal		n=62295	n=3377	n=2825
	White	60.1%	58.5%	64.3%
	African American	6.7%	6.2%	5.3%
	Asian	15.8%	19.6%	20.0%
	Latino	15.8%	13.1%	7.6%
	Other	1.6%	2.5%	2.7%
Central nervous system		n=4887	n=1025	n=514
	White	67.3%	75.4%	77.4%
	African American	3.7%	2.9%	1.8%
	Asian	11.3%	9.8%	9.5%
	Latino	16.3%	11.2%	9.7%
	Other	1.4%	0.7%	1.6%

IMPROVING THE LUNG CANCER SCREENING RATE IN AN INTERNAL MEDICINE CLINIC: A QUALITY-IMPROVEMENT PROJECT

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Background: The 2011 National Lung Screening Trial (1) established low-dose computed tomography (LDCT) as a screening method to reduce mortality in lung cancer, and the United States Preventive Services Task Force (USPSTF) began to recommend screening with LDCT in 2013. Despite a mortality benefit and clear recommendations, screening rates are low across the nation. Of 6.8 million smokers eligible for lung cancer screening in 2015, only 262,700 patients received screening (2). Poor lung cancer screening rates were identified as an area for quality improvement in the internal medicine resident clinic and we aimed to increase the lung cancer screening rate in this setting by 25%. **Materials and Methods:** The baseline screening rate was established and potential reasons for low screening rates were determined. Targeted interventions were implemented in a step-wise fashion following the Plan-Do-Study-Act (PDSA) approach to quality improvement. **Results:** The screening rate for 1 month prior to intervention was found to be 0/21. Potential reasons for low screening were lack of physician and patient knowledge, lack of built-in reminders in the electronic health record (EHR), and the novelty of lung cancer screening. Two consecutive interventions targeted physician knowledge gaps and failure to incorporate into routine practice. Intervention 1: Education. Lung cancer screening according to USPSTF guidelines was reviewed with all providers in the internal medicine resident clinic. This resulted in a 16.7% screening rate (4/24), increased from the baseline of 0%. Intervention 2: Screening Prompts. Daily, patient-specific reminders were sent to providers who had eligible patients scheduled that day. This resulted in a screening rate of 68.2% (15/22) during this PDSA cycle. **Conclusion:** This quality-improvement project served to raise awareness among providers of missed screening opportunities. A marginal increase in screening was seen after provider education, but patient-specific reminders to the provider on the day of the patient visit dramatically increased screening and led to built-in EHR reminders.

1 National Lung Screening Trial Research Team, Aberle DR, Adams AM, Berg CD, Black WC, Clapp JD, Fagerstrom RM, Gareen IF, Gatsonis C, Marcus PM and Sicks JD: Reduced lung-cancer mortality with low-dose computed tomographic screening. *N Engl J Med* 365: 395-409, 2011.

2 Jemal A and Fedewa SA: Lung cancer screening with low-dose computed tomography in the United States – 2010-2015. *JAMA Oncol* 3: 1278, 2017.

REDUCING INAPPROPRIATE RASBURICASE USE TO PROMOTE COST-EFFECTIVE CARE

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Background: Rasburicase is the preferred treatment of hyperuricemia in patients with tumor lysis syndrome (TLS) and those at high-risk for TLS. However, its overuse commonly leads to increased cost of care. **Materials and Methods:** The process of ordering rasburicase and its prescription patterns at our safety net hospital between October 2015-September 2017 were reviewed. Pertinent laboratory data and clinical documentation were reviewed to determine appropriate vs. inappropriate use based on internally approved indications (laboratory TLS, intermediate-or high-risk for TLS, acute kidney injury and hyperuricemia). Quality-improvement interventions were implemented to improve ordering patterns. **Results:** Sixty-five patients received ≥ 1 rasburicase dose during the study period. Rasburicase was deemed inappropriate in 21 patients (32.3%). Ordering providers included oncologists (23 patients, 35%), hospitalist physicians (16 patients, 25%), critical care physicians (11 patients, 17%), emergency medicine staff (8 patients, 12%), and others (7 patients, 11%). A high percentage of hospital and emergency medicine orders were inappropriate, at 50% and 25%, respectively. Ordering process review identified several pitfalls. Providers were not required to review the approved indications listed in the electronic order. Any provider could order rasburicase and a secondary review by pharmacy was not required prior to administration. Thus, we proposed a best practice advisory alert requiring providers to select an indication from the approved list in the electronic order and limited ordering to oncologists. Other providers required approval from oncology. A mandatory secondary review by pharmacy prior to dispensing the medication was implemented. **Conclusion:** All providers are responsible for reduction of costs of care, and critical appraisal of medical interventions can lead to significant cost saving nationally. One-third of rasburicase orders were inappropriate at our hospital, leading to unnecessary costs. Simple electronic medical record interventions have been implemented to improve ordering patterns. The impact of these interventions will be assessed periodically to improve rasburicase utilization.

A MIXED-METHODS STUDY OF STEM CELL TRANSPLANT UTILIZATION FOR NEWLY-DIAGNOSED MULTIPLE MYELOMA

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Background: Patients of racial and ethnic minority groups have lower utilization of autologous hematopoietic stem cell transplantation (AHSCT) for multiple myeloma (MM). It is unclear if this is due to access barriers, differences in health, bias in referral for AHSCT on part of clinicians, or a greater propensity to decline the procedure. *Patients and Methods:* The study included all patients referred to our institution for newly-diagnosed MM in 2015. Quantitative approaches were utilized to determine if a patient met institutional eligibility for AHSCT, whether or not he/she underwent the procedure, and the reasons why for those that did not. All patients meeting eligibility but did not undergo the procedure were recruited for semi-structured interviews that focused on the decision-making in regards to AHSCT. *Results:* Two hundred and six patients were included in the analysis of which 63% (n=129) underwent AHSCT. Of the 77 who did not, only 30% (n=23) declined the procedure, the rest were ineligible due to advanced age, health conditions, or other reasons. However, 26% of AA patients refused the procedure compared to 13% of whites. Eleven of the patients who declined AHSCT were interviewed. Three central themes emerged regarding AHSCT utilization: (1) unclear gains of AHSCT versus standard chemotherapy, (2) possible toxicity and disruption in quality of life, and (3) the sense that transplant was not suggested for them specifically, rather it was “the routine”; we coined this theme “impersonalized medicine”. *Conclusion:* Over a 12-month period at a high-volume regional transplant center, only 15% of patients eligible for AHSCT declined the procedure. Several themes were identified among the reasons why patients reported they declined the procedure, many of which may be clinically actionable. The underutilization of transplant among minority patients with MM may in part reflect a higher rate of refU.S.A.I.

RACE IS NOT A BARRIER TO REFERRAL FOR HEMATOLOGIC MALIGNANCIES: AN ANALYSIS OF A SINGLE NCI COMPREHENSIVE CANCER CENTER

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Background: Most National Cancer Institute-Designated Cancer Centers (NCI-CCs) are located in large urban areas. Therefore, members of racial minorities, who are more likely to live in these areas, have greater access proximally but, almost paradoxically, NCI-CC attendance is lower among members of racial minorities. *Materials and Methods:* We compared the number of referrals to Barnes Jewish Hospital and the Siteman Cancer Center (SCC), a NCI-CC located in St. Louis MO, for adults (≥ 25 years) with leukemia, lymphoma, or myeloma with the incidence of these cancers in the greater St. Louis area from the Missouri Cancer Registry from 2009-2013. *Results:* A total of 3,959 cases of leukemia, lymphoma, and myeloma were reported to the Missouri Cancer Registry in 2009-2013 for the greater St. Louis area; 1,072 patients from the area were diagnosed at SCC during that period, thus, we estimate the referral rate was 27% overall. The referral rate for Caucasian patients was estimated to be 24% compared to 36% for African-American patients ($p < 0.0001$). African-Americans had 53% increased odds of being referred (OR=1.53, 95% CI=1.28-1.82; $p < 0.0001$) after controlling for county of residence to approximate distance to SCC. Patients residing within St. Louis City were 76% more likely to be referred (OR=1.76, 95% CI=1.45-2.13; $p < 0.0001$) than those living in surrounding areas. *Conclusion:* At the SCC, we observed a higher rate of referral for African-American patients with leukemia, lymphoma, or myeloma. Our center implemented a Program for the Elimination of Cancer Disparities (PECaD) in 2003 which has led numerous outreach efforts toward the local African-American community. These efforts may have contributed to the equitable representation of African-American patients at our facility.

