


Integrative Oncology Consultations Delivered via Telehealth in 2020 and In-Person in 2019: Paradigm Shift During the COVID-19 World Pandemic

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Abstract

Background: The COVID-19 pandemic has catalyzed the use of mobile technologies to deliver health care. This new medical model has benefited integrative oncology (IO) consultations, where cancer patients are counseled about healthy lifestyle, non-pharmacological approaches for symptom management, and addressing questions around natural products and other integrative modalities. Here we report the feasibility of conducting IO physician consultations via telehealth in 2020 and compare patient characteristics to prior in-person consultations conducted in 2019. **Methods:** An integrated EHR-telemedicine platform was used for IO physician consultations. As in the prior in-person visits, patients completed pre-visit patient-reported outcome (PRO) assessments about common cancer symptoms [modified Edmonton Symptom Assessment Scale, (ESAS)], Measure Yourself Concerns and Wellbeing (MYCaW), and the PROMIS-10 to assess quality of life (QOL). Patient demographics, clinical characteristics, and PROs for new telehealth consultation in 2020 were compared to new in-person consultations in 2019 using *t*-tests, chi-squared tests, and -Wilcoxon rank-sum test. **Results:** We provided telehealth IO consultations to 509 new patients from April 21, 2020, to October 21, 2020, versus 842 new patients in-person during the same period in 2019. Most were female (77 % vs 73%); median age (56 vs 58), and the most frequent cancer type was breast (48% vs 39%). More patients were seeking counseling on herbs and supplements (12.9 vs 6.8%) and lifestyle (diet 22.7 vs 16.9% and exercise 5.2 vs 1.8%) in the 2020 cohort than 2019, respectively. The 2020 telehealth cohort had lower symptom management concerns compared to the 2019 in-person cohort (19.5 vs 33.1%). **Conclusions:** Delivering IO consultations using telehealth is feasible and meets patients' needs. Compared to patients seen in-person during 2019, patients having telehealth IO consultations in 2020 reported lower symptom burden and more concerns about lifestyle and herbs and supplements. Additional research is warranted to explore the satisfaction and challenges among patients receiving telehealth IO care.

Keywords

COVID-19, telehealth, integrative oncology, patient-reported outcomes, integrative medicine, telemedicine, complementary and alternative treatments, cancer

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Introduction

The practice of telehealth has been rapidly adopted across several health systems in the United States and around the world, catalyzed by the COVID-19 pandemic. Adopting telemedicine in oncology is associated with unique opportunities and challenges.^{1,2} Overall, telehealth continues to be widely utilized in the setting of the ongoing COVID-19 pandemic and continues to be developed with a growing

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literature in this area.³ The use of telehealth has increased patient access to oncology services, which, in the past, may have been challenging to attend in person due to geography, time, and other barriers.⁴ It is likely that the adoption of telemedicine in oncology will continue beyond the current pandemic.^{5,6}

Cancer patients more frequently use complementary alternative medicine (CAM) therapies than the general population. An estimated 48% to 69% of US patients with cancer use CAM therapies, and the percentage increases if spiritual practices are included.^{7,8} Cancer patients and survivors report using CAM because they seek to reduce the side effects of conventional treatments such as organ toxicity or improve quality of life (QOL), protect and stimulate immunity, or prevent further cancers or recurrences.⁹⁻¹¹ With adequate precautions, most complementary approaches such as meditation, yoga, acupuncture, massage, and music therapy can be safely used during treatment and throughout survivorship. Herbs and supplements, however, may need more caution. Patients need guidance as to how to navigate the available information to make informed decision. Integrative oncology (IO) consultations also focus on lifestyle factors in the area of maintaining a healthy weight, diet/nutrition, exercise, and stress management as these factors are known cancer risk-factors. To meet the patient's needs, IO programs are becoming more widely available in several cancer centers.^{12,13} Information regarding IO interventions may be of greater relevance to cancer patients especially during the COVID-19 pandemic as they explore strategies to successfully and safely manage symptoms, incorporate healthy lifestyle, and improve their health while isolated from family and community.

Despite the growing number of IO programs, access to such programs is typically still limited to major medical centers. Even where IO programs exist, access may be further limited due to time constraints with multiple appointments and coordination of care among cancer patients and geographic barriers.¹⁴ Adoption of telehealth in IO may help in reducing some of these barriers. The advantages and disadvantages of telehealth have been previously reviewed in cancer and other medical specialties.¹⁵⁻¹⁷ However, there are limited data on the practice of IO through the telehealth platform.¹⁸⁻²⁰ This manuscript reports on data from new patient IO telehealth consults between April 21 to October 21, 2020 compared to new patient IO in-person consults during the same time period in 2019.

Methods

Data from 2 separate patient cohorts were extracted from consecutive patients seen for new consults from April 21, 2020 and compared to a similar time period during 2019. All patients were unique to each cohort and no patients in the in-person cohort were part of the telehealth cohort. Our

IO consult service at The University of Texas at MD Anderson transitioned to being all telehealth in early April 2020 using Zoom as the communication platform. All appointments were scheduled and accessed through the EPIC electronic health record and patients had the choice of encounters with audio only or audio and video.

All patients presenting for a new patient consultation, in-person and telehealth, were asked to complete a series of questionnaires; only patients ≥ 18 years of age and presenting for their initial IO consultation were included in this analysis. These collected data were stored in a secured, HIPAA compliant, *FileMaker Pro* database as part of an institutional review board–approved protocol; a waiver of informed consent was granted for this retrospective analysis. Before their initial consultation, patients completed the Measure Yourself Concerns and Wellbeing (MYCaW), the Patient-Reported Outcomes Measurement Information System (PROMIS-10), and Edmonton Symptom Assessment Scale (ESAS).

Intervention

All IO initial consultations included a comprehensive assessment corresponding to patient self-reported data made available to the physician immediately before the encounter and patient concerns elicited during the nurse's review prior to the consultation. During the physician's initial encounter, each patient is evaluated comprehensively, and referrals are made to other integrative medicine services according to the individual's physical, mind-body, or social needs. An integrative care plan may include acupuncture or massage for symptom control; health psychology, meditation, or music therapy for psychological distress; counseling on healthy lifestyle behaviors such as diet and exercise and referral to nutrition and physical therapy; or discussion of risk and evidence-base for herb/supplements or alternative treatments being pursued or considered by patients.

Measures

All instruments were completed by the nurse and then entered into the electronic medical record and secured electronic database for analysis. Patient demographics and clinical data were extracted from the medical record.

Measure Yourself Concerns and Wellbeing (MYCaW)

Patients completed a modified version of the MYCaW questionnaire.²¹ Patients reported their top 2 concerns for their integrative medicine encounter from a list of available topic areas. These include: integrative/holistic approach,

herb/supplements, diet/nutrition, pain, overall health, and stress/anxiety, as well as an “other” category.

Modified Edmonton Symptom Assessment Scale (mESAS)

Patient symptom burden was assessed using the modified ESAS.²² Patients were asked to report on 16 items: 10 core symptoms such as pain, fatigue, nausea, depression, anxiety, drowsiness, loss of appetite, decreased sense of wellbeing, shortness of breath, and sleep and an additional 6 items such as spiritual distress, financial distress, numbness/tingling, hot flashes, dry mouth, and memory—as experienced in the last 24 hours on a numeric scale of 0 to 10, with 10 being the worst. A change of difference of 1 on an individual item is viewed as a clinically significant difference in that symptom.²³ Subscale scoring was as follows: global distress score (GDS, range: 0-90) sum of pain, fatigue, nausea, drowsiness, appetite, shortness of breath, anxiety, depression, and wellbeing scores; physical distress score (PHS, range: 0-60) sum of pain, fatigue, nausea, drowsiness, appetite, and shortness of breath; psychological distress score (PSS, range: 0-20) sum of anxiety and depression.

Patient-Reported Outcome Measurement Information System (PROMIS 10 scores)

PROMIS scores intend to reflect the patient’s own assessment of their QOL. The PROMIS-10,²⁴ an assessment of global health, includes 10 self-report items that can be divided into mental health and physical health subscales. Responses are converted into T-score values, with T-score distributions standardized to the mean for the US population. Higher scores represent better global, mental, or physical health.

Statistical Analyses

Descriptive statistics were used to describe the demographic and clinical characteristics of the 2 cohorts in this study. Cohorts were defined as in-person during 2019 and telehealth during 2020. The MYCaW instrument was summarized using frequencies and percentages and compared by cohort using the chi-squared test or Fisher’s exact test. ESAS and PROMIS scores were summarized with means, standard deviations, ranges, and compared by cohort using *t*-tests or Wilcoxon rank-sum test. All statistical analyses were performed using Stata/MP v16.0 (College Station, TX).

Results

With regard to the transition to telehealth, initial challenges included moving patients from scheduled in-person appointments to telehealth visits. Prior to adoption of the Zoom

platform, initial telehealth encounters were taking place via telephone or using FaceTime. During the initial transition to telehealth, MD Anderson was actively trying to limit the numbers of patients, caregivers, and staff on-campus, prioritizing local patients with more urgent health conditions. This transition was taking place during a time when staff were re-assigned to roles including temperature checks at entryway checkpoints. A significant number of staff from the integrative medicine center were re-assigned, including our acupuncturists, massage therapists, music therapist, advanced practice providers, and nurses. Initially, only physician and psychology consultations were available to patients as part of IO telehealth offerings. Nutrition consultations remained available as telephone encounters. During June and July, additional clinical services transitioned to a telehealth format including yoga/meditation consultations and physical therapy exercise counseling. During September and October 2020 (toward the end of the study period examined for this analysis), additional re-assigned staff returned to our center with a transition to providing music therapy via telehealth and the return of in-person treatments (including oncology massage and oncology acupuncture) with new measures implemented to increase safety. We were also able to transition our outpatient group classes such as tai chi, qi gong, yoga, and music therapy to a telehealth platform using Zoom. The results that follow are from an analysis of the IO consultations during the first 6 months of our transition from in-person to telehealth.

A total of 1351 subjects were included in the analysis, with 842 in-person from April 21, 2019 to October 21, 2019 and 509 telehealth from April 21, 2020, to October 21, 2020. Table 1 presents the demographic and clinical characteristics by cohort. More than 70% of the patients in both cohorts were women, with the majority of cancer diagnosis being breast (in-person=39%; telehealth=48%) or GI cancers (in-person=12%; telehealth=11%) and just over a third of the patients in each cohort had metastatic disease. There was a greater representation of African Americans seen in the telehealth cohort (telehealth n=68 (14%); in-person n=75 (9%), $P=.004$), but the overall numbers are small and should be interpreted with caution. There was a slightly greater percentage of breast cancer patients seen in the telehealth cohort (telehealth=48%; in-person n=39%), but the differences did not reach statistical significance ($P=.14$). The in-person cohort tended to live farther from MDA than the telehealth patients (mean miles: in-person=325; telehealth=212, $P<.001$). There were no other differences between the 2 cohorts.

Patients’ first MYCaW response, or reason for seeking the integrative medicine consultation, are summarized in Table 2. In both cohorts, the most frequent reason for a consult were seeking an integrative approach, diet/nutrition, and symptom management. Significant differences between cohorts were noted for diet/nutrition,

Table 1. Comparison of Demographic and Clinical Characteristics of New Patients Seen In-Person in 2019 and Via Telehealth in 2020.

Characteristic	In-person-2019		Telehealth-2020		P-value ^b
	N=842 ^a	%	N=509	%	
Age at consult					.704
Mean (SD)	56 (13)		56 (13)		
Median (min–max)	58 (19-90)		56 (19-88)		
Distance from MD Anderson (miles)					<.001
Mean (SD)	325 (544)		212 (387)		
Median (min–max)	115 (0-6541)		38 (0-3899)		
Sex					.113
Female	615	73	390	77	
Primary race					.004
Asian	60	7	27	5	
Black or African American	75	9	68	14	
Other	75	9	37	7	
White or Caucasian	625	75	367	74	
Ethnicity					.449
Hispanic or Latino	112	14	75	15	
Not Hispanic or Latino	712	86	422	85	
Age					.625
19-39	113	13	61	12	
40-59	360	43	234	46	
60-79	348	41	201	40	
≥80	20	2	10	2	
Cancer diagnosis					.138
Breast	322	39	239	48	
CNS	25	3	9	2	
Endocrine	21	2	11	2	
GI	100	12	55	11	
GU	66	8	41	8	
GYN	65	8	38	8	
Head and neck	70	8	27	5	
Hematological	55	7	36	7	
Lung	44	5	20	4	
Sarcoma	33	4	13	3	
Others	29	4	11	2	
Cancer stage					.755
Metastatic disease	322	38	199	39	

^aNot all patients had data for all variables.

^bIndicates *P* value for differences between in-person and telehealth cohorts.

exercise, and herbs and supplements, with a greater percentage of the telehealth cohort selecting those reasons to discuss during their consultation. The in-person cohort indicated greater interest in addressing questions about symptom management. There were no significant differences between cohorts regarding interest in discussing depression, fatigue, integrative approach, relaxation, sleep, or stress/anxiety.

Examination of the ESAS symptom burden data (see Table 3) indicated that the patients from the in-person cohort reported significantly higher (worse) self-reported

symptom scores for all outcomes except for hot flashes, which were not different between cohorts. There were greater than 1-point differences in symptom scores, suggesting clinically significant differences between cohorts, for: appetite, depression, memory, shortness of breath, sleep, and overall well-being.

For the PROMIS-10, there were no significant differences in mental health or global health, however, consistent with the ESAS scores, the in-person cohort reported statistically significantly worse (lower) physical health than the telehealth cohort (*P* = .038).

Table 2. Comparison of Patient Reasons for Seeking Integrative Oncology Consultation for New Patients Seen In-Person in 2019 and Via Telehealth in 2020.

Characteristic	In-person-2019		Telehealth-2020		P-value ^a
	N	%	N	%	
Integrative approach	164	21.1	113	22.7	.488
Diet/nutrition	132	16.9	113	22.7	.011
Exercise	14	1.8	26	5.2	.001
Herbs & supplements	53	6.8	64	12.9	.000
Symptom management	258	33.1	97	19.5	.000
Fatigue	56	7.2	31	6.2	.505
Sleep	27	3.5	16	3.2	.807
Stress/anxiety	58	7.4	26	5.2	.118
Depression	13	1.7	11	2.2	<.488
Other	4	0.5	1	0.20	.161

^aIndicates P value for differences between in-person and telehealth cohorts.

Table 3. Comparison of Symptom Burden for New Patients Seen In-Person in 2019 and Via Telehealth in 2020.

Symptom	In-person-2019	Telehealth-2020	P-value ^a
	Mean (SD)	Mean (SD)	
Anxiety	3.0 (2.8)	2.4 (2.7)	<.001
Appetite	3.1 (2.7)	1.4 (2.4)	<.001
Depression	1.9 (2.4)	1.4 (2.3)	<.001
Drowsiness	2.5 (2.6)	1.7 (2.4)	<.001
Dry mouth	2.2 (2.8)	1.9 (2.7)	.009
Fatigue	4.4 (2.7)	3.5 (2.8)	<.001
Financial distress	2.5 (2.9)	1.7 (2.7)	<.001
Hot flashes	2.0 (2.9)	1.93 (2.9)	.922
Memory	3.6 (2.5)	2.0 (2.3)	<.001
Nausea	1.2 (2.1)	0.9 (1.9)	.001
Numbness and tingling	2.8 (3.1)	2.5 (3.0)	.037
Pain	3.4 (2.9)	2.8 (2.8)	<.001
Shortness of breath	1.4 (2.1)	0.7 (1.7)	<.001
Sleep	4.6 (2.7)	3.5 (3.1)	<.001
Spiritual pain	1.0 (1.8)	0.5 (1.6)	<.001
Well-being	3.8 (2.4)	2.1 (2.6)	<.001
PHS ^b	15.9 (10.5)	11.0 (9.4)	<.001
PSS ^c	6.1 (34.9)	3.8 (4.7)	<.001
GDS ^d	25.8 (37.8)	17 (13.9)	<.001
PROMIS10 ^e			
Mental health subscale	13.0 (3.4)	13.0 (3.4)	.395
Physical health subscale	13.2 (3.0)	13.5 (3.1)	.036
Global health total score	32.2 (7.3)	32.8 (7.4)	.148
Global mental health T score	42.8 (9.7)	43.3 (9.9)	.525
Global physical health T score	46.4 (7.8)	47.4 (7.9)	.038

^aIndicates P-value for differences between in-person and telehealth cohorts.

^bPHS equals the sum of pain, fatigue, nausea, drowsiness, appetite, and shortness of breath scores (total 0-60).

^cPSS equals the sum of depression and anxiety scores (total 0-20).

^dGDS equals the sum of pain, fatigue, nausea, depression, anxiety, drowsiness, appetite, sense of well-being, and shortness of breath scores (total 0-90).

^ePROMIS10. Includes a mental health subscale (4-20), physical health scale (4-20), and global health total score (11-50). Higher scores represent better mental, physical or global health. Responses converted into T-score values; T-score distributions standardized to US population mean.

Abbreviations: ESAS, Edmonton Symptom Assessment System; GDS, global distress Score; PHS, physical distress score; PSS, psychological distress score.

Discussion

Delivering IO physician consultations via telehealth using online mobile platforms was feasible and allowed patients to receive this important consultation during a time when coming to Houston and MD Anderson posed multiple challenges due to the COVID-19 pandemic. Due to prior difficulties with providing the approved technology to deliver telehealth and due to limitations with insurance, 2020 was the first year we delivered IO telehealth consultations. We also successfully transitioned to a telehealth model for our weekly interdisciplinary team meeting, attended by our physicians and clinicians in the areas of health psychology, oncology acupuncture, nutrition, oncology massage, music therapy and yoga therapy to help with integrative care plan development and care coordination for our patients. Although there was an initial learning curve for both clinicians and patients, it is apparent that IO telehealth is feasible in an oncology setting. Fewer patients were seen during the same time period in 2020 as compared to 2019 due a number of factors including: (1) institutional reassignment of IO physicians and other staff during the first few months of the pandemic; (2) decrease in new patients seen at our institution and subsequent decrease in referrals; and (3) decrease in capacity (template availability) during the transition from in-person to telehealth. Otherwise, we believe the number of patients seen in the same time period would have been similar or even higher with telehealth due to the limited barriers to be seen. Not only was telehealth feasible, but patients expressed high levels of satisfaction with telehealth.²⁵ Although not directly measured, our patients often noted that they preferred the convenience of telemedicine, not needing to pay for parking or deal with transportation, and not being around other patients or providers, thus limiting their exposure to COVID-19. This observation is similar to reports from other specialties who found telehealth feasible and even preferred in certain contexts.²⁶⁻²⁹

In 2020, patients requested consultation for exercise, diet/nutrition, and herbs and supplements more than in 2019, with about 20% in both years seeking information about an “integrative approach” to their care. The increased interest in physical activity and diet/nutrition could be related to the pandemic. Although maintaining healthy behaviors is more imperative than ever,³⁰ the pandemic has presented challenges in doing so.³¹ It is possible that patients who were confined to their houses were more interested in ways to either begin a healthy lifestyle routine or adjust their current routine now that they no longer have access to gyms or in-person lifestyle classes. An earlier report from our center found that the top 2 reasons for IO consultations reported by patients between 2009 to 2013 were an Integrative/Holistic Approach (34.2%) and Herbs and Supplements (33.8%).¹¹ The current findings may

suggest a change in the trend of patient interests in 2019 and 2020 versus those seen back in 2009 to 2013, with clearly less interest in exploring the use of herbs and supplements (2019=6.8%; 2020=12.9%). Future research should examine national trends for IO consultations.

