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Understanding Barriers to Contraception Screening and Referral in Female Adolescents and Young Adults with Cancer

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Background: Contraception screening and referral occur infrequently in cancer care for young women of reproductive age. Barriers to contraception screening and referral in this setting have not been thoroughly identified.
Objectives: We sought to understand oncology clinicians' current practices and perceptions of barriers to screening and referring young women for adequate contraception during cancer treatment.
Methods: We conducted individual semi-structured interviews with 19 oncology clinicians whom we recruited from an urban, northeast medical center. Participants included physicians, advanced practice clinicians, and nurses in surgical and medical oncology. The interview guide addressed core components of the Promoting Action on Research Implementation in Health Services framework, and subsequent directed content analysis identified themes indicative of barriers to contraception screening and referral.
Findings: Participants varied significantly in their current contraception screening practices; many conflated early pregnancy diagnosis or pregnancy avoidance counseling with contraception, whereas others described inaccurate contraceptive recommendations for specific clinical scenarios. Participants also lacked clarity of roles and responsibilities within the oncologic care team for contraception and assumed that another team member had addressed contraception. Participants perceived themselves to lack adequate education about contraception, which precluded contraception discussions.
Conclusion: We recommend cancer centers consider these possible barriers to contraception screening and referral by promoting development of institutional guidelines to standardize contraception screening and referral, clarifying roles and responsibilities for contraception discussions within the care team, and expanding oncology clinician education on contraception. National professional organizations should work to expand guidelines to inform and support this process in clinical practice.

Keywords: contraception, family planning, reproductive health, female

Background

Approximately 70,000 adolescents and young adults (AYAs) with cancer, defined by the National Cancer Institute as patients aged 15–39 years, are diagnosed with cancer each year in the United States.[1] An estimated 20%–30% of all new cancer diagnoses occur in females younger than 45 years, many of whom have reproductive potential.[2] Pregnancy during cancer treatment can lead to significant morbidity for both the patient and fetus, such as treatment delays or modifications from standard treatment and the risk of treatment-related teratogenicity.[2,3] Prior studies suggest that AYAs with cancer engage in sexual activity at similar rates to their healthy peers and are therefore at similar risk of pregnancy.[4] Unintended pregnancy rates among AYA survivors are higher than their healthy peers, although pregnancy rates during cancer treatment are not well studied.[5] Adequate contraceptive counseling is imperative in this setting.[5,6] Preventing undesired or unplanned pregnancies in this population can improve both cancer care and reproductive outcomes.

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The National Comprehensive Cancer Network (NCCN) recommends contraceptive counseling for AYAs before starting treatment,[1] yet offers little guidance for contraception screening and referral for oncology clinicians. Recent research suggests that oncology physicians infrequently discuss contraception or refer patients for contraception counseling.[3,7] A 2017 systematic review describes perceived barriers to contraception counseling in the oncologic setting, including clinician's misperception of pregnancy risk due to possibility of infertility and treatment-related changes in menstruation, and clinician and patient difficulty in addressing ''sexual topics.''[5] To our knowledge, no other studies have considered clinician-reported barriers specifically to contraception discussions.[3] We explored a range of oncologic clinicians' current practices and perceptions of barriers to contraception screening and referral for female AYAs to expand upon the knowledge of these barriers and to guide future implementation of these practices at our cancer center.

Methods

Design and methodology

We designed this qualitative pre-implementation study based on key elements of the Promoting Action on Research Implementation in Health Services (PARiHS) framework.[8] The PARiHS framework posits that successful implementation relies on the interaction between three elements: evidence, context, and facilitation.[8] *Evidence* includes research findings, clinical and patient experiences, and local information. *Context* assesses the setting's culture, leadership and evaluation, and their influences on implementation. *Facilitation* identifies specific roles, skills, and attributes that may assist or dissuade implementation within a given setting.[8] The strength of each element helps inform successful implementation of an evidence-based practice.[8]

We developed an interview guide based on the three elements of the PARiHS framework (Appendix A1). Other qualitative studies in oncology, contraception, and other areas of health care have used the PARiHS framework to guide the development and scope of their interview questions.[9–11] Our aims were to examine each element to comprehensively understand the contraceptive screening and referral process at our cancer center and to identify multilevel recommendations to guide future implementation.