DISPARITIES IN HEALTHCARE RESOURCE UTILIZATION FOR MULTIPLE MYELOMA

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Background: African-Americans (AA) with multiple myeloma (MM) are more like to be un-or undertreated. At the population level this results in poorer outcomes despite favorable disease biology. It is currently unknown if racial disparities in resource utilization exist in patients that receive similar treatment. *Materials and Methods:* All MM cases from 2007-2013 in the SEER-Medicare were reviewed along with their corresponding claims data through 2014. We excluded cases not enrolled in Medicare Part A, B, and D; HMO enrollees; and those diagnosed prior to age 65 years. Eleven patients who did not receive bortezomib, thalidomide, or lenalidomide within 6 months or those who died within

12 months of MM diagnosis were also excluded to create an homogenous cohort. All reported medical costs including both those paid by Medicare and patient copays for the first 12 months post-diagnosis were captured and adjusted for inflation. *Results:* A total of 2,915 cases were included in the analysis. The median age was 74 years at diagnosis, 52% were male, 79% White, 14% AA, and 7% another race. The estimated median OS was 48 months (95% CI=46-50 months); race was not associated with survival. The median expenditure was \$127,977 in the 12 months post-MM diagnosis. After controlling for age, gender, Medicaid enrollment, and previously established algorithms that approximate performance status and comorbidities, patients who were AA used \$12,764 less in overall expenditures ($p<0.001$) and had 10 fewer days of interaction with the medical system ($p<0.001$) on average; however, the length of inpatient stays were similar. *Conclusion:* AA patients with MM receive fewer resources during the 12 months post-diagnosis. It is currently unclear if this is due to inferior care among AA patients, overuse among white patients, or related to the clinical needs of the patients.

THE BINAYTARA FOUNDATION'S PARTNERSHIP WITH LOCAL HEALTHCARE PROVIDERS IN NEPAL TO ESTABLISH HOSPICE AND PALLIATIVE CARE SERVICES

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Background: According to WHO, in developing countries, the proportion of patients with cancer requiring palliative care is at least 80%. Access to hospice and palliative care is limited in Nepal. Several factors including lack of trained healthcare providers, lack of financial resources, and limited awareness about hospice and palliative care are barriers to expanding hospice and palliative care services. We describe Binaytara Foundation's (BTF) experience in establishing hospice and palliative care program in Janakpur, a city in the southern plains of Nepal. *Materials and Methods:* Janakpur has a population of approximately 170,000. The BTF, a US-based non-profit organization, partnered with local healthcare providers to establish a hospice and palliative care program. A local physician was identified as the project leader. The physician completed online hospice and palliative care training in management of pain, symptom control and communication. The training was sponsored by the (BTF) through its membership with Center to Advance Palliative Care. The physician then trained two non-physician healthcare providers (HCPs) and included them in the team. *Results:* The hospice and palliative care program was launched in July 2017. By September 2017, 15 patients

had been enrolled. The service is provided free of charge to the patients and their families. The BTF pays for the physician/healthcare provider visits. In order to improve awareness about the service, BTF organized the first hospice and palliative care conference in Janakpur. The conference was attended by approximately 50 physicians. BTF uses other strategies such as social media, and lectures to improve awareness about hospice/palliative care among HCPs and general public. *Conclusion:* Partnership models may be utilized to improve access to hospice and palliative care in low-income countries such as Nepal. Our model helps with capacity building, and improvement in awareness about hospice/palliative care among healthcare professionals and general public.

