Spring, J., McKinlay, J., Puxty, K., Metaxa, V., Detsky, M., Mehta, S., Thyagu, S., McGuigan, K. and Munshi, L. (2021) Perspectives on advance care planning for patients with hematologic malignancies: an international clinician questionnaire. *Annals of the American Thoracic Society*, 18(9), pp. 1533-1539.

(doi: 10.1513/AnnalsATS.202006-678OC)

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Deposited on: 9 December 2020

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Perspectives on Advance Care Planning for Patients with Hematologic Malignancies: *An International Clinician Questionnaire*

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Keywords: goals of care, leukemia, stem cell transplant, critical illness, advance care planning

Abstract Word Count: 203

Manuscript Word Count: 3480

ABSTRACT

Background: Critical illness is common in hematological malignancy (HM) patients. Advance care planning (ACP) can allow these patients to express their care preferences prior to life-threatening illnesses. The objective of this study was to evaluate physicians' perspectives surrounding ACP in HM patients.

Methods: We administered a survey to intensivists and hematologic oncologists who care for patients with HM across Canada and the United Kingdom. Potential respondents were identified from institutions that have a hematologic oncology program. The survey was disseminated electronically.

Results: 111 physicians completed the survey with a response rate of 19% (39% across those who opened the email); 52% of respondents were intensivists and 48% hematologic oncologists. 15.5% of physicians reported that ACP happens routinely at their institution, while 8.3% of physicians stated that code status is routinely discussed. ACP discussions were most commonly reported at the onset of critical illness (84.3% of respondents), during disease recurrence (52.9% of respondents), or during transition to a strictly palliative approach (54.9% of respondents). Commonly cited barriers to ACP centred on physicians' concern about the reaction of the patient or family.

Conclusion: This study emphasizes the need for earlier and more frequent ACP discussions in this high-risk population with a variety of barriers identified.

INTRODUCTION

Survival rates for patients with hematologic malignancy (HM) have improved significantly in recent decades (1-4). However, patients with HM are at high risk of developing critical illness or dying from their treatment or disease. Up to 25% of hospitalized HM patients require admission to the intensive care unit (ICU) (5), most commonly for respiratory failure and septic shock (6, 7), and approximately half of the patients who require mechanical ventilation may not survive (8-10). Patients who become critically ill as a consequence of their treatment are brought to the ICU for aggressive interventions in an attempt to bridge them through the illness. The aim is to get them back to their previous treatment trajectory which may include remission or cure. However, this prospect of cure can make prognostication difficult, and these patients may rapidly and unexpectedly decline.

Around the occurrence of critical illness, many patients are too sick to make decisions about their care. The substitute decision-maker (SDM) then becomes responsible for guiding care according to the patient's wishes, which may not have been previously expressed. This creates high rates of anxiety and decisional conflict for SDMs (11), and may result in more aggressive care than the patient would have wanted (12, 13). Advance care planning (ACP) provides patients with information and the opportunity to discuss preferences for their future care in the event that they become severely ill and lose decision-making capacity (14). Despite its relevance to this high-risk patient population, multiple studies have demonstrated that patients with HM often receive aggressive end-of-life care while ACP discussions occur infrequently (15-18).

A standard approach of integrating ACP conversations into routine care for patients with HM is needed to ensure medical care and end of life treatment is in alignment with the patient's values, wishes, and goals. To achieve this, we need to better understand the current landscape and barriers to ACP. The primary purpose of this study is to evaluate the perspectives of an international group of intensivists and hematologic oncologists regarding the occurrence, timing, and barriers to ACP in patients with HM. We also aim to compare and contrast the viewpoints of these two specialties who are key participants in the care of these patients as they confront critical illness and/or death. The information gained from this study could potentially direct approaches to ACP and end of life care in this patient population.

METHODS

STUDY POPULATION

We conducted a questionnaire study of intensivists and hematologic oncologists who provide care to patients with HM in Canada and the United Kingdom (UK). To identify these physicians, we searched for institutions with hematologic oncology programs. For Canadian institutions we searched the Canadian Hematology Society and Leukemia and Lymphoma Society of Canada websites, while for the UK we searched the National Health Service trust website (https://www.nhs.uk/servicedirectories/pages/nhstrustlisting.aspx). Once the relevant institutions were identified, we searched each of the hematology and critical care division websites to identify individual physicians and obtain contact information.

