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Title
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Permalink
https://escholarship.org/uc/item/3w68b7bz

Journal
Supportive Care in Cancer, 29(8)

ISSN
0941-4355

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Publication Date
2021-08-01

DOI
10.1007/s00520-021-05984-6

Peer reviewed

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HHS Public Access

Author manuscript

Support Care Cancer. Author manuscript; available in PMC 2021 August 05.

Published in final edited form as:

Support Care Cancer. 2021 August ; 29(8): 4835–4845. doi:10.1007/s00520-021-05984-6.

Defining the clinician's role in mitigating financial toxicity: an exploratory study

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Abstract

Background—Financial toxicity describes the financial burden imposed onto patients by a cancer diagnosis and is a growing concern. Many clinicians do not currently address financial toxicity despite patients' desire for them to do so. Current literature explores physicians' perspectives but does not clearly define an actionable role clinicians can take to address financial toxicity. We sought to fill this gap by first assessing clinicians' perspective on their role in alleviating financial toxicity at our institution. We subsequently aimed to identify current barriers to mitigating financial toxicity and to garner feedback on clinician-oriented interventions to address this growing problem.

Methods—We developed an 18-item electronic, anonymous survey through Redcap. We invited all oncology clinicians including attending physicians, advance practice providers, and trainees at our institution to participate.

Results—A total of 72 clinicians (30%) completed the survey. The majority agreed that clinicians have a role in addressing cost. The top three barriers to discussing cost with patients were knowledge of out of pocket costs, time, and awareness of resources. Less than half of respondents used an existing comparative cost tool to incorporate cost consciousness into

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Authors´ contributions MR, DP, and MP conceptualized and designed the study. MR, DP, and MP constructed the survey. MR performed the data collection and analysis. MR drafted the manuscript with significant contributions from DP and MP. MP oversaw the study in its entirety.

Conflicts of interest The authors have no conflicts of interest or competing interests to declare.

Ethics approval This study was reviewed by the IRB and deemed to not meet the definition of Human Subjects Research given the quality improvement aims of the study.

Consent to participate Study participation was completely voluntary.

Consent for publication Study participants were made aware that their de-identified responses may be utilized for publication of study findings.

Code availability Code availability available upon request at the discretion of authors.

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treatment decisions. The most desired intervention was an institutional resource guide. In open-ended comments, the most common barrier described was transparency of out of pocket costs, and the most common solution proposed was a multi-disciplinary approach to addressing financial concerns patient face.

Discussion—Improving price transparency, incorporating existing resources into clinical practice, and streamlining multi-disciplinary support may help overcome barriers to addressing financial toxicity.

Keywords

Financial toxicity; Cost of care; Cost-effectiveness; Health services research

Background

Cancer is the medical condition most responsible for medical-induced bankruptcy among patients and their caregivers [1-3] Up to one third of families report losing their life savings after a cancer diagnosis [4-6], and patients with cancer face over twice the risk of bankruptcy compared to non-cancer patients [7]. The impact of rising cancer care costs and resulting increases in cost-sharing and out of pocket (OOP) expenditures has contributed to growing financial toxicity for patients and their families [8-10], which in turn can impact psychosocial wellbeing, adherence to medications, and frequency of follow-up for clinic visits, labs, and imaging, all of which in turn can have impacts on patient survival [10, 11]. In 2009, the American Society of Clinical Oncology (ASCO) released a guidance statement recommending that physicians openly discuss cost with patients and, when appropriate, make cost conscious treatment recommendations [2].

Despite national recommendations for oncologists to take an active role in addressing financial toxicity, many do not currently do so [1, 10, 12-15]. The literature varies regarding clinicians perspectives on the extent of the role they should play in addressing their patients financial concerns, with some evidence to suggest that clinicians feel these discussions should be deferred to another member of the care team such as a financial counselor [16, 17]. Furthermore, a few exploratory studies have suggested that clinicians who do believe they have a role in addressing financial toxicity feel ill-equipped to engage in cost conversations. Specifically, they have been reported to be unsure what concrete changes they could make based on patients' financial situations, to lack useful data to make cost-conscious treatment decisions for their patients, and to harbor concerns about the sensitive nature of these discussions given the circumstances and stress surrounding a cancer diagnosis [17-24]. While there are existing frameworks (i.e., ASCO choosing wisely, NCCN evidence blocks) to help clinicians with cost-conscious clinical decision making, it is not well known how commonly these frameworks are used, if at all in clinical practice.