Questions related to *evidence* focused on understanding clinicians' knowledge and current practices around contraception counseling, method preference and discontinuation during oncology care, and perceptions of the impact of pregnancy on a patient's care. For *context*, we explored perceived responsibility for contraception discussions and experiences with contraception referral. For *facilitation*, we examined perceptions of supports or processes that would promote implementation, including education on contraception and personal attitudes toward implementation of contraception screening and referral.

Eligible participants included physicians, registered nurses (RN), and advanced practice clinicians (APCs) involved in oncologic care of female AYAs. We recruited from medical and surgical oncologic fields and by clinician type to explore perspectives of various members of the care team. We recruited participants through email lists provided by clinical leadership in the cancer center and review of staff listed on institutional websites, in-person conversations, and snowball sampling. We attempted to minimize selection bias by inviting all oncology clinicians to participate and by sampling by provider type and clinical focus.

One research team member (S.F.L.), a female obstetrician–gynecologist, conducted 19 semi-structured, individual interviews with participants at a cancer center in an urban, academic northeast medical center. Interviews were audio-recorded and professionally transcribed verbatim, and each participant received a $50 gift card for participation. This study was designated as exempt by the medical center's institutional review board.

A research team member reviewed each transcript for accuracy and to remove any identifying information. Two trained researchers (S.F.L. and N.L.J.) independently coded each transcript using an initial coding dictionary based on elements of the PARiHS framework. After coding the first two interviews, the two researchers compared codes, resolved coding differences, refined existing codes and definitions, and created related subcodes. These two researchers continued to independently code and collaboratively review each coded transcript and revise the coding dictionary as needed. When coding discrepancies were unable to be resolved, a third researcher (L.Y.-N.) analyzed the transcript and reviewed the coding dictionary to achieve consensus. We performed data analysis in tandem with the interviews, using directed content analysis[12] and the constant comparative method[13] to refine the interview guide iteratively, as needed. We managed the data and quantified how many times each code was applied during data analysis, and how many interview transcripts included each code using NVivo Version 11.0 Software.[14] Codes most frequently used, and appearing in at least two interview transcripts, were selected for further analysis. Transcript data for each of these selected codes were collectively reviewed and summarized. Two researchers (S.F.L. and L.Y.-N.) then grouped codes with similar or related summary statements into larger themes. The themes pertaining to the primary aim of the study, contraception screening and referral for AYAs, are presented here and appear most closely aligned to the evidence and context elements of the PARiHS framework.

Findings

Description of participants

The study sample included 19 participants representing five different clinician types/specialty areas (Table 1). Four primary themes emerged; two relating to participants' current practices around contraception screening and referral and two themes describing barriers to contraception screening and referral in the cancer center: (1) counseling to avoid pregnancy and early pregnancy diagnosis conflated with contraception counseling, (2) inaccurate contraceptive recommendations for specific clinical scenarios, (3) lack of clear roles and responsibility for contraception discussions, and (4) inconsistent education about contraception. Representative quotes are presented in Table 2.

Counseling to avoid pregnancy and early pregnancy diagnosis conflated with contraception counseling

While participants recognized the risks and complexity of oncologic care during pregnancy and felt pregnancy should generally be avoided during cancer treatment, few participants directly addressed contraception, or *how* to avoid pregnancy, with their patients. When asked about their

Table 1. Participant Demographics ($N = 19$)

Characteristic	N *(%) or median (range)*
Age (years)	42 (28–63)
Gender	
Female	14 (74)
Male	5 (26)
Race	
White	16 (84)
Asian	3 (16)
Religion	
Christian/Catholic	10 (52)
Jewish	1 (5)
Hindu	1 (5)
None	7 (37)
Clinician role	
Physician	11 (58)
Advanced practice clinician	4 (21)
Registered nurse	4 (21)
Clinician specialty[a]	
Surgical	8 (42)
Medical	11 (58)
Nurse	
Inpatient	1 (25)
Outpatient	3 (75)
Years of work at this cancer center[b]	
<10	12 (63)
10–20	3 (16)
30–35	3 (16)

[a]Surgical providers include surgical oncology, gynecologic oncology, oral maxillofacial oncology, colorectal surgery, and otolaryngology. Medical providers include hematology/oncology, endocrinology, and dermatology.
[b]Missing data for one participant.

contraception screening and referral practices, participants described conducting other forms of counseling or screening for pregnancy in place of directed contraception counseling.