SURVEY DEVELOPMENT

The questionnaire was developed following a literature review performed by the ACP sub-committee of the Critical Care Oncology Investigative Network (Mount Sinai Hospital/Princess Margaret Cancer Center, Toronto, Canada). Following the literature review, themes were generated surrounding perceived gaps across ACP in this population (institutional presence of ACP, components of ACP, resuscitation preferences, barriers to ACP and institutional support). From this, we generated our survey intended to target intensivists and hematologic oncology physicians. The survey was internally reviewed and piloted by seven individuals focusing on question content, redundancy, clarity, and time for completion (SM, SL, ST, JP, JD, KP, VM). Based on feedback obtained from the pilot, the questionnaire was further modified and converted into an electronic format using SurveyMonkey (San Mateo, California, USA). The final version included 20 questions related to ACP and 13 questions focusing on respondent demographic information (Supplementary Appendix). The question format was multiple choice. For many questions, more than one response was allowed as were free text comments. Institutional research ethics approval was obtained for the study.

SURVEY ADMINISTRATION

Physicians were sent an initial email with an overview of the study objectives and an invitation to participate in the survey with a link to the questionnaire between April 2018 and August 2019 (Supplementary Appendix). This was followed by a monthly electronic reminder over the subsequent four months. Consent was implied by completion of the survey. All data were collected anonymously. Internet protocol (IP) addresses and other potentially identifiable data were not recorded.

STATISTICAL ANALYSIS

The data is summarized as a percentage of total respondents for each question. Differences in responses between intensivists and hematologic oncologists were determined using a two-sample test of proportions. P-values less than 0.05 were considered to be

significant at a 95% confidence interval. The results were not adjusted for multiple comparisons. The statistical analysis was carried out using STATA version 16.0.

RESULTS

A total of 730 email invitations were sent to physicians to ask for their participation and 137 completed the survey (response rate=19%; 39% response rate when limited to those who opened the email (137/348)). Physicians who did not identify their profession or who listed a job title other than intensivist, or hematologist/oncologist were excluded from the study (n= 26). In total, 111 respondents were included in the analysis, of which 52.3% were intensivists, and 47.7% were hematologic oncologists. 73.6% respondents were from Canada (49.4% intensivists, 51.6% hematologic oncologists) and 26.4% were from the UK (58.6 % intensivists, 41.4% hematologic oncologists). Approximately half of respondents (54.3%) were working in specialized cancer centers and the majority (77.8%) managed patients with acute leukemias and hematopoietic stem cell transplants (66.7%). Additional characteristics of the study respondents are outlined in Table 1.

COMPONENTS OF ACP

When asked about the meaning of ACP, 94.6% of respondents stated that it includes discussing the medical treatments the patient would want if they were to become critically ill and 89.1% stated that it includes discussing resuscitation status. Eighty-eight percent of respondents stated that it includes discussing the patient's medical condition and disease trajectory; 85.5% stated that it includes assessing patients' beliefs, values, and wishes; and 74.6% stated that it includes appointing a power of attorney or SDM. These responses did not differ between intensivists and hematologist-oncologists. However, physicians in the UK were less likely to report that appointing an SDM is a component of ACP than Canadian physicians (44.8% UK physicians vs. 85.0% Canadian physicians, $p < 0.0001$).

PRESENCE OF ACP

In response to the question about the frequency of ACP discussions at their institutions, 15.5% respondents reported that ACP occurs routinely, 31.8% stated it occurs sometimes but is dependent on the patient, 37.3% stated that ACP occurs sometimes but is dependent on the most responsible physician (MRP), 4.6% stated that it occurs rarely, and 10.9% were unsure. There were no significant differences between specialties in these responses. However, Canadian physicians were more likely to state that the occurrence of