Prior studies have focused on general beliefs and attitudes of clinicians regarding financial toxicity; critical gaps remain in defining an actionable role clinicians can take in carrying out complex financial discussions with patients and incorporating cost into clinical decision-making when appropriate. No studies to our knowledge have sought to identify providers' perspectives on potential clinic-level interventions that may be beneficial to aid clinicians in

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addressing their patients' financial concern. Furthermore, no prior studies have incorporated viewpoints of trainees and of advance practice providers (APPs), such as nurse practitioners and physician assistants, who increasingly serve as essential primary providers for cancer patients.

As patients increasingly desire active involvement from their providers regarding their financial concerns [13, 14, 25], there remain opportunities to characterize the specific role clinicians can take in addressing financial toxicity. In this exploratory study at our academic institution, we sought to fill this gap. We first assessed oncology clinicians' perspectives regarding their role in addressing financial toxicity to add to the growing literature in this area. We then identified current practice patterns around and barriers to discussing cost of care. Finally, we sought feedback on potential clinic-level interventions to address these barriers.

Methods

Study setting

Our study took place at the cancer center at a single center academic institution. Our center sees patients covered by a mix of payers, including private insurance, Medicare, and Medical, as well as a small percentage of uninsured patients. There are a few specific staff members at our cancer center who play a role in connecting patients to financial resources. Financial counselors help patients directly with financial planning and assist patients with paperwork, as well as refer patients to other teams within the institution depending on their financial needs. A separate financial assistance team will assist in referring eligible patients to a number of assistance programs within and outside of the institution, including charity care (offered for a few unique services at no cost), institution sponsored financial assistance (specifically for patients with high copays), and applications to Medical, California's Medicaid program. Finally, the prior authorization team will assist eligible patients in applying for any industry-sponsored drug assistance programs as well as assisting with the authorization process for a wide range of treatment plans.

Survey development

We developed an 18-question electronic, anonymous survey informed by an extensive literature search. We included in our literature search articles that aimed to characterize communication between oncologists and patients around cost or that aimed to understand providers opinions and beliefs around the financial burdens their patients face. A total of 27 articles fitting into either category were identified, of which 6 included specific provider-facing surveys regarding beliefs around addressing financial toxicity. The major barriers identified both from patients and providers surveyed in the articles found by the literature review informed the topics ultimately included in the survey we developed.

The survey included 6 sections, with 1–5 questions in each section. Section 1 was optional and collected basic demographic information from respondents. Section 2 explored beliefs and attitudes towards the clinician's role in addressing financial toxicity with patients. Section 3 explored individual practice patterns. Section 4 included one question regarding

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use of comparative cost and/or value tools in treatment decisions, which we modified slightly for radiation oncology clinicians. Section 5 included five potential interventions to implement at our institution and was designed as a multiple answer question. Section 6 included an open-answer section for clinicians to add additional thoughts or interventions not captured in Section 5. The survey was developed and administered through RedCAP, a secure online database [26, 27] (Table 1). We piloted the survey with three physicians with health services research experience and one sociologist with expertise in survey development. Based on their feedback, we conducted two iterations of the survey prior to study commencement.

Protocol review

This study was reviewed by the Institutional Review Board at Stanford University and was determined not to meet the definition of Human Subjects Research given the study's purpose was to improve care delivery and workflow at our institution. Respondents were notified that all responses would be anonymous. No identifying information about the respondents was collected, such that the study investigators nor anyone else with access to the data would be able to assign any given response to a specific respondent. Given the researchers were all members of the same department of the respondents, maintaining full anonymity was a priority of this study. A formal consent was not obtained but it was made clear to the respondents that responses to the survey were considered completely voluntary. Respondents were informed that their responses may be included, deidentified, in future publication and analysis of the data.

Participant recruitment and data collection

We emailed a link to the online survey to all medical oncology, hematology, and radiation oncology clinicians including 76 attending physicians, 117 APPs, and 46 trainees. An initial email was followed by two reminder emails, one sent 4 weeks after the initial email, and the second sent 10 days thereafter (1 week before survey closure), to complete the survey. Responses were gathered from December 12, 2018, to January 31, 2019.

Data analysis

We analyzed quantitative survey responses using Stata 15 using descriptive statistics [28]. We used Fisher's exact test to compare and identify significant differences in demographics between clinician types, and the Pearson's chi-squared test to compare and identify differences in response rates. Qualitative responses from the open-ended comments were analyzed separately via thematic analysis [29]. Two researchers coded the responses and developed a master code-book with themes and subthemes in Dedoose qualitative software. An interrater reliability test was conducted to ensure consistency across codes (initial kappa = 0.67). Researchers then discussed discrepancies and iteratively revised the themes and subthemes until a consensus was reached.

Results

Of the 239 total potential respondents, 72 oncology clinicians (30%) completed the entire survey. Across all clinicians who completed the survey, 32 (44%) were attending physicians,

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28 (39%) were APPs, and 12 (17%) were trainees (Table 2). The response rate among attending physicians who were emailed the survey was 42%, higher than the overall response rate. Of the attending physicians, most were medical oncologists (n = 24, 75%), with the remainder being hematologists (n = 4, 12.5%) and radiation oncologists (n = 4, 12.5%). Of the trainees, most were hematology/oncology fellows (n = 10, 83%) with a minority of radiation oncology resident respondents (n = 2, 17%). Among all respondents, 100% completed the multiple-choice portion of the survey in its entirety, and 29 respondents (39%) additionally completed the open-ended comments section. Demographic characteristics of survey respondents are shown in Table 2. The majority of respondents were ages 25–50 (60%), non-Hispanic white (48%), and female (56%).

Role in addressing cost

The majority of respondents believed that clinicians have a role in making cost-conscious decisions for patients (79%). Attending physicians were more likely to agree that clinicians should openly discuss cost (n = 24, 75%) than APPs (n = 10, 36%) (p = 0.002). A minority of respondents agreed that clinicians should defer cost conversations to a third party, although APPs were more likely to agree with this statement (n = 16, 57%) than attending physicians (n = 10, 31%, p = 0.04) or trainees (n = 2, 17%, p = 0.01). There was wide variation in opinion on whether clinicians should make treatment recommendations based on cost; attending physicians were less likely to agree with this statement (n = 8, 25%) compared to APPs (n = 14, 50%, p = 0.05).

Practice patterns and barriers to cost conversations

Only half of respondents felt they understood how "…cost of care impacted patients' well-being." APPs agreed with this statement at a higher rate (n = 19, 68%) than attending physicians (n = 15, 48%) although this difference was not significant (p = 0.11). A minority of all clinicians agreed that they were "…aware of out of pocket costs that patients face" for both "cancer therapeutics [they] prescribe" (n = 21, 29%) and "common tests, services and procedures [they] order" (n = 21, 29%). The top three barriers (Fig. 1) to discussing cost of care with patients were consistent across all clinician type and included (1) knowledge of out of pocket costs (n = 67, 93%), (2) awareness of institutional resources (n = 54, 75%), and (3) time (n = 47, 65%). The majority of respondents ranked the importance of time as a barrier, specifically trainee respondents (n = 10, 92%). Half of respondents agreed that discussions of cost may lead patients to think the clinician was not making the best treatment recommendation.

Comparative cost and high value care tools

Use of existing comparative cost and high value care tools was low among all clinicians (n = 33, 46%), but higher among APPs (n = 20, 71%) compared to attending physicians (n = 10, 31%, p = 0.0019) and trainees (n = 3, 25%, p = 0.0072). Among those who reported using a comparative cost tool, most used the National Comprehensive Cancer Network (NCCN) evidence blocks (93%) and this was consistent across all clinician types. Clinicians in training were most interested in the appropriate use of such tools.

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Feedback on interventions

Favorability of proposed interventions is displayed in Fig. 2. The majority of respondents preferred an institutional resource guide (68%), followed by training on comparative cost tools (51%) and a screening tool to assess for financial toxicity (47%).

Open-ended comments

In addition to the comments noted for the specific sections above, 28 respondents (39%) provided additional comments in an open-ended question at the end of the survey asking for additional comments. Manual sorting of the comments revealed the comments fell under two large categories: (1) barriers to provider involvement in addressing financial toxicity and (2) specific recommendations for practices or solutions to help providers better address financial toxicity. Themes and subthemes under these categories are described in Table 3.

Category 1: Barriers to provider involvement in managing financial toxicity— There were 5 specific barriers identified in the open-ended comments: lack of knowledge of out of pocket costs, time/bandwidth, complexity of the issue, gaps in knowledge other than those relating to out of pocket costs, and patient's insurance. Out of pocket costs was by far the most frequently mentioned barrier in the open-ended comments by fifteen respondents. Further subthemes under OOP costs were identified: transparency to providers, transparency to patients, expensive medical care, and lack of comparative effectiveness data. Themes and subthemes are described in Table 3, with relevant quotations.

Category 2: Solutions to address financial toxicity—Sixteen respondents specifically commented on potential solutions to mitigate financial toxicity. Many respondents commented that making out of pocket costs more transparent is an important solution; for the sake of redundancy, comments about of pocket costs were not coded into the solution theme but were rather left in the barrier theme. Solutions were further categorized into clinician-driven approaches and non-clinician driven approaches, with the latter including comments about the role of industry and policymakers. The most common solution mentioned was employment of a multi-disciplinary approach to financial toxicity, with many commenting they felt ill-equipped to navigate financial concerns of their patients alone. Themes and subthemes of solutions are described in Table 4, with relevant quotations.