Some participants described counseling patients to specifically avoid pregnancy without offering contraception counseling or referral to a qualified clinician. Others counseled patients to avoid intercourse for certain indications other than pregnancy prevention, such as to avoid infection during periods of neutropenia, and conflated this counseling with pregnancy prevention counseling. Participants in medical specialties more frequently reported counseling patients to avoid intercourse than surgical specialties, usually due to concern for hematologic suppression from therapy. Some participants focused on diagnosing an early pregnancy using frequent pregnancy tests at treatment visits rather than counseling to preventing pregnancy. Participants lacked standardization of care regarding contraception and pregnancy prevention counseling for female AYAs and did not commonly engage in directed counseling and referral for contraception use.

Inaccurate contraceptive recommendations for specific clinical scenarios

Careful review of participants' description of current practices indicated that they used inaccurate information to guide their contraceptive recommendations with specific clinical scenarios, which they perceived to be adequate contraceptive counseling. Specifically, participants commented that patients receiving leuprolide acetate, a gonadotropin-releasing hormone agonist used commonly in oncology treatment, had adequate contraception, despite the prescribing information indicating contraception is not ensured and recommending using concurrent contraception.[15] Some surgical participants described medication interactions with contraception and perioperative antibiotics, which is now thought to occur only with antibiotics unlikely to be used perioperatively (rifampin or rifabutin therapy).[16]

Lack of clear roles and responsibility for contraception discussions

Participants assumed that another member of the oncology care team discussed contraception with patients or had perceptions about which team member should assume this responsibility. For example, the majority of surgical participants assumed that medical or radiation oncologists discussed contraception because they give teratogenic treatment, whereas other participants thought surgical clinicians should be responsible for contraception perioperatively and that medical clinicians were responsible during adjuvant treatment. Nursing participants assumed the physician/APC had discussed contraception before initiating treatment, whereas other participants presumed that oncologic pharmacists counseled patients before dispensing oral chemotherapy. Some participants deferred contraception discussions to a patient's primary care provider (PCP) or gynecologist and reported the patient's PCP should ultimately be responsible for ensuring contraception use during cancer treatment. Nursing and APC participants reported that ideally, responsibility should be shared between multiple care team members. Participants often did not perceive their given clinical setting as the appropriate setting in which to discuss contraception.

Inconsistent education about contraception

While many participants expressed interest in incorporating contraception screening and referral into their practice, some simultaneously felt discomfort initiating these conversations because their medical education and training specific to contraception and reproductive health varied. Physicians, specifically gynecology and medical oncologists, more commonly reported formal training on general contraception during their medical education compared with other surgical oncologists, APCs, and nurses. To compensate for this knowledge gap, more participants from medical specialties used information about contraception and reproductive health gained after their formal training from clinical and personal experiences to guide their contraception counseling practices than participants from surgical specialties. Other participants increased their general contraceptive knowledge through residency or fellowship but reported that they did not receive such education in the context of oncology care. Participant perceived lack of tailored education and specific training about contraception and reproductive health in the context of oncology care presented a significant barrier to initiating contraceptive discussions with patients.

Discussion

Evidence

Although participants indicated a strong understanding of the risks of pregnancy during treatment, many reported

Table 2. Major Themes and Related Representative Quotations

Theme	*Representative quotations*
Pregnancy avoidance and early pregnancy diagnosis conflated to contraception	
Importance of avoiding pregnancy during treatment	''For most of our treatments, it would be for us in hematology … treatments, I think it would really be a huge problem [if a patient got pregnant] and I don't know that a lot of the patients would be able to continue their standard therapy'' PR2, physician, medical oncology ''I mean their care with us would go on hold until after their pregnancy …. We've already diagnosed them with cancer. They've decided to continue with the pregnancy and we don't operate, we don't get imaging, so we counsel them on again what stage and what type of cancer they have, what they can expect of that.'' PR4, APC, surgical oncology ''I think it helps us complete all of the treatment in the smoothest way possible, if they avoid pregnancy, yeah. I think it helps get through them fastest and most expeditious cancer care that we can provide.'' PR12, physician, surgical oncology
Advising to avoid intercourse	''Honestly, usually, I limit it to like, you shouldn't be having sex while you're neutropenic and that's just a tiny part of the conversation about like, don't eat undercook meat and ham like—it's like once and sandwiched in there with all of these other things.'' PR3, physician, medical oncology
Warning to avoid pregnancy	''… during the consent of radioactive iodine, we do talk about the fact … You shouldn't-again, you shouldn't get pregnant for a minimum of three months.'' PR10, physician, medical oncology ''I just tell them that it's very important not to get pregnant on treatment.'' PR18, physician, medical oncology
Focus on early diagnosis of pregnancy	''We check pregnancy tests multiple times along the treatment path, but I don't actually tell them what to use'' PR10, physician, medical oncology ''[I] will say to them, 'Is there any chance you can be pregnant?' … most times it's brought up beforehand. …In radiation, before they start radiation, before they start chemo, before they start most tests, women between childbearing ages are supposed to have a negative pregnancy test.'' PR15, nurse, medical oncology
Inaccurate contraceptive recommendations for specific clinical scenarios	''Our breast cancer patients, we try to make sure they do not get pregnant during treatment … So we usually try to keep on that and make sure they are getting either [leuprolide acetate] injections here or using some kind of birth control at home and really stressing to them that this is not the time to get pregnant.'' PR15, nurse, medical oncology ''We make patients aware that if they're given antibiotics that they're oral contraceptives may not be as effective … if patients are using oral contraceptives, I think we have to tell them it may not be as effective during antibiotics.'' PR5, physician, surgical oncology
Lack of clear roles and responsibility for contraception discussions	''I think honestly though, as in the surgical field, we probably would either consciously or subconsciously turf that off to like the person that's administering the chemo or radiation.'' PR8, APC, surgical oncology ''Honestly, we defer a lot of that stuff onto the pharmacist … pharmacists are the ones that tend to deal with it.'' PR3, physician, medical oncology ''I think the doctors for the breast cancer patients, at least I think they discussed that in their initial meetings with their patients.'' PR15, nurse, medical oncology ''I do not make sure [a patient uses contraception] before the surgery, but … I feel like I'm the responsible person after surgery. So, that first month, that first return visit … that's when I assume care and that's when we start having conversations about pregnancy.'' PR10, physician, medical oncology ''It starts with the doctor, but the nurses see the patients the most. So as much as it starts with the doctor and the NP, I think it should become a little more focused, not as the nurse should be responsible but at least responsible for asking if they're [using birth control].'' PR15, nurse, medical oncology ''We defer to PCPs … We can help them get into PCP … It doesn't come up all that often … Honestly, most patients when they come in were pretty focused on … their cancer.'' PR4, APC, surgical oncology

(*continued*)

TABLE 2. (CONTINUED)

Theme	*Representative quotations*
Inconsistent education about contraception	
Lack of formal education	''Nothing in my training. I know, internal medicine, we really didn't learn anything about it. I think in my fellowship, we learned more about the different types of birth controls … so it was sort of by association … in terms of cancer management, no one taught me any of this … there was no education.'' PR10, physician, medical oncology ''Interviewer: Have you had any education about birth control during cancer treatment, during any of your fellowship or residency? Interviewee: In internal medicine training just in general … information but never, to be honest, never cancer-related contraceptive information.'' PR2, physician, medical oncology ''Interviewer: Tell me about any education that you've had about birth control during cancer treatment. Have you had any education? Interviewee: Formally? … No.'' PR6, APC, medical oncology ''No.'' PR8, APC, surgical oncology ''No.'' PR15, nurse, medical oncology ''Interviewer: Tell me about any specific education you've had around birth control during cancer treatment? Interviewee: Not birth control. No, we had one segