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A qualitative study of providers' perspectives on cross-institutional care coordination for pancreatic cancer: challenges and opportunities

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Abstract

Background Despite calls for regionalizing pancreatic cancer (PC) care to high-volume centers (HVCs), many patients with PC elect to receive therapy closer to their home or at multiple institutions. In the context of cross-institutional PC care, the challenges associated with coordinating care are poorly understood.

Methods In this qualitative study we conducted semi-structured interviews with oncology clinicians from a HVC ($n=9$) and community-based hospitals ($n=11$) to assess their perspectives related to coordinating the care of and treating PC patients across their respective institutions. Interviews were transcribed, coded, and analyzed using deductive and inductive approaches to identify themes related to cross-institutional coordination challenges and to note improvement opportunities.

Results Clinicians identified challenges associated with closed-loop communication due, in part, to not having access to a shared electronic health record. Challenges with patient co-management were attributed to patients receiving inconsistent recommendations from different clinicians. To address these challenges, participants suggested several improvement opportunities such as building rapport with clinicians across institutions and updating tumor board processes. The opportunity to update tumor board processes was reportedly multi-dimensional and could involve: (1) designating a tumor board coordinator; (2) documenting and disseminating tumor board recommendations; and (3) using teleconferencing to facilitate community-based clinician engagement during tumor board meetings.

Conclusions In light of communication barriers and challenges associated with patient co-management, enabling the development of relationships among PC clinicians and improving the practices of multidisciplinary tumor boards could potentially foster cross-institutional coordination. Research examining how multidisciplinary tumor board coordinators and teleconferencing platforms could enhance cross-institutional communication and thereby improve patient outcomes is warranted.

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Keywords Pancreatic cancer, Tumor board, High-volume centers, Patient co-management, Care coordination, Rural health

Introduction

Although pancreatic cancer (PC) is the 11th most common cancer in the U.S., it ranks third in cancer-related deaths, with a 5-year survival rate of only 9% [1, 2]. Several recent clinical trials have shown improvements using both systemic (i.e., chemotherapy) and surgical treatments [3] for this disease, and these advancements are reflected in numerous evidence-based treatment guidelines [4, 5]. However, more than one-half of patients with PC do not receive stage-specific, guideline-concordant care, resulting in worse mortality and morbidity compared to patients who do receive guideline-concordant care [6–8]. Previous research suggests that PC patients treated at low-volume centers are less likely to receive guideline-concordant care, which contributes to worse outcomes [9]. Furthermore, there is a well-established correlation between higher treatment volume and improved outcomes for patients with PC [10, 11].

These findings have sparked calls for greater regionalization of PC care at high-volume centers (HVCs) [12]. While regionalization of care can allow for a “one-stop shopping” experience where patients receive care from multiple cancer specialists and subspecialists within a single institution, it can also be problematic for patients who do not live near a HVC [11] or who prefer to receive certain aspects of their cancer treatment (e.g., chemotherapy, radiation) closer to home [13]. For example, these patients may undergo preliminary tests in community-based settings before being referred to a HVC, [14] and this requires coordination between high-volume center providers (HVCPs) and community-based providers (CBPs) to reduce the risk of redundant diagnostic testing that can contribute to increased costs, delayed treatment, and patient dissatisfaction [15–17].

However, the inherent complexities associated with multi-institutional care coordination [18] are poorly understood. To expand our knowledge about the challenges and facilitators of coordinating the care of patients with PC between HVCPs and CBPs, we conducted a qualitative study to elicit the perspectives of both HVCPs from an urban academic medical center and CBPs in surrounding rural counties regarding the coordination of oncologic services for patients with PC to identify opportunities to further improve cross-institutional care coordination.

Methods

Participant selection

We used a purposeful sampling approach [19, 20] to identify and recruit clinicians with prior experience treating

or managing patients with PC because they could speak in depth about the coordination of PC care. HVCPs were board-certified oncologists recruited from medical, surgical, and radiation oncology departments within a large Midwestern academic medical center ($n=9$) that met the criteria for hospital and surgeon volume for pancreatic resection of cancer (response rate=69.2%). CBPs were recruited from health systems in rural counties and included board-certified oncologists ($n=9$) and nurse practitioners ($n=2$) who care for patients with PC (response rate=68.8%); rural counties were identified as defined by the U.S. Department of Agriculture [21]. CBPs were recruited based on their participation in the [Blinded for Peer Review], a state-wide network of community-based hospital partners specializing in oncologic services. CBPs were contacted if they referred at least 1 patient to the HVC within the past 5 years; those with highest referrals were contacted first. A study recruitment letter was emailed to oncology clinicians by the study PI describing the purpose of the study and asking if they would participate voluntarily in an interview. We aimed to recruit a diverse group of clinicians that represented the different specialists along the cancer care continuum for PC care thereby enabling us to improve understanding of the varied challenges and facilitators of PC care coordination from multiple perspectives. The Ohio State University Institutional Review Board approved this study.

Clinician interviews

We developed a semi-structured interview guide to elicit information regarding the co-management and care coordination of PC patients across hospitals. In particular, we asked how HVCPs and CBPs shared information, made referrals, and used health information technology to plan follow-up care, report on patient progress, and inform cancer treatment decision-making (semi-structured interview guide available upon request).

Data collection

The first author conducted one-on-one interviews with clinicians using Zoom™, an online video conferencing platform, during Spring through Fall of 2020. One interview included two participants. Participants were allowed to choose if they wanted to have a face-to-face (i.e., video and audio on) or audio-only interview. All participants provided informed verbal consent prior to participation. Interviews lasted approximately 30 min (range=23–45 min) and were audio-recorded and

Table 1 Interviewee characteristics by affiliation

Interviewee Characteristics	Interviewee Affiliation	
	High-Vol- ume Center (N=9)	Communi- ty-Based Hospital (N=11)
Role, n (%)		
Medical Oncologist	4 (44.4)	5 (45.5)
Surgical Oncologist	3 (33.3)	--
Radiation Oncologist	2 (22.2)	3 (27.3)
General Surgeon	--	1 (9.1)
Nurse Practitioner	--	2 (18.2)
Years in Reported Role, average (range)	2.6 (< 1–6)	5.5 (1–20)
Number of Pancreatic Cancer Patients Treated in Year Prior to Study, average (range)	63 (20–150)	10 (3–20)

Table 2 Provider perspectives on challenges associated with closed-loop communication and patient co-management

Challenge Theme	Supportive Quotations
Closed-loop communication	"...[HVCPs] want us to take care of [the patients] and locally, but we have no record of what happened up there [at the HVC]. So, it's a real problem in terms of the loop getting back to us" (CBP). "Like there are times that we can push the images in [Blinded for Peer Review] and other systems. So, it, at times, happens now. But it is not routine and it is not consistent. So, a consistent way that we all can share images would make the biggest difference probably" (HVCP).
Patient co-management	"...sometimes if that communication that we already spoke about is not in place, you know, what I've seen some is that patients may get different messages from different people because there might not be always only one way to manage a particular situation or disease" (CBP). "...when you have multiple providers, how do you possibly make this happen other than sending messages back and forth, which is kind of what we're already doing? A lot of it relies on the patient" (HVCP).

transcribed verbatim. We interviewed nine HVCPs and 11 CBPs as shown in Table 1.

Data analysis

We analyzed the interview transcripts using both deductive and inductive approaches to allow for the categorization of data based on the interview guide (deductive), as well as identification of emergent themes (inductive) [22]. A preliminary coding dictionary was created by [Blinded for Peer Review] based on the questions in the interview guides and themes that emerged during the initial review of interview transcripts. The same two authors then independently applied the codebook to the first nine interview transcripts and met frequently to compare coding processes and address coding discrepancies, refine codebook definitions, and discuss new themes. [Blinded

for Peer Review] then coded the remaining transcripts using the refined codebook to ensure coding consistency. This coding was supervised by the first author who has years of qualitative research experience and qualitative methods training, and overseen by a senior investigator [Blinded for Peer Review], a qualitative methods expert. We reached saturation [23] with respect to the themes that emerged based on the consistency of comments across institution types (i.e., HVCP vs. CBP). We used the ATLAS.ti qualitative data analysis software (version 6.0; Scientific Software Development GmbH; Berlin, Germany) to support our analysis.

Results

Coordination challenges

Across HVCP and CBP interviews, participants commented on the challenges associated with PC care coordination; specifically, (1) closed-loop communication and (2) patient co-management. Below, we explore these two themes in greater detail, with additional supporting quotations presented in Table 2.

Closed-loop communication

Participants described challenges with obtaining updated medical records and treatment plans from other institutions and lack of a shared electronic health record (EHR) system. First, with respect to not exchanging medical record updates, participants felt clinicians could do better keeping track of how patients responded to treatment or what was accomplished during clinical visits. As one participant noted, "And [the CBP] didn't record a comment in the notes [about] how [the patient's] clinical symptoms changed with treatment, so that, that gets me a little frustrated" (HVCP). Second, not sharing an EHR was perceived to have a negative impact on HVCP-CBP communication. One clinician explained:

I was saying, communication is harder when providers don't share the same [electronic health record] system, right? So, you can't just send an email on your [HVC] email address and you don't have everybody's cell phone. And calling doctors' offices to get a hold of people is extremely cumbersome and often not successful (HVCP).

Given this aforementioned challenge, one clinician also highlighted the need to receive timely updates, "You know, if everyone's on the same EMR [Electronic Medical Record], if something went to the inbox of the provider, either the referring provider or like an alert or something, I think that would also be helpful" (HVCP).

Patient co-management

Participants also described challenges associated with PC patient co-management. The major challenge reported was the communication of recommendations between clinicians across institutions and their patients. For example, one participant explained how conflicting recommendations could create confusion for patients:

So, you might get somebody saying one thing and somebody else saying another thing, and ultimately maybe the difference isn't even that large. But in the patient's mind, if they're getting different messages, I think that creates some level of uncertainty... (CBP).

Some participants commented on having to rely on patients to relay treatment recommendations and messages to other clinicians as patients' care needs evolved. One participant noted, "I reiterate that this is either what I would do or what this is currently what's recommended and then [the patient] takes that back to their local provider..." (HVCP). Another clinician offered a similar view, reflecting on the challenges of co-managing a PC patient with clinicians working in a different institution:

Every phone call had very detailed instructions of what to do and then eventually when [the patient] came back for me to make a judgment about the response, we didn't have appropriate scanning again. We didn't have appropriate lab tests despite all that effort from both the patient and the [HVC] staff. So I'm not really sure what to do honestly (HVCP).

Strategies to improve coordination: multidisciplinary tumor boards

In light of these challenges, participants identified strategies to improve cross-institutional coordination for PC patients. Participants' suggestions primarily focused on augmenting multidisciplinary tumor boards—conferences to discuss cancer cases and exchange knowledge and ideas—with (1) a coordinator role, (2) meeting documentation and dissemination, and (3) teleconferencing to facilitate CBP engagement during multidisciplinary tumor boards. In the reporting of our findings, we distinguish among institutional affiliations (i.e., HVCP vs. CBP) because clinicians' perspectives about these three strategies differed by location.

Tumor board coordinator

HVCPs noted that having a designated tumor board coordinator would help address communication challenges between HVCPs and CBPs. For example, having a liaison take notes and share the tumor board's

recommendations with CBPs could ensure that the pertinent information was communicated. One clinician described how this could look in practice,

Maybe having one person, and it could be the person who organizes the tumor board each week [...] documenting each case and what the right recommendation is. And then having that individual be the point person to communicate the record, those recommendations, making sure that is not missed (HVCP).

HVCPs also described how this coordinator role could facilitate the sharing of information discussed at tumor board meetings, to remind CBPs to perform specific tests or scans on PC patients. As one clinician explained,

But then if you have a coordinator at the tumor board who is a liaison, then we can quickly say, 'Hey, like patient ABC at tumor board need scans done locally, need this done locally.' That could be something that we could add and update our tumor boards (HVCP).

Tumor board documentation and dissemination

CBPs described the potential advantage of having HVC tumor board discussions documented and forwarded to them. Participants indicated that these documents could assist with updating CBPs about the treatment plans that were developed during tumor boards and what HVCPs recommended in terms of co-managing PC patients. One clinician said,

I wonder if [the tumor board discussion] would be something that could ever go into a formal documentation of, 'Hey, this is what we discussed, this is the conclusion of the tumor board,' so that it's the board directly, or streamline or send the providers who are co-managing these patients... (CBP).

Another clinician explained how documentation of tumor board discussions would facilitate patient co-management,

And maybe having like a formal tumor board type document that has that recommendation, so that doctors in the community, who may not see pancreatic cancer as much, have more of a footing to stand on and might feel more comfortable treating patients. And, then I think that would help deliver the standard that [HVC] is trying to provide (CBP).

Tumor board teleconferencing

Several CBPs indicated they would be interested in using teleconferencing to participate in in HVC-based tumor boards to better understand what other clinicians were thinking and to make decisions regarding the patients they co-managed. One participant expressed their willingness to be a virtual tumor board participant,

So, maybe just having a link into the individual tumor boards down there [at the HVC], where you can get the opinion of all the experts in the room real time and not have to worry about like, getting the information faxed and stuff like that. Being part of the actual discussion [...], and just being able to add on patients that you mutually share [...]. The communication in that room will be very direct and nothing will get lost (CBP).

Participants identified teleconferencing tools such as Zoom™ as another potential facilitator of HVCP-CBP coordination. One CBP noted how these tools could improve coordination,

It would be pretty cool to get invited to [the HVC pancreatic cancer tumor board]... The navigator would say, 'Hey, your patient's being discussed, you know, three days from now.' And you can call in to a Zoom meeting and listen in or even give some input about how hard it is [for the patient] to come up there [...] And I think that would elevate the coordination of care pretty significantly (CBP).

An enabling condition: building rapport

Participants noted that building rapport with clinicians in other institutions is an enabling condition necessary for optimizing PC care coordination. For example, having face-to-face meetings and having an opportunity to share personal contact information reportedly enabled communication. For instance, one participant explained how these meetings affected coordination:

[The HVC surgeon] came up to our facility and met us personally, took a tour around, basically gave us their cell phone number and so, we just text them. We send images, patient history, and then we fax information to the office. And they'll arrange an office visit when that's possible (CBP).

A HVCP also explained how face-to-face meetings allowed them to foster relationships and how it improved clinician communication:

I think they're much more likely to communicate with you if they've ever met you. So, I mean a lot of the people I've actually went and met and so then just, you know, fostering those relationships. I would say once you've called them once or twice and keep them up to date about how their patients are doing, they're very thankful and appreciative of that (HVCP).

Just as face-to-face meetings were noted to contribute to better communication because clinicians could “actually have a name and a face and a phone number” (CBP), sharing information in a timely manner also encouraged relationship building. One participant explained, “just making sure that all [the HVCP’s] recommendations and information is communicated with the referring provider and in a timely fashion is a good way to foster relationships” (CBP).

Discussion

In our qualitative study of cancer specialists who treat or manage patients with PC, we identified themes around the challenges of and strategies to improve cross-institutional PC care coordination. Participants reported poor communication and limited information sharing across institutions as barriers to effective PC care coordination. To address these barriers, clinicians at both HVCs and community-based hospitals identified strategies to promote coordination via improvements to multidisciplinary tumor board infrastructure and processes as well as by strengthening relationships between HVCPs and CBPs.

Similarly, extant literature suggests that optimal care coordination [24] improves outcomes for patients undergoing multidisciplinary treatment for cancer. Specifically, in a recent systematic review and meta-analysis, the authors found optimal cancer care coordination led to improvements in 81% of measured outcomes; these included improvements in screening, patient-reported experiences with care, and quality of end-of-life care [25]. In this vein, our findings highlight some of the challenges that HVCPs and CBPs encounter co-managing rural PC patients that may contribute to less optimal care coordination. For example, we found both HVCPs and CBPs reported similar difficulties with respect to coordinating care for PC patients because their respective institutions did not share a common EHR system; thus, hindering closed-loop communication. This is critical, as effective communication and cooperation across the multidisciplinary team was also identified as a key component to effective care coordination in similar studies [26]. Challenges with effective two-way communication were thought to directly impact patients by requiring them to act as the intermediary between clinicians. In this context, lack of communication between clinicians

may lead to duplicated tests, delayed time-to-treatment, or other adverse outcomes related to cancer care [15–17]. For these reasons, it is essential to highlight the need for improved communication across institutions to improve healthcare delivery efficiency, patient safety, and outcomes.