Discussion

Our study is the first to comprehensively assess medical oncology and radiation oncology clinicians', including APPs and trainees, attitudes, current practices, and proposed interventions to address financial toxicity with their patients with cancer. We found, consistent with the literature, that the majority of clinicians at our institution believe they have a role in helping patients navigate the financial burden of treatment. Most clinicians, however, feel they require additional knowledge and resources to do so, and a number of potential interventions and solutions to address these gaps were identified.

Our study found significant variation between types of clinicians in both attitudes and current practices, which has not been assessed or described in any prior studies to our

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knowledge. In particular, physicians and APPs had varying opinions on their role and current practices in addressing financial toxicity. A higher proportion of APPs than attending physicians and trainees agreed that cost conversations should be deferred to a third party, that they understood their patients' well-being, used comparative cost and/or high value care guidelines, and disagreed that costs should be openly discussed or that clinicians should change treatment options based on a patient's financial situation. Our data suggests that APPs may be more likely to use available comparative cost tools than attending physicians and represent an approach to incorporate these tools into routine clinical decision-making. Future studies should further explore the perspectives of APPs with a larger number of respondents, compare utilization of financial resources and financial toxicity between patients seen primarily by APPs vs physicians, and appropriately tailor clinician-oriented training and education on financial toxicity for APPs.

The quantitative and qualitative results of our survey together revealed a number of common themes described by clinicians across disciplines when integrating cost discussions into routine practice. These themes include the importance of price transparency, the importance of a multi-disciplinary approach to financial toxicity, the perceived lack of knowledge on institutional resources to aid patients with financial toxicity, and the incorporation of cost-conscious decisions into clinical decision-making.

First, price transparency, with an emphasis on knowledge of patient-facing costs, was the top barrier noted by clinicians in both the quantitative and qualitative analyses and is similar to findings from prior studies that show the challenges in obtaining accurate OOP costs [20, 25]. There are a few clinical decision support tools such as "ClinicalPath [30]," "Eviti [31]," and "Healthcare Bluebook [32]" that could help clinicians estimate costs with help from financial counselors who may be more familiar with use of such tools [33]. Another potential way to overcome this barrier is to obtain OOP cost data reported by patients as demonstrated in a few prior interventions [4, 34]. OOP costs could be reported by patients and monitored with the assistance of financial counselors and/or social workers at clinic visits. These ancillary services could also provide feedback to the clinician regarding ways to mitigate financial strain such as limiting laboratory tests or choosing in-network laboratories. Improved price transparency is additionally a national policy goal, as evidenced by the recent proposed federal rule to mandate that hospitals make their negotiated prices for services readily available to the public starting in 2021. The potential impact of this rule on OOP costs for patients remains uncertain [35].

Second, clinicians noted in the qualitative analysis that financial navigation is a complex issue that requires multiple stakeholders and care team members, including financial counselors, social workers, case managers, and pharmacists. These findings were also supported by the quantitative analysis, where the majority of clinicians reported that they referred patients to a financial counselor if patients brought up cost concerns. However, a significant number of patients may not bring up financial concerns proactively and thus may not get such referrals. Furthermore, each member of the care team plays a slightly different role in the complex financial navigation process, and clinicians reported a lack of understanding of available resources and when or how to refer patients for particular financial needs in the quantitative analysis. In the qualitative analysis, clinicians were

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unaware of the different roles played by social workers, who are available to discuss the psychosocial impacts of financial toxicity [36], financial counselors, who help with OOP cost projection, patient financial assistance teams who help qualified patients to apply for Medicaid or supplemental insurance, and members of the prior authorization team who assist with notifying clinicians and patients about insurance-specific coverage of treatments. Improved awareness of these resources among clinicians is an important solution that could be feasibly and quickly addressed at our institution and others. Clinicians in our study specifically desired a resource guide to refer to as they coordinate treatment plans for patients. A simple quick-reference guide, in addition to basic training regarding financial assistance staff roles and resources, could give clinicians more confidence in discussing costs and providing resources to manage and address the financial concerns that patients may have. This has not been implemented or tested to our knowledge among cancer clinicians. Another potential solution is the use of a "financial navigator," either a financial counselor or social worker who providers can refer patients to address all financial concerns. This has been implemented at other institutions [33, 37, 38], with some success although there are limitations to this approach. While financial navigators may identify barriers to mitigating financial toxicity, they may not have the knowledge or expertise to develop solutions [38], especially as they are often not directly involved in the treatment plan. The efficacy in reducing financial toxicity and generalizability of these navigator interventions to other institutions remains untested.

As part of the multi-disciplinary approach, however, the majority of respondents in our study, particularly attending physicians and trainees, did acknowledge that clinicians should have some form of direct involvement in identifying potential financial pain. To address this, it is important to increase clinicians "cost health literacy" through increased knowledge of the financial impact of care, improved confidence in initiating cost concerns, and ability to navigate current resources [39]. A "roadmap" to help navigate the financial landscape may be a beneficial tool for clinicians and patients to refer to throughout treatment [24]. The American College of Physicians offers some financial planning tools specifically for clinicians to be used as part of multi-disciplinary discussions [40]. These tools could be further tailored to incorporate institution-specific resources. Additionally, there are a few online tools for patients specifically regarding management of cost and survivorship [41], but these are not integrated into clinician practice. Clinical pathways can also aid in clinical decision-making and map out treatment plans [42, 43], but currently only some provide cost information, usually restricted to drug costs and not all costs of care [43, 44]. Incorporation of available cost data into clinical pathways is an important area for future research.

Finally, study respondents noted the importance of their role in promoting cost-conscious clinical decisions; however, only a minority reported using available comparative cost data in their clinical decision-making. The use of cancer treatment cost data in clinical decisions has not been frequently assessed in the literature. The interpretation of cost-effectiveness studies remains a challenge, even in countries where they are more frequently utilized such as Canada [22], but there may be opportunity areas to incorporate such data, particularly for second- or third-line treatments where there may be multiple equally efficacious options. In addition, there are current high-value care tools that are backed by the major clinical oncology organizations, such as ASCO's Choosing Wisely guidelines [45], and the NCCN

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Evidence Blocks [46], that could be integrated into Electronic Medical Records, or available clinical pathways as mentioned above, to help clinicians with cost conscious clinical decision-making.

Our study results must be interpreted in the context of limitations. First, while our study addressed gaps in the current literature regarding clinician attitudes and practice patterns, it may not be generalizable to other institutions. Future studies may seek to expand a survey to a wider group of clinicians and compare responses across types of institutions (i.e., academic centers compared to county hospitals), as unique practice patterns, barriers to addressing financial toxicity, and proposed interventions will likely vary by healthcare setting.

Second, we used a convenience sampling method and had a low overall response rate of 30%. In our institution, however, approximately one third of the attending physicians we approached do not routinely see patients in clinical practice and therefore may not have been inclined to respond, so we suspect the response rate among clinically active attending physicians to be higher than that reported in our study. Future studies may seek to only survey clinicians who actively see patients. Third, our survey respondents were demographically skewed towards female and non-Hispanic white respondents which might also limit generalizability; in addition, demographics were not equal across disciplines; thus, the conclusions of differences between different disciplines must be interpreted with caution. Finally, we collected only a limited set of demographic data on our respondents, but it is possible there are other factors besides discipline, age, and gender that may impact perspectives and practice patterns around financial toxicity (i.e., practice setting, years of experience, frequency of seeing patients).

Future investigators should use results of such surveys to develop and test interventions, such as the ones proposed above, that may be feasible in their own practice settings and may help promote cost conscious clinical decision making. These intervention studies would ideally measure patient reported financial burden as an outcome.

Conclusions

The majority of clinicians including physicians, APPs, and trainees in our institution believe they play an integral role in addressing financial toxicity. However, due to a lack knowledge of OOP costs, institutional and local/national resources, and time, they do not integrate cost discussions into the routine care of their patients. Potential interventions such as increased price transparency, early multi-disciplinary approaches to address costs, clinician-oriented tools, and roadmaps with integration of available comparative cost data may be beneficial in reducing barriers to clinicians engaging in discussions regarding financial toxicity with patients. Future studies should explore and test these interventions to determine if they have significant impact on patient reported financial burden.

Funding

This project was not specifically funded by any source. Dr. Patel's research time is partially NIH funded.

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Data availability

Primary survey and results are provided within the manuscript. Further data and material available upon request at the discretion of authors.

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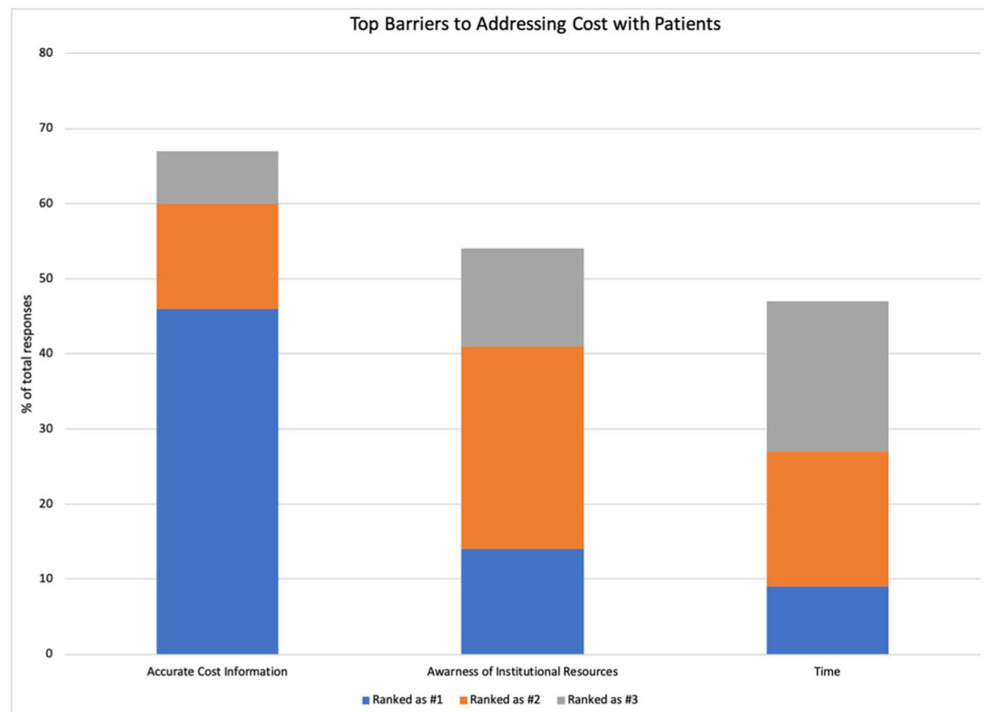

Fig. 1.

Top barriers to addressing cost with patients. The figure depicts the percentage of total respondents who selected a given barrier to financial toxicity in their top 3 choices, out of a predetermined list of barriers described in the survey in Section 3. Only the top 3 barriers selected across all respondents are depicted. The colors under each bar represent the percentage of respondents who ranked a given barrier as #1, #2, and #3 respectively

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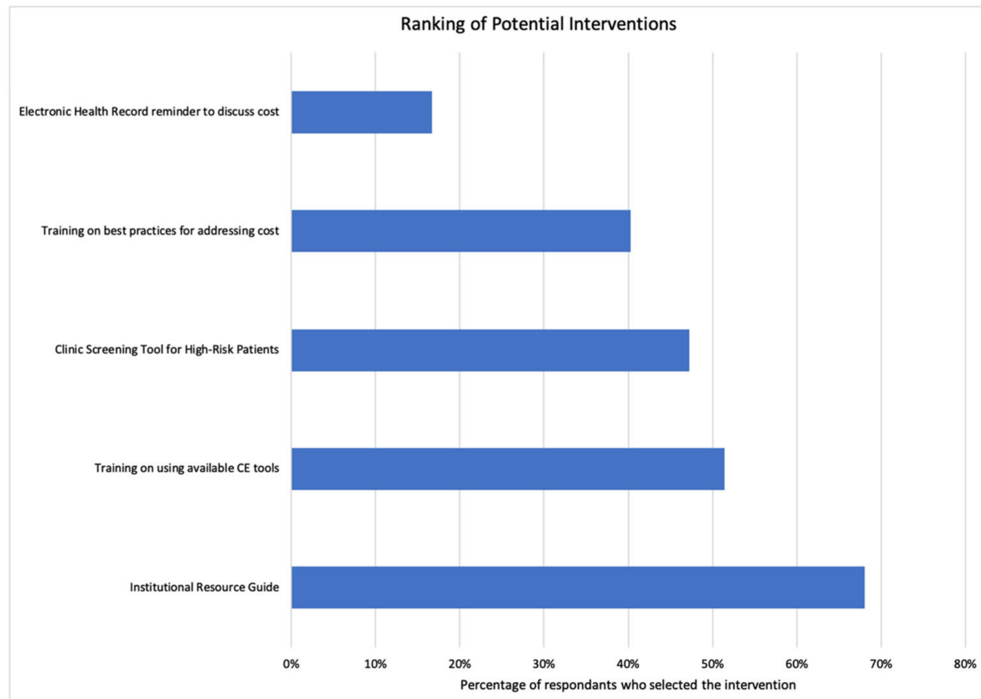

Fig. 2.