ACP is dependent upon the physician (44.4% Canadian physicians vs. 17.9% UK physicians, p= 0.012) while physicians in the UK were more likely to state that they were unsure whether ACP was occurring (25.0% vs. 4.9%, p= 0.0024). When ACP was reported to occur, respondents perceived that patients were most often approached at the onset of critical illness (84.3%), upon disease recurrence (52.9%), or during transition to a strictly palliative approach (54.9%). Fewer respondents reported that ACP conversations occur at the time of diagnosis (19.6%), during induction chemotherapy (31.4%), or when considering stem cell transplant (31.4%). The comparison between specialties is outlined in Figure 1. Oncologists were more likely than intensivists to report that ACP occurs during induction chemotherapy (42.0% vs. 21.2%, p=0.023), when considering stem cell transplant (42.0% vs. 21.2%, p=0.023), upon disease recurrence (64.0% vs. 42.3%, p=0.028) or during transition to a strictly palliative approach (66.0% vs. 44.2%, p=0.027). Intensivists were more likely to say that ACP occurs at other times (19.2% vs. 6.0%, p = 0.0452). The only difference between countries was that Canadian physicians were more likely to say that ACP occurs at the time of diagnosis (24.1% vs. 4.6%, p=0.042).

RESUSCITATION STATUS

When asked how often discussions regarding resuscitation status are conducted in patients admitted with HM, 8.3% of respondents replied “all of the time”, 24.8% replied “most of the time”, 41.3% replied, “some of the time”, 1.8% replied “never”, and 19.3% replied that it is dependent on the MRP. Comparing specialties, intensivists were more likely to respond that resuscitation status discussions depend on the MRP than hematologic oncologists (28.5% vs. 9.4%, p<0.011, Figure 2). There were no significant differences between countries. When asked about the timing of this conversation, 2.8% stated that it occurs at the time of diagnosis, 7.3% that it occurs a few days following diagnosis, 8.3% that it occurs upon initiation of treatment, 65.1% that it occurs when there is a complication or clinical deterioration, 9.2% that it is never routinely discussed prior to ICU admission, and 7.3% were unsure. Compared to hematologic oncologists, intensivists were more likely to state that they were unsure of when these discussions were occurring (14.3% intensivists vs. 0% hematologic oncologists, p=0.004) or that resuscitation discussions never occur routinely prior to ICU admission (17.9% intensivists vs. 0% hematologic oncologists, p=0.001), while hematologic oncologists were more likely to report resuscitation discussions occur when there is a clinical deterioration (77.4% hematologic oncologists vs. 53.6% intensivists, p=0.009). UK Physicians were more likely to report that they were unsure when resuscitation discussions were occurring than physicians in Canada (20.7% vs 2.5% respectively, p=0.001). The majority of respondents identified either the hematologic oncologist (93.7%) or the intensivist (62.2%) as the most appropriate person to lead discussions surrounding resuscitation status, while 45.1% identified the palliative care physician and 31.5% identified the primary care physician as the most appropriate individual. In free text

comments, 4.5% indicated that this discussion is best performed as a joint conversation. While most intensivists (75.9%) felt that the ICU physician is the most appropriate person to have this discussion, less than half of hematologic oncologists (47.2%) agreed with this (p=0.002).

BARRIERS TO ACP

The barriers cited to the provision of ACP by hematologic oncology teams prior to ICU admission are outlined in Table 2. The barriers identified by the majority of respondents included (1) the perception that ACP discussions may overwhelm or provide unnecessary stress to the patient (68.8%); (2) a desire to maintain a positive perspective on the care plan and trajectory (59.6%); (3) concern that there may be difficulty accepting a poor prognosis (51.4%); and (4) concern about the complexity of understanding complications of life-sustaining therapy (50.5%). Compared to hematologic oncologists, intensivists were more likely to identify "the desire to maintain a positive perspective" on the part of hematologic oncologist (70.2% intensivists vs. 48.1% hematologic oncologists, p=0.019), lack of clarity over who is responsible for the ACP discussion (52.6% intensivists vs. 19.2% hematologic oncologists, p=0.003), clinician discomfort with ACP discussions (52.6% intensivists vs. 32.7% hematologic oncologists, p=0.036), and a sentiment that ACP discussions may change the physician-patient relationship (45.6% intensivists vs. 21.2% hematologic oncologists, p=0.007) as barriers to ACP. Lack of access to support~~s~~ such as chaplaincy or social work, was highlighted as a barrier by 36.6% of hematologic oncologists but only 10.5% of intensivists (p=0.001). There were no significant differences between barriers identified in Canada and the UK. While ICU and hematologic oncology physicians identified that ACP may impact the physician-patient relationship and therapeutic alliance as a reason their institutions may not be routinely implementing it pre-ICU, when asked if that was their personal belief, 88.3% of respondents said no, 9.9% were unsure, and 1.8% answered yes. There was no difference in this response across specialties or between countries.

