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Characteristics of oncology podcasts: Attitudes, speakers, conflicts

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ABSTRACT

Objective: To systematically appraise the content within oncology podcasts and the individuals who speak on them.

Design: A cross-sectional study.

Setting: We obtained a list of 33 current podcasts with substantial oncologic content through queries of pre-determined search terms on the Apple Podcast Platform.

Participants: 98 oncology-related podcast episodes.

Main outcomes: The perceived attitude of the episode with predetermined categories including "Neutral," "Favorable," or "Negative," the number of conflicts of interest verbally disclosed by individuals featured on oncology podcasts, and the prevalence of general payments among featured physicians.

Results: Among 33 oncology podcasts, the median number of episodes was 81 (IQR: 25–129). Ninety-seven percent (n = 32/33) of the podcasts included guests. The median episode run time was 26:50 min (IQR: 18:00 – 41:75). Among the 98 episodes assessed, 47% of episodes (n = 46/98) mentioned oncologic drugs, of which 57% (n = 26) had a neutral disposition, 37% (n = 17) had a favorable disposition and 7% (n = 3) were negative. Across 98 episodes, we identified 194 featured individuals, of which 65% (n = 126) had a medical degree (MD), and 85% (n = 107/126) of these physicians received at least one general payment. Further, 83% (n = 105/126) of physicians did not disclose payments.

Conclusions and policy summary: Within oncology-related podcasts, the majority of conversations about oncologic drugs are perceived as either favorable or neutral, and a majority of individuals featured on podcasts do not disclose conflicts of interest, highlighting potential opportunities for improvement, including the need for standardization of financial conflict of interest disclosure.

1. Introduction

Medical podcasts are widely available digital audio files with content focusing on topical healthcare issues, interviews with experts, or lively multi-person debates. They are typically made freely available for download across multiple mobile platforms and are increasingly listened to by medical and laypersons. A 2020 review investigating the availability of medical podcasts found that there were around 200 medical podcasts, which included over 13,000 episodes and covered 19 specialties [1]. Medical podcasts have a broad user base including medical students, residents, and attending physicians, and have been established across multiple clinical specialties [1–7].

Given the increasing use of podcasts as a resource for medical

information, it is important to critically evaluate the characteristics of the medical content being shared. To our knowledge, there has been no investigation on the characteristics of speakers on oncology podcasts, their attitude to the oncology products they discuss, and their disclosed and undisclosed conflicts of interest. As such, we set out to study the characteristics of oncology podcasts and the featured speakers on these podcasts.

2. Methods

2.1. Data set

A data set of oncology-related podcasts was constructed by querying

the key terms "Oncology" and "Oncology drugs" in the USA Apple podcast platform on March 25, 2021. Podcasts were included if they had at least one user rating on the platform, at least two playable episodes produced within a single calendar year (2020) and were available in the English language. Video podcasts and podcasts that did not have oncology as the primary focus of their content were excluded. The content focus was assessed by reading the individual podcast description available within Apple podcasts.

For each podcast, we collected the title, number of episodes, years active, mean user rating (a scale of one to five on the Apple podcast platform), total number of users' ratings, and whether guest(s) were present. In addition, data including subscriber and episode play numbers were extracted from the global spoken audio platform Castbox as a cross reference, as all statistics available within Castbox are based on Castbox alone and do not include any other audio or podcast-based platforms [8].

To further categorize content, two to three episodes within each unique podcast were analyzed. Episodes that were released closest to May 29 – May 31st, 2020 were chosen, so as to correspond with the American Society of Clinical Oncology (ASCO) 2020 annual meeting. The following characteristics were noted for each episode: episode run time, number of individuals speaking, the identity of individuals speaking, affiliation of individuals speaking, whether disclosures were provided by speakers, tumor types, and number of oncologic drugs mentioned. Episode content was also classified into four content categories including "Clinical Management & Perspectives," "Clinical Trials & Treatment," "Covid-19 Policy & Treatment," and "Medicine and Society."

2.2. Speakers

Speakers were classified as host or guest, and information regarding their name, title, and affiliation were extracted. Single speakers who gave lectures were classified as hosts. Speakers were classified as guests if they did not verbally identify themselves as the host or moderator or if this information was not available in the show notes. Speakers and introductory or finale narrators that did not participate in the exchange of dialogue were excluded.

2.3. Attitude of Speakers' Comments

The aggregation of speakers' attitudes within a podcast episode were classified as favorable, neutral, or negative. For each episode played the initial attitude was determined by two independent reviewers (E.G. and K.P.) who were blind to each other's interpretation, with disagreements arbitrated by a third-party blinded reviewer (A.H.). Dr. Vinay Prasad is the host of Plenary Session, one of the podcasts included in this analysis, but did not code data relevant to this or any other podcast.