During the pandemic, we also observed a greater percentage of referrals of patients with breast cancer, 48% versus 39%. Breast cancer patients seen by our center are commonly referred to us for reasons of lifestyle modification with a focus on areas of exercise and diet/nutrition. Alongside IO consultations, our IO center also earlier on transitioned clinical services of nutrition, physical therapy, and health psychology from in-person to telehealth. In-person services such as oncology massage and oncology acupuncture more focused on symptom management became available closer to the end of the time period analyzed. The increase in consultation requests in 2020 for lifestyle counseling and herbs and supplements is likely due to the changes in services offered, as referring providers were focusing more on lifestyle modification as an online intervention, as compared to referring patients for high-touch in-person interventions such as acupuncture and massage for symptom management.

There was also a lower percentage of patients in 2020 seeking IO consultations for symptom management than in 2019. This is consistent with the ESAS symptom data, where the 2019 patient cohort in general reported greater symptom burden, with scores on appetite, depression, memory, shortness of breath, sleep, and overall well-being being clinically significantly higher in 2019 than 2020. The PROMIS-10 mental health scores were clinically significantly below the population mean in both cohorts, with physical function scores only marginally lower than population means. As patients are unique to each cohort, the symptom differences likely reflect the patient referral patterns and should not be interpreted as a reflection of the pandemic on symptom burden.

Early in the pandemic, several patients' cancer treatment plans were delayed or altered.³² Therefore, some of our patients were seeking “alternative” treatments for their cancer due to this delay. An increased interest of patients in herbs and supplement counseling could be due to this “pandemic effect.” Interestingly, patients who sought integrative medicine telehealth consultations had lower symptom burden compared to in-person visits in 2019. We also observed that the in-person 2019 cohort tended to live farther from MDA than the 2020 telehealth cohort, an observation that can be explained by the fact that during the first 6 months of the pandemic, local patients were prioritized over those living greater than 150 miles from our hospital. We think the majority of our cohort differences findings in terms of reasons for consult and symptom burden are likely due to changes in referral patterns because of the pandemic and not related to telemedicine delivery per se.²⁷⁻²⁹

There are several limitations to this study. The majority of our patients had internet access. Access to internet services may be a barrier for patients seeking IO consultation if there is no in-person IO practice component. The patient population was also a convenience sample of patients coming for an IO consultation within a major medical center and, therefore, may not represent the larger population of patients seeking and using IO. The limitations of telehealth IO practice in our experience includes barriers such as poor Internet connection, lack of experience in using the technology, advanced age, and being hard of hearing.³³ Also, health disparities research is needed in this area, as there are socioeconomically disadvantaged populations who may not be able to successfully utilize or benefit from telehealth consultations.

Despite these limitations, our data is informative to clinicians and hospitals planning to redesign or set up integrative medicine or IO services in the post-pandemic era. Many patients travel great distances to access cancer centers such as MD Anderson. Certain services such as IO are not easily accessible to a majority of patients due to geographical barriers. Telehealth IO practice may close such barriers. Video consultations can save resources such as time and energy associated with commuting. This is important as cancer patients have fatigue and other comorbidities related to cancer and treatment. Therefore, we suggest telehealth be permanently integrated into the field of IO to reduce the impact of geographic distance from specialty care and improve access to counseling on various integrative modalities such as lifestyle modifications and the use of herbs and supplements. A hybrid model must consider the need for in-person visits for unique patient populations such as underprivileged with no internet access, elderly or hard of hearing, and people with technological difficulties.^{34,35} There is also a need for policies on reimbursement of telemedicine services and licensing policies among different states across the United States of America.

Conclusions and Future Directions

We found that it is feasible to provide IO via telehealth. The type of patients referred or seeking IO consultations via telehealth was different than the prior in-person cohort, with the telehealth cohort having a greater interest in lifestyle counseling and herbs/supplements with less of a focus on symptom management and reporting overall lower symptom burden. This is likely due to limited availability of services to support symptom management such as acupuncture and oncology massage. Future research needs to focus on patient experience and satisfaction and create guidelines and pathways for a hybrid model for seeing patients via telehealth and in-person versus in-person only models.

Declaration of Conflicting Interests

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