RESOURCE AVAILABILITY

Looking at institutional resources for ACP, 55.5% of respondents were unsure if their facility had information for health care providers and 57.7% were unsure whether there was information available for patients and families. Overall, 3.6% of respondents rated ACP effectiveness in their department as excellent, 15.5% as good, 44.6% as average, 12.7% as poor, and 2.7% as very poor with 8.2% stating their institution does not routinely conduct ACP initiatives and 12.7% stating that they do not know how they would

rate ACP (Figure 3). Intensivists were more likely than hematologic oncologists to state that ACP effectiveness was excellent (7.0% intensivists vs. 0% hematologic oncologists, p=0.049) but there were no other differences between specialties or countries.

DISCUSSION

In this survey of intensivists and hematologic oncologists from Canada and the UK, a minority of respondents reported that ACP occurs routinely at their institution across this patient population at high risk for developing critical illness. Furthermore, many were unaware of the institutional resources available to them. Less than 10% reported routine resuscitation status discussions across this high-risk patient population, and less than 5% rated ACP effectiveness at their institution as excellent. When conversations regarding ACP or resuscitation were reported, it was typically in the face of a significant change in disease trajectory or clinical status – often at the time of critical illness. Several barriers to providing ACP in this patient population were identified by the majority of physicians, including overwhelming the patient and sustaining a positive outlook on the treatment plan. However, despite these concerns, the majority of physicians surveyed do not personally believe that ACP negatively impacts the therapeutic relationship between the patient and the healthcare team. While there are some important differences in perspective between intensivists and hematologic oncologists, particularly surrounding timing and optimal personnel to conduct ACP, few international differences were noted.

Survival for patients with HM requiring ICU admission is increasingly improving with advancements in oncology and critical care (8, 19), and pessimism surrounding their admission to the ICU is decreasing (20). However, for a subset of patients, the mortality rate remains high (21, 22). Timely ACP may help avoid non-beneficial interventions and unnecessary patient suffering while honoring patients' well considered wishes. Unfortunately, ACP is not commonly pursued in this high-risk population, which has critical implications for the patient and also impacts ICU resource utilization. Nonetheless, as our study demonstrates, healthcare providers report that these discussions are not routinely prioritized early in the disease course. There are also many perceived barriers and gaps in knowledge surrounding institutional support.

Our study contributes to a growing body of literature highlighting the widespread challenges to implementing ACP in HM patients with concerns frequently raised about the impact of these discussions on the patient and family. The themes identified in our study were comparable to those found in studies of hematologic oncologists in the US and Europe regarding end-of-life discussions in this patient population. In a survey of 349 hematologic oncologists in the United States, 56% of respondents felt that discussions regarding

end-of-life care occur too late in the disease course and 43% also acknowledged poor timing of discussions about resuscitation status, with only 27% stating that they address this issue when patients are stable or first diagnosed (23). When this physician cohort was asked about barriers to providing end-of-life care to HM patients, similar concerns about eliminating hope and unrealistic patient expectations also emerged (24). However, lack of prognostic certainty, lack of time, and unrealistic physician expectations were cited by over half of the respondents in this group. In a 2018 qualitative study, interviews with 10 European hematologists broadly categorized barriers into three main categories 1) the need to support patients, 2) the challenge of uncertainty, and 3) physicians' own beliefs about what is best for their patients (25).

While there are many parallels to the existing literature, our study has a series of unique strengths. It is the first to compare and contrast the perspectives of intensivists with oncologists on this important issue. Given that a significant proportion of HM patients will develop critical illness or be admitted to the ICU, we believe this is an important perspective to consider when identifying opportunities for improvement in our current approach to ACP. Previous survey studies that have examined perspectives of who should be conducting goals of care discussions or contributing to decision-making around ACP for oncology patients did not include intensivists as a potentially appropriate person to take an active role in these conversations.(26, 27). This study is timely given the growing presence of immune-effector cell therapy (e.g. chimeric antigen receptor (CAR) T-cell therapy for HM patients. CAR T-cell therapy has become a viable treatment option across adult patients with B cell malignancies that have failed conventional treatments. These treatments are associated with significant toxicities that may necessitate transient escalation to critical care support. Our study highlights an important opportunity for collaboration and mutual learning between oncologists and intensivists, which may benefit future ACP initiatives in this patient population. As suggested by several of the physicians surveyed, joint ACP discussions with multiple specialities present may be considered to address the complexities of caring for severely ill HM patients and improve patient care. Furthermore, a significant proportion of respondents highlighted the appropriateness of involving palliative care physicians in advance care planning discussions which has been echoed previously in the literature.(27) In addition to being the first study to compare the perspectives of intensivists with hematologic oncologists, to our knowledge this is also the first survey of ACP in the HM population across publicly funded systems in multiple countries. The impact of the health care system's structures, renumeration and bed availability could impact thresholds of ICU admission and candidates for ICU admission. The generalizability of prior studies from different countries with two-tiered or private health care systems might not be applicable to countries such as Canada or the UK where the health care systems are publicly funded. Finally, our study adopts a holistic approach toward ACP rather than focusing

solely on end-of-life conversations, which has not been previously explored in this high-risk patient population. As a component of the larger care plan, ACP is a process which often requires multiple conversations to continuously reassess the patient's wishes as their clinical situation evolves. It is important to understand when and how these conversations are occurring.

Our study has a series of limitations, including non-respondent bias. Nineteen percent of the 730 physicians who were emailed the survey responded. We could not quantify what proportion might have been filtered by hospital servers, raising the concern that the email never reached certain physicians' inboxes. When limited to those who opened the email, 39% of physicians responded. It is possible that respondents represent physicians who are already engaged in ACP and recognize its importance, or alternatively, are unsatisfied with the current processes at their institution which may have altered our results. Secondly, we elected to focus our study on Canada and the UK. This is because of the concern that results from other studies may not be generalizable and because of similarities in health care structure and ICU /hospital bed ratios compared to other developed nations. Contemporary data available on differences that may exist in the process of care for this population between these two countries (e.g. thresholds for end of life care or critical care admission) is not completely defined. It is important to note that specialist physicians working in public hospitals in the UK are salaried while Canadian physicians are largely paid on a fee-for-service basis which may impact renumeration around ACP activities. However, almost all physicians surveyed work in academic medical centres which are likely to have dedicated palliative care consultation services in both Canada and the UK which may have influenced responses and attitudes towards ACP. Furthermore, no major differences were noted in the responses between the two countries. A third limitation is that physicians' perceptions of current practice may not reflect actual practice. Nonetheless, even if the information gained by this study may not comprehensively reflect physician practice around ACP, it does throw significant light on the real-life status of ACP discussions in two countries with similar publicly funded health care systems. Finally, we did not include patients or families in the development of the survey which would have contributed important perspectives. Future research should focus on strategies to provide routine access to ACP as part of the comprehensive care of high-risk HM patients. The optimal timing of these ACP interventions and methods of overcoming the identified barriers also need to be better understood.

CONCLUSIONS

In this international questionnaire study, intensivists and hematologic oncologists report that discussions about ACP and resuscitation are not occurring routinely for patients with HM. These conversations are perceived to be delayed until there is a significant change in

the patient's disease trajectory, or they become acutely ill. The most commonly cited barriers to providing ACP to this high-risk patient population center on concerns about the patient's reaction to and acceptance of these conversations. However, few physicians feel that ACP adversely impacts the therapeutic relationship between the patient and healthcare team. These results highlight the need for collaborative approaches to ACP for patients with HM that are integrated into routine care and also address potential barriers to implementation of these initiatives.

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Table 1: Respondent Characteristics

Characteristic	All Respondents N (%)	Intensivists N (%)	Hematologic Oncologists N (%)
Age, years			
20-35	10 (9.3)	4 (7.1)	6 (11.5)
36-50	69 (63.9)	40 (71.4)	29 (55.8)
51-65	25 (23.2)	12 (21.4)	13 (25.0)
66-80	4 (3.7)	0 (0.0)	4 (7.7)
Sex			
Female	48 (41.0)	25 (44.6)	17 (35.4)
Male	69 (59.0)	31 (55.4)	31 (64.6)
Years in Practice			
1-10	53 (47.7)	32 (55.2)	21 (39.6)
11-20	42 (37.8)	21 936.2)	21 39.6)
>20	16 (14.4)	5 (8.6)	11 (20.8)
Practice Location			
Canada	81 (73.6)	40 (70.2)	41(77.4)
United Kingdom	29 (26.4)	17 (29.8)	12 (22.6)
Academic Affiliation			
Academic/university affiliated	101 (94.4)	53 (94.6)	48 (94.1)
Community hospital	6 (5.6)	3 (5.4)	3 (5.9)
Type of Hospital			
Specialized cancer center	51 (54.3)	19 (40.4)	32 (68.1)
General hospital	43 (45.7)	28 (59.6)	15 (31.9)
Type of HM Patients Seen in Practice			
Acute leukemia	85 (78.7)	63 (77.8)	22 (81.5)
Chronic leukemia	78 (72.2)	56 (69.1)	22 (81.5)
Lymphoma	86 (79.6)	62 (76.5)	24 (88.9)
Hematopoietic stem cell transplant	72 (66.7)	55 (67.9)	17 (63.0)
Multiple myeloma	72 (66.7)	50 (61.7)	22 (81.5)
Myelodysplastic syndrome	75 (69.4)	55 (67.9)	20 (74.1)
Myelofibrosis	64 (59.3)	46 (56.8)	18 (66.7)
Other	7 (6.5)	3 (3.7)	4 (14.8)

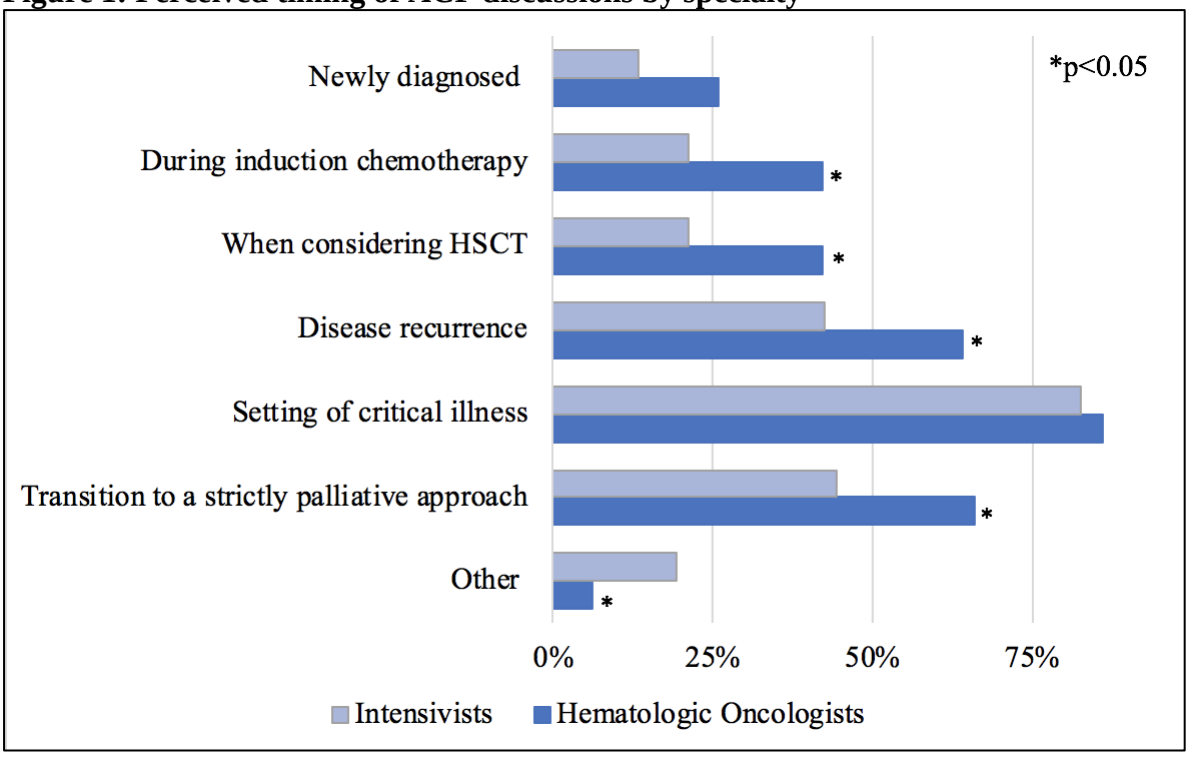
All data is presented as N (%)

Table 2: Barriers to ACP

Barrier	All Respondents N (%)	Intensivists N (%)	Hematologic Oncologists N (%)	p value
Concern that ACP discussions may overwhelm or induce unnecessary stress on the patient	75 (68.8)	42 (73.7)	33 (63.5)	0.25
Desire to maintain a positive perspective on the care plan and trajectory	65 (59.6)	40 (70.2)	25 (48.1)	**0.019**
Concern that there may be difficulty accepting poor prognosis	56 (51.4)	31 (54.4)	25 (48.1)	0.510
Concern about the complexity of understanding complications of life sustaining therapy	55 (50.5)	30 (52.6)	25 (48.1)	0.635
Inadequate time to make arrangements and discuss ACP	49 (45.0)	25 (43.9)	24 (46.2)	0.810
Clinicians are not comfortable having ACP discussions	47 (43.1)	30 (52.6)	17 (32.7)	0.036
Concern surrounding family or patient refusal to discuss	45 (41.3)	23 (40.4)	22 (42.3)	0.836
It is not clear who is responsible for initiating ACP discussions	40 (36.7)	30 (52.6)	10 (19.2)	**<0.001**
Sentiment that discussions around ACP may change the patient-physician relationship	37 (33.9)	26 (45.6)	11 (21.2)	**0.007**
Disagreement among patient and family members about goals	35 (32.1)	16 (28.1)	19 (36.5)	0.344
Clinicians are not trained to have ACP discussions	28 (25.7)	15 (26.3)	13 (25.0)	0.875
Lack of access and availability of social work, chaplaincy, or psychologic supports	25 (22.9)	6 (10.5)	19 (36.5)	**0.001**
Inadequate financial compensation for ACP	10 (9.2)	6 (10.5)	4 (7.7)	0.608
Other	6 (5.5)	6 (10.5)	0 (0.0)	**0.016**
There are no barriers	5 (4.6)	1 (1.8)	4 (7.7)	0.139

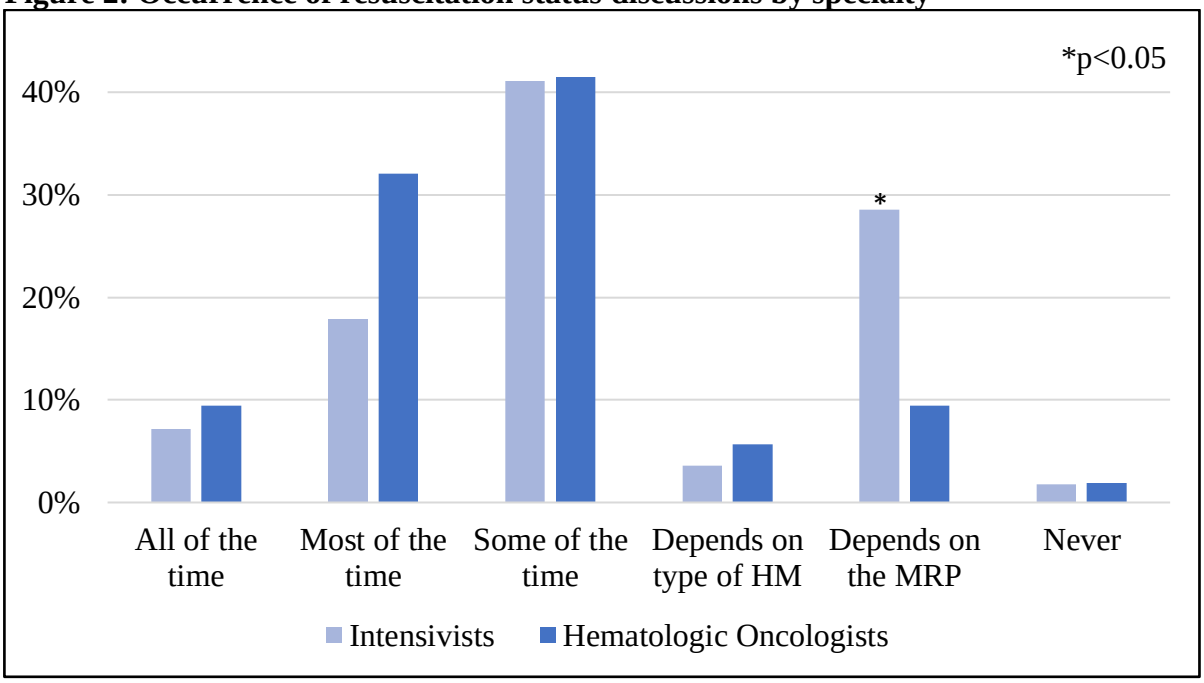
Data represents N (%), p value represents comparison between intensivists and hematologic oncologists
ACP = advance care planning