2.4. Estimating the potential conflicts of interest among physician speakers on podcasts

Financial conflicts of interest (FICOs) for U.S.-based physicians were determined by data made public by the Open Payments provision of the Affordable Care Act [9]. Data from the last five years (2016 – 2020) were extracted from the general payments category, which includes payments that are not associated with a research study such as personal payments, speaking fees and travel reimbursement.

2.5. Tumor types

The total number and specific tumor types mentioned in each podcast were counted. Only tumor types that were discussed in the context of clinical management or therapeutic treatment were coded. The unique tumor types mentioned were then further grouped into a broader predetermined list, including: "Hematological," "Breast," "Lung and Bronchus," "Cervical and Uterine," "Ovarian and Fallopian," "Bladder," "Colorectal," "Prostate," "Gastric and Gastroesophageal Junction," "Pancreatic," "Other or Unspecified," "Renal and Renal Pelvis," "Esophageal," "Brain and other Nervous System," "Other Soft tissue," "Head and Neck," "Liver and Biliary Tract," "Melanoma and Skin," "Testicular and Penile," "Thyroid," and "Vulvar and Vaginal."

2.6. Oncologic drugs

The total number and the identities of the oncologic drugs mentioned within an episode were noted. Oncologic drugs mentioned as part of a regimen (i.e., CAPOX, FOLFOX, FOLFIRINOX, MVAC, RCHOP, etc.) were counted, excluding duplicates, by the individual drugs that made up the regime. Chemoprotective and procedures (i.e., autologous stem cell transplant) were excluded.

2.7. Analysis

This was a descriptive study using descriptive statistics (e.g., means, standard deviations, medians, interquartile ranges and frequencies) calculated in Microsoft Excel, version 16.51, 2021. In accordance with 45 CFR §46.102(f), this study was not submitted for institutional review board approval because our study consisted solely of publicly available information and did not involve patient-level data.

3. Results

A total of 33 oncology-related podcasts met the inclusion criteria. The median number of ratings was 9 (interquartile range [IQR]: 3–28) and median number of times each unique podcast was played across listeners utilizing the Castbox platform (i.e., number of plays) was 4623 (IQR: 143–2447). Each of the 33 podcasts had a median number of episodes of 81 (IQR: 25–129). Ninety-seven percent (n = 32/33) of these podcasts included guests and 73% (n = 24/33) had episodes that mentioned oncologic drugs. The sample characteristics are presented in Table 1.

Across these 33 unique podcasts, a total of 98 episodes were assessed.

Table 1
Characteristics of Oncology Podcasts.

Top 10 Most Popular Podcasts, by Castbox	Ranking	Play Count
Plenary Session	1	16,503
The Oncology Nursing Podcast	2	7,376
Journal of Clinical Oncology (JCO) Podcast	3	6,015
Hematologic Oncology Update	4	4,400
PharmaTalkRadio	5	3,645
Yale Cancer Center Answers	6	3,628
PeerView Oncology & Hematology CME/CNE/CPE (Audio Podcast)	7	2,599
ASCO Daily News	8	2,377
ASCO Guidelines	9	2,036
Blood & Cancer	10	1,664
Characteristics of Podcasts		
Characteristic		**No.**
Number of Podcasts		33
Median No. of Episodes		81
Mean Star Rating (USA)		4.6
Categorical Variables		**No. (%)**
Number of Ratings (USA)		
> 100		2 (6)
11–100		13 (39)
0–10		18 (55)
Guest Present?		
Yes		32 (97)
No		14 (3)
General Attitude or disposition of podcasts discussing a cancer drug		
Neutral		19 (58)
Favorable		12 (36)
Negative		2 (6)

The median episode run time was 26:50 min (IQR: 18:00 – 41:75). The most common tumor types mentioned were hematological 26% (n = 25), breast 14% (n = 14), and lung and bronchus 14% (n = 14). Forty-seven percent of the episodes (n = 46) mentioned oncologic drugs, of which 57% (n = 26) had a neutral disposition, 37% (n = 17) had a favorable disposition and 7% (n = 3) had a negative disposition (Table 2).

We further explored the 98 episodes by analyzing the 194 individuals featured across these episodes. Of the 194 featured individuals, 86% (n = 167) were U.S. based, of which 65% (n = 126) had a medical degree (MD). Between 2016 and 2020, 85% (n = 107) of U.S. physicians received at least one general payment (Fig. 1). The median value of general payments was $19,727.82 (IQR: $371.65 - $170,765.88). Table 3 shows a further breakdown of general payments made to featured physicians on oncology-related podcasts, including the minimum and maximum payments. Overall, 83% (n = 105) of U.S.-based physicians did not fully disclose conflicts of interest verbally when featured on the episode.