Ranking of potential interventions. The figure depicts the percentage of respondents who selected a potential intervention out of a predetermined list described in the survey in Section 5

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Table 1:

The Oncologist's Role in Addressing Financial Toxicity: An Electronic Survey to inform Process Improvements

Section 1 (optional): Demographic Information
Please select your title: 1) Fellow, 2) APP, 3) Attending Physician
What is your gender? 1) Male, 2) Female
What is your age? 1) < 25 years, 2) 25-50 years, 3) 51-75 years, 4) > 75 years
What is your race/ethnicity? 1) non Hispanic white, 2) black, 3) Hispanic, 4) Asian/Pacific Islander, 5) American Indian/Alaskan Native, 6) Other/Prefer not to say
Section 2: (Likert scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree)
Oncology providers should openly discuss cost of treatments with their patients
Oncology providers have a role in making treatment recommendations that are not only clinically effective but also cost-effective
Oncology providers should change diagnostic or treatment plans based on a patient's financial situation if necessary
Oncology providers should make the same treatment recommendations regardless of out of pocket cost to the patient
Oncology providers should defer cost conversations with patients to a third party such as financial counselors, patient navigators, and/or billing representatives
Section 3: (Likert scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree)
I understand how cost of cancer care is impacting my patients' overall well-being
I wish I had more time to discuss financial implications of cancer care with my patients
I worry that if I bring up cost or finances during a conversation, patients will feel I may not make the best treatment recommendation
I am aware of the out of pocket costs that patients face when it comes to cancer therapeutics I prescribe
I am aware of the out of pocket costs that patients face when it comes to common tests, services, and procedures I order
Knowing the range of patients' out of pocket costs would be helpful in guiding diagnostic and treatment decisions
I wish I had a better understanding of the resources Stanford offers for patients with financial needs
(Likert scale: Never, Rarely, Sometimes, Often, Always)
When reviewing treatment options with my patients, I bring up cost even if my patients do not
If patients have concerns about cost, I refer them to Stanford's financial counselors
"Please rank up to 3 barriers to discussing cost of care with patients, if any (1 being the most important). Please only mark 3 of the 7 choices. If you experiences none of these, you can leave this section blank"
Don't have enough time
Can't remember to bring it up
Not sure how to bring it up in a sensitive way
Not sure what resources we can offer
Not sure what costs they actually face
Don't think this is part of my role
Other: If you selected other, please elaborate
Section 4: Which of the following guidelines do you use most regularly when deciding on the most cost-effective treatment option for a patient? [Multiple response]
Choosing Wisely ASCO guidelines
NCCN Evidence Blocks
ASCO value framework
MSK DrugAbacus
Institute for Clinical and Economic Review Value Assessment Framework
European Society for Medical Oncology Magnitude of Clinical Benefit Scale

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I do not routinely use cost or comparative effectiveness guidelines to make treatment decisions
Other; If you selected other, please elaborate
Section 5: Which of the following interventions would be helpful in addressing cost of care with patients (mark all that apply?)
2-3 question paper screening tool for financial toxicity at the beginning of clinic visits to identify high risk patients
Epic smartphrase in clinic notes as a reminder to ask about financial impact of cancer care
Training on tips and best practices on how to address cost in a sensitive way during patient visits (if marked yes, given option of online vs. in person)
Training on how to incorporate cost-effectiveness and high value care tools into your practice (if yes, given option of online vs. in person)
Informational guide outlining the resources available to patients who face high out of pocket costs at Stanford
Other (if you selected other, please elaborate)
Section 6: Please comment on any other suggestions or ideas for interventions to better assist patients with their financial concerns. We would love to hear your feedback!

Table 1 depicts the original survey emailed to potential study participants. Each section was displayed on a separate webpage for ease of navigation.

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Table 2:

Demographic Characteristics of Respondents

	Attending	Advanced Practice Provider (APP)	Trainee	All	P value*
Respondents N (response rate %)	32 (42)	28 (24)	12 (26)	72 (30)	
Gender n (%)					
Male	15 (47)	0 (0)	6 (50)	21 (29)	***<0.0001***
Female	13 (40.5)	23 (82)	4 (33)	40 (56)	
Not specified	4 (12.5)	5 (18)	2 (17)	11 (15)	
Age (N%)					
25-50	15 (47)	18 (64)	10 (83)	43 (60)	***0.0283***
51-75	10 (31)	4 (14.5)	0	14 (19)	
>75	3 (9)	0 (0)	0	3 (4)	
Not Specified	4 (12.5)	6 (21.5)	2 (17)	12 (17)	
Race/ethnicity (N%)					
non hispanic white	14 (44)	14 (50)	7 (58)	35 (48)	*0.8360*
Asian/Pacific Islander (PI)	10 (31)	5 (18)	2 (17)	17 (23.5)	
black	1 (3)	1 (3.5)	0	2 (3)	
Hispanic	1 (3)	0 (0)	0	1 (2)	
Other/Not specified	6 (19)	8 (28.5)	3 (25)	17 (23.5)	

* P values were calculated for each category using Fisher's Exact Test. P values in bold indicate significant differences across clinician types for a given demographic.

Table 2 describes the demographic characteristics of study respondents who completed the survey

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Table 3:

Barriers to Addressing Financial Toxicity

Theme	Sample quotations
Lack of Insurance	“Distinguish between insured and uninsured patients at [our institution] Uninsured are a major cost issue” [AO] “we often run into insurance not covering care at [our institution].” [AO]
Provider knowledge gaps other than out of pocket costs	“Having a better understanding of when Auth/PFC/Financial counselors contact the patient about healthcare/treatment costs, vs when then clinic team is supposed to contact the patient. We receive emails from PFC asking us to discuss financial liability with our patients which is something that is out of the clinic team's scope of knowledge.” [APP] “I would find it useful to know if my patient has Medicare without a supplement, so I know if they are going to have to pay the 20% that Medicare does not cover.” [AO]
Complexity of navigating a patient’s financial concerns	“It is almost impossible for even the best intentioned physician to wade into these waters given the huge diversity of insurers and contracts.” [AO] “…there are so many different insurances I do not know how we can be expected to keep up with clinic demands and review cost of care with each patient.” [APP]
Out of pocket costs	
Transparency to Patients	“Physicians and patients do not have easy access to these costs in order to make informed decisions.” [AO]
Transparency to Physicians	“Unless a patient tells me how much their out of pocket expenses are, then I have no insight into what they are paying out of pocket.” [APP] “Insist that EMR tells us cost for each and everything we order as we order it. Give providers unfettered access to patient bills.” [AO] “More transparency of costs associated with drugs and testing is the first step and currently not readily available to clinicians.” [Trainee] “More transparency about costs of medications, procedures, imaging etc & better visibility about costs of care.” [APP]
Costs are too high	“The costs at [our institution] for tests and procedures are obscenely high, among the highest in the nation.” [AO]
Comparative effectiveness	“Ideally, I would have a conversation where I would simply say "here's the benefit to you, and here's the actual cost to you." [AO] “I would only be willing to consider "big picture" cost savings if they impacted the decision between two equally good options (eg I would not feel comfortable trying to dissuade a patient from option A if option A is more effective but more expensive).” [AO] “I feel that I make decisions for my patients based on the evidence or what will give me the best information but I would consider ordering a less expensive option if I knew option A may be superior but will cost way more and option B is a good option and covered.” [APP
Time/bandwith	“Probably don't have time to attend in-person costs training.” [AO] “I have no idea how to address this, nor bandwidth to try to address this. Our clinical social worker…is very helpful with these issues and I am grateful that I can refer to her.” [AO]

Table 3 depicts themes (with one theme, out of pocket costs, having multiple subthemes) to describe barriers to addressing financial toxicity derived from the open-ended comment section of the survey. Sample codes from the open-ended comments under each theme and/or sub theme. These do not represent an exhaustive list of all codes assigned to each theme, but a sampling. *AO* Attending Oncologist, *APP* Advanced Practice Provider

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Table 4:

Proposed solutions to addressing financial toxicity

Stakeholders outside of the clinical team	
Industry	"Pharmaceutical companies have programs that essentially cover the entire annual out-of-pocket expense leaving the patient with no cost." [AO]
Policymakers	"The solution is not to eliminate or restrict these programs, but to reform the healthcare system but regulating the cost of drugs." [AO] "I believe the real onus is on legislators to solve this egregious problem." [AO]
Interventions at the clinic staff level	
Multi-disciplinary approach at the clinic level	"I do not think we should be basing our treatment plans off of financial ability, but rather proposing an evidence based treatment plan and finding ways to alleviate the financial strain. If this would cause undue strain, then and multidisciplinary team should meet to discuss what other options there are and how they may affect outcomes." [APP]
Social workers/case managers	"If case managers or social workers can provide financial support information, that would be very helpful. Also, if someone could help pts fill out that paperwork - that seems to be the biggest barrier. That onus should not be put on the MD or APPs." [APP]
Financial Navigators	"Access to financial counselors is important but some may need direct assistance to negotiate with outside parties for costs associated to cancer care that are not specifically cost of drugs or hospitalization." [AO] "If treatment is ordered, patients should meet with or talk on the phone with a financial counselor to give them a good estimate of out-of-pocket costs so they can be prepared." [APP]
Interventions at the clinician level	"We only perform necessary surgeries that are standard of care." [APP] "Some EPIC fixes concerning recurring labs might help." [APP] "Reconcile financial concerns with institutional practice, e.g phone advice that sends patients to the ER for non-emergency care, unnecessary admissions." [AO]

Table 4 depicts themes and subthemes (in bold) to describe proposed solutions to addressing financial toxicity derived from the open-ended comment section of the survey. Sample codes from the open-ended comments under each theme and/or subtheme. These do not represent an exhaustive list of all codes assigned to each theme, but a sampling. *AO* Attending Oncologist, *APP* Advanced Practice Provider