It is also notable that clinicians identified both an enabling condition and facilitators of care coordination that involve enhancements to multidisciplinary tumor boards. Unlike one-on-one provider meetings or consultations, tumor boards [27] are “dedicated conferences where multiple care teams meet to discuss the management of patients with cancer to agree upon diagnostic, treatment, and surveillance plans and to coordinate patient care.” Several types of providers are invited to log into a video conference remotely and participate, including cancer specialists and other providers and allied health professionals to address the care planning needs of complex patients. In addition to addressing deficiencies in exchanging treatment plans and records, co-participation in tumor boards was seen as a potential process improvement option. Often, tumor boards are limited to clinicians at a single institution. With the emergence of videoconference technology, there have been several studies showing the benefit of cross-institutional tumor board meetings that can be held virtually [28, 29]. For example, a recent review found virtual tumor boards for lung cancer patients encouraged interaction among large referral cancer centers and community hospitals [29]. These findings are similar to a case study that found CBPs valued being involved in the tumor board discussion, and the meetings served as an opportunity for clinical trial recruitment [30]. Further research that examines the impact of community-based clinician participation in tumor boards on care coordination and patient outcomes is warranted. Moreover, in addition to providing a multidisciplinary evaluation for PC patients, virtual tumor boards may serve as a platform to promote relationship-building between HVCPs and CBPs. These conferences can offer opportunities for clinicians to discuss the co-management of critical aspects of a patient’s care [31]. Given our findings, it will be important to explore whether and to what extent familiarity amongst HVCPs and CBPs predicts communication timeliness and quality within the context of cross-institutional management of patients with PC in future research.

There are limitations to our study. First, our research involved clinicians directly (employed) or indirectly (provide referrals for) associated with a single institution, limiting the generalizability of our findings to other clinicians (e.g., primary care physicians), non-clinicians (e.g., social workers, psychologists), and health care systems (e.g., the National Health Service). For instance, we did not interview primary care or other allied health

professionals who play a central role in planning the care of patients undergoing treatment for PC [32]. Therefore, the application of our findings may be limited to cancer specialists. Nonetheless, our study included clinicians across all cancer specialties and several different institutions enabling us to comprehensively evaluate clinicians’ perspectives across a wide range of practice settings in this region. Second, our study focused on cross-institutional coordination specific to PC care and may not represent challenges faced by clinicians treating or co-managing patients with other cancers. Patients with PC, however, face complex treatment decisions, [33] and thus the current study may provide useful information for clinicians who must overcome similar barriers when coordinating complex care for patients across multiple institutions. Finally, although we cannot be certain of the extent to which COVID-19 influenced coordination between HVCPs and CBPs, we do know that the HVC paused in-person outreach with CBPs when social distancing protocols were in effect. These restrictions likely made it difficult for HVCPs and CBPs to build rapport, but they may have had a negligible impact on HVCP-CBP coordination as telephonic and other electronic means of communication were already commonly used.

Effective care coordination is a vital part of caring for patients with PC who, for various reasons, receive concurrent treatment at community-based practices and HVCs. Problematic communication and information exchange between HVCPs and CBPs seriously challenge cross-institutional care coordination and may impact the quality of care patients receive [25, 34]. Taking steps to improve efficiency in communication may help facilitate the development of cohesive treatment plans and promote coordination. Future efforts should leverage existing communication tools and provide opportunities for collaboration and relationship building across care teams and institutions.

Abbreviations

CBP	Community-based provider
EHR	Electronic health record
HVC	High-volume center
HVCP	High-volume center provider
PC	Pancreatic cancer

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12913-024-11483-1>.

Supplementary Material 1

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Author contributions

MJD was responsible for conceptualization, methodology, formal analysis, investigation, validation, writing, review, and editing. KSY was responsible for formal analysis, data curation, validation, visualization, writing, review, and editing. NAK was responsible for investigation, validation, writing, review, and editing. AS was responsible for project administration, writing, original draft, review and editing. BLW was responsible for conceptualization, writing, review, and editing. LJR was responsible for project administration, writing, review, and editing. ASM was responsible for conceptualization, methodology, supervision, resources, writing, review, and editing. AE was responsible for conceptualization, methodology, funding acquisition, writing, review, and editing.

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Data availability

The data generated and analyzed during this study are not publicly available to protect the confidentiality of study participants. De-identified data from this study will be made available on a per case basis (as allowable according to institutional IRB standards) by emailing Dr. Aslam Ejaz, MD, MPH (aejaz@uic.edu).

Declarations**Ethics approval and consent to participate**

The Ohio State University Cancer Institutional Review Board approved this study. All methods were carried out in accordance with relevant guidelines and regulations. Informed consent was obtained from all the study participants or their legal guardians.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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