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INVESTIGATION OF SELECTED QUALITY INDICATOR DATA OF GASTRIC AND COLORECTAL CANCERS IN THE COLOMBIAN NATIONAL HEALTH SYSTEM IN COMPARISON TO THE U.S.

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Background: The Colombian Office of High Cost (Cuenta de Cuesto, CAC in Spanish) created a National Administrative Cancer Registry (NACR) to obtain comprehensive quality indicator data to guide Colombian cancer healthcare delivery (1). We investigated selected NACR data on gastric cancer (GC) and colorectal cancer (CRC) in comparison to similar studies in the U.S. *Materials and Method:* We obtained NACR data compiled from the Department of Health Ministry in Colombia regarding GC and CRC from 2014-2015 aggregated by the CAC. *Results:* Data showed a prevalence of 12.5 cases per 100,000 people for GC and a prevalence of 21.2 cases per 100,000 for CRC. The median number of days from clinical suspicion to diagnosis was 47 for 1,562 patients with GC (IQR=23-93) and 47 for 1,969 patients with CRC (IQR=22-95). The median number of days from diagnosis to surgery was 37 in those with GC (IQR=22-66) and 47 in those with CRC (IQR=24-102). National Cancer Data in the U.S. in 2003-2005 of 1,443 hospitals showed the median number of days from diagnosis to surgery at the same hospital was 12 (IQR=4-25) and 21

(IQR=12-33) at a different hospital for colon cancer and the median number of days from diagnosis to surgery at the same hospital was 19 (IQR=8-35) and 31(IQR=19-49) at a different hospital for GC (2). In total, 54.4% of patients with GC (n=850) and 52.7% of those with CRC (n=1,038) received chemotherapy. In comparison, a recent study using the IMS Oncology Database showed that 44.6% of 5,257 registered patients with GC in the U.S. were documented as receiving chemotherapy between 2004-2012 (3). *Conclusion:* Initial NACR comparisons with studies from the U.S. show similar rates of chemotherapy treatment, but a slower efficiency of delivery. More long-term comprehensive data collection nationwide needs to be performed. This model of data collection serves as a promising example for other developing countries to help control cancer burden.

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SCREENING OF ANXIETY AND DEPRESSIVE SYMPTOMS USING STANDARDIZED SCREENING TOOLS IN ONCOLOGY PATIENTS

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Background: Psychiatric comorbidities, including depression are commonly seen in patients with cancer (1). Depression and anxiety can be associated with poor compliance with medical treatment, therefore leading to increased mortality in cancer patients. Studies have reported increased risk of self-harm and suicide especially in first few months of cancer diagnosis (2). There is no general consensus in choosing psychiatric screening tool in patients with cancer. The PHQ9 (Patient Health Questionnaire) and GAD7 (Generalized Anxiety Disorder) scales are commonly used screening tools in clinical research. Several institutions such as The Guthrie Clinic use the National Comprehensive Cancer Network (NCCN) provided list of symptom and wellbeing scale. In this quality-improvement project, patients newly diagnosed with malignancy and scheduled for chemotherapy were identified and GAD7 and PHQ9 scales were obtained through questionnaire before and after the chemotherapy sessions (3, 4). The objective of the study was to determine the benefits of using these scales over the NCCN distress scale. *Materials and Methods:* During the study period (October to December 2017), 52 oncology patients newly diagnosed with cancer and