4. Discussion

This study is the first to systematically appraise the landscape of oncology podcasts and the physicians who appear on them. Oncology

Table 2
Characteristics of Oncology-related Podcast Episodes.

Characteristic		N = 98 episodes
Run Time (min)	Median	26:50
	25th Percentile	18:00
	75th Percentile	41:75
	IQR	23:75
Number of Individuals Speaking	Mean (SD)	2.5 (1.0)
Categorical Variables		**No. (%)**
Number of Episodes That Mention Oncologic Drugs	Yes	46 (47)
	No	52 (53)
General Attitude of Podcast Episode Discussing a Cancer Drug (n = 46)	Neutral	26 (57)
	Favorable	17 (37)
	Negative	3 (7)
Content Category	Clinical Management & Perspectives	27 (28)
	Clinical Trials & Treatment	27 (28)
	Covid-19 Policy & Treatment	24 (24)
	Medicine and Society	20 (20)
Number of Oncologic Drugs Mentioned	0	52 (53)
	1–10	32 (33)
	> 10	14 (14)
Tumor Type Mentioned (n = 115)	Hematological	25 (25.5)
	Breast	14 (14.3)
	Lung and Bronchus	14 (14.3)
	Cervical and Uterine	11 (11.2)
	Ovarian and Fallopian	11 (11.2)
	Bladder	10 (10.2)
	Colorectal	8 (8.2)
	Prostate	7 (7.1)
	Gastric & Gastroesophageal Junction	6 (6.1)
	Pancreatic	6 (6.1)
	Other or Unspecified	5 (5.1)
	Renal and Renal Pelvis	5 (5.1)
	Esophageal	3 (3.1)
	Brain and other Nervous System	2 (2.0)
	Other Soft tissue - Sarcomas, lipomas, fibromas, rhabdomyoma, hemangioendothelioma, GIST, small round cell, myoepithelial	2 (2.0)
	Head and Neck	1 (1.0)
	Liver and Biliary Tract	1 (1.0)
	Melanoma & Skin	1 (1.0)
	Testicular & Penile	1 (1.0)
	Thyroid	1 (1.0)
	Vulvar and Vaginal	1 (1.0)

podcasts appear to be reaching a wide audience with, on average, thousands of individuals listening to episodes, a median run time of around thirty minutes, and over fifty percent of the content focused on either clinical management or trials. In considering findings from other studies examining medical podcasts [1,3,5–7], it is likely that medical practitioners are increasingly being exposed to information from podcasts as a time-efficient method for continuous education. However, there is widespread recognition that best practices for evaluating the impact of medical podcasts on listeners have yet to be established [4,6].

The majority of individuals who were featured on podcasts were medical doctors affiliated with United States academic institutions. Similar to prior work by Tao and colleagues, who examined the prevalence of FCIOs among hematologist-oncologists on Twitter [10], our study found that a majority of physicians featured on podcasts have received significant general payments. Further, greater than two thirds of physicians did not verbally disclose these FCOIs on the podcasts. This finding is concerning since FCOI in medicine may have an impact on final recommendations and clinical application [11–14]. Just as with other domains of medical education, conflict of interest policies, of which disclosure is a minimum, should be considered for oncology podcasts.

One concern with any educational modality is whether a fair and balanced representation of facts is presented. A previous analysis within the field of dermatology has suggested that podcasts that receive financial support from companies may be incentivized to express a positive portrayal of dermatological products [5]. Results from this study raise concern that pharmaceutical sponsorship may be an external factor influencing the appraisal of information within oncology podcasts.

Our study demonstrates positive attitudes in most oncology episodes, with criticism occurring seldomly. As such, there may be a scarcity of critical voices on these podcast platforms. The economic burden of cancer therapies has been well described [15–19], with the median anticancer drug that comes to market costing more than $100,000 per year of treatment [17,18]. Additionally, many of these drugs are approved based on surrogate endpoints and have shown to have limited survival benefit for patients [16]. Given these findings, it may be surprising that among podcasts discussing pharmaceutical products, over ninety percent of episodes had favorable or neutral attitudes. This imbalance may be a result of podcasts displaying a form of publication bias, based on the assumption that listeners are less interested in negative data. Therefore, it is more likely that this bias would result in podcasts displaying drugs in an overall beneficial light.

Our study has three limitations. First, we used one podcast search engine (Apple iTunes podcasts) to generate a list of oncology-related podcasts. Although this is one of the most popular search engines, it is possible we have missed some podcasts that are indexed on other platforms. Second, the coding of attitudes is inherently subjective, and it is likely that other listeners may disagree with our coding. However, we did code all episodes in duplicate with blinding and a third blinded person acted as an arbitrator. A third limitation to our study is that it applies only to the unique time period we sampled. While we have no specific reason to think these attitudes were different in other time periods, future research is needed. We were unable to listen to more episodes, given the cumulative number of hours that would be required.