Figure 1: Perceived timing of ACP discussions by specialty



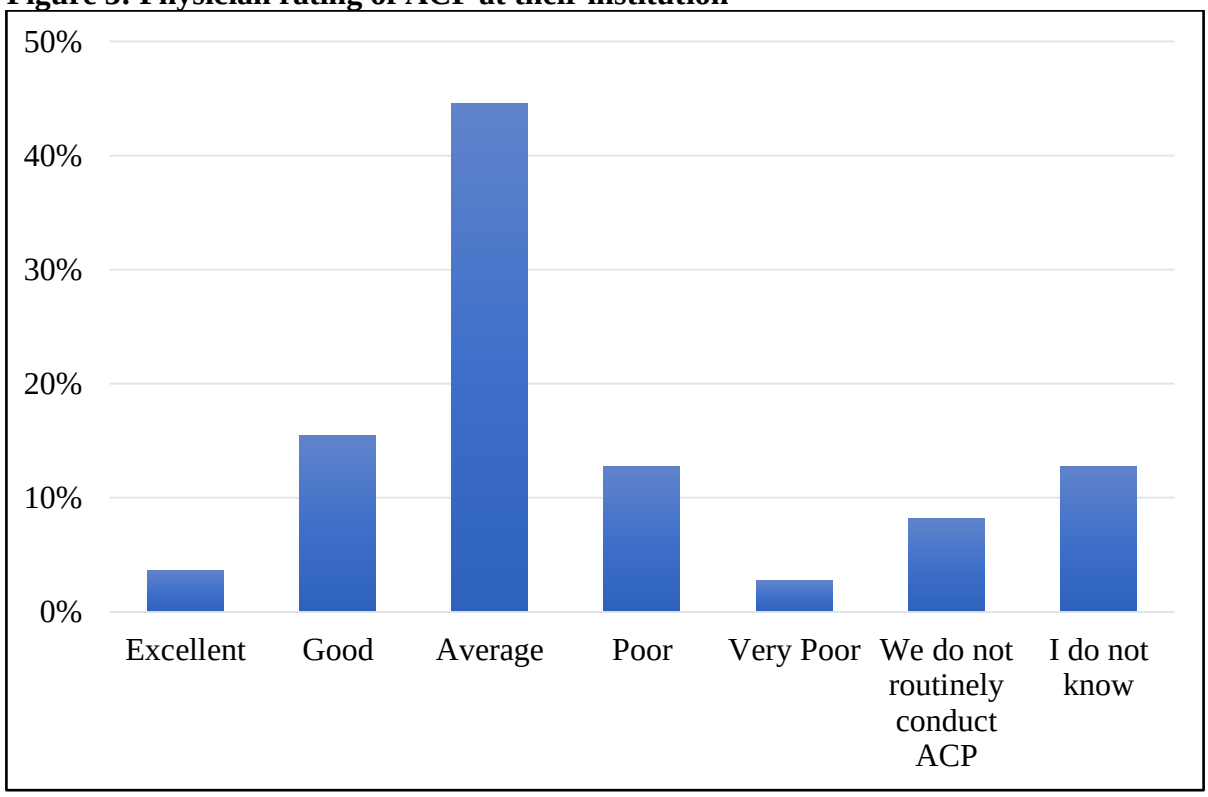
Question: If ACP takes place within your facility, which patients are approached?
HSCT = Hematopoietic stem cell transplant

Figure 2: Occurrence of resuscitation status discussions by specialty



Question: How often are discussions regarding resuscitation status (CPR, intubation in the context of a cardiac arrest) conducted in patients admitted with hematologic malignancies?

Figure 3: Physician rating of ACP at their institution



Question: How effective is ACP within your department? (Effective being defined by sufficient knowledge translation of disease prognosis, potential trajectory of care and understanding patient's wishes surrounding aggressiveness of care)