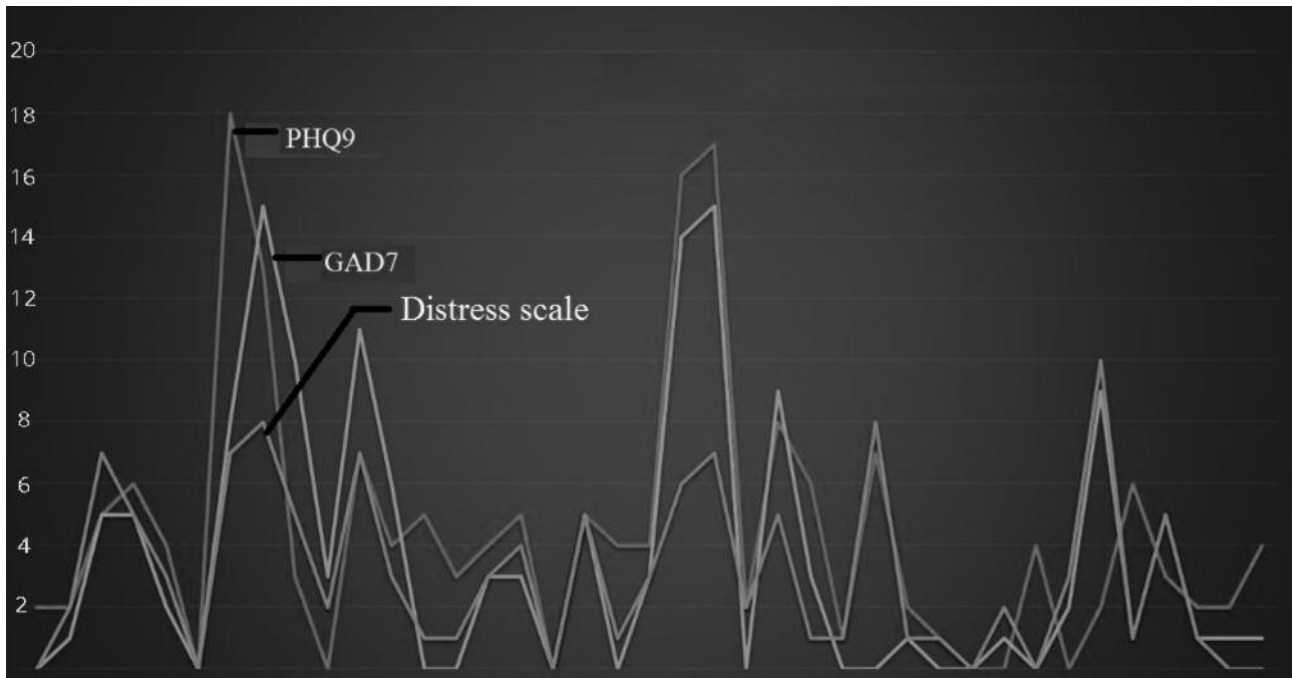


Figure 1 PHQ9, GAD7 and NCCS Distress Scale scores of patients during chemotherapy teaching.

coming in for chemotherapy teaching classes were identified. They were provided printed questionnaires of GAD7 and PHQ9 scales. The total score from the patient encounter was collected along with the NCCS provided distress scale (existing scale). They were also counseled on possible symptoms of depression and anxiety. They were encouraged to report in case they experienced any of those symptoms so that compliance with treatment be high, and risk of self-harm and suicide be reduced. After the first round of chemotherapy, GAD7 and PHQ9 scores were again collected. *Results:* Of the 52 patients enrolled, 27 were female. Lung cancer was the most common diagnosis (30%), followed by gastrointestinal malignancy (17%) and breast cancer (15%). Seventeen patients were identified as having some form of depression and 16 had generalized anxiety disorder. Patients with stage III cancer had the highest mean PHQ9 (5.3) and those with stage IV had the highest mean GAD7 (4.45) scores (Figure 1). After the first cycle of chemotherapy, at 1-to 2-month intervals, the average PHQ9 increased from 4.6 to 4.9 and the average GAD7 score increased from 3.4 to 4.3. All patients identified to be at risk were made aware of their scores and a referral was sent to their primary care provider and oncologist with the patient's permission. *Conclusion:* Recognizing psychological and social health of the patient is an important

part of state-of-art cancer care (5). The PHQ9 and GAD7 tools can be effectively used in oncology patients and offer the benefit of identifying patients at high risk and initiating treatment early.

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