In conclusion, our study found a wide range of oncology podcasts pertinent to numerous cancer types. Only 7% of podcasts discussing a new cancer drug were critical, despite the fact that many cancer drugs offer modest benefits at a tremendous price. Nearly all podcasts had guests, of whom only 14% did not have FCOIs with biopharmaceutical companies. The majority (53%) had conflicts in excess of $10,000. Most speakers did not disclose conflicts of interest. Our study highlights opportunities and concerns with oncology podcasts, including the need for standardization of FCOI disclosure.
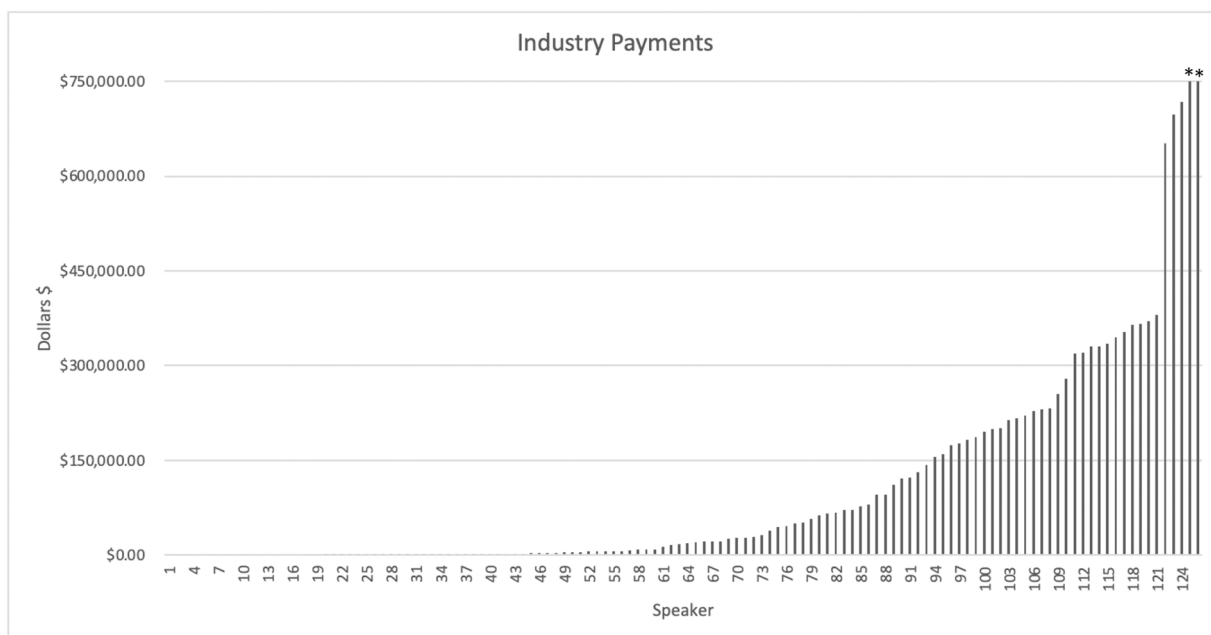
Fig. 1. The total value ($) of payments made, from 2016−2020, to 126 physicians featured across 98 oncology-related podcast episodes. *Two people met outlier criteria, with payments received of $1,633,967 and $1,946,380.38.

Table 3
Summary Characteristics of Physicians (U.S. Only) Featured on Oncology Podcasts.

Characteristic	Category	
Total Number of Individuals (%)[1]	126	
Role, No. (%)[23]	Host	25 (20)
	Guest	101 (80)
	Both	2 (2)
Affiliation, No. (%)	Academia	107 (85)
	Non - academia	19 (15)
General Payments ($) Over the Last 5 Years (2016–2020), No. (%) and $	Receiving $0	18 (14)
	Receiving < $10,000[b]	41 (33)
	Receiving > $10,000	67 (53)
	25th Percentile	$371.65
	75th Percentile	$170,765.88
	Interquartile Range	$170,394.24
	Smallest Value (Min)	$0.00
	Largest Value (Max)	$1946,380.38
Conflicts of Interest Verbally Disclosed in Episode, No. (%)	Yes	21 (17)
	No	105 (83)
Conflicts of Interest Disclosed on Apple or Podcast Websites' Show Notes, No. (%)	Yes	47 (37)
	No	79 (63)

[1] Only physicians identified through MD as their title were included
[2] Responses are not mutually exclusive
[3] Excludes the $0 value

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(Other) Plenary Session podcast has Patreon backers. All other authors have no funding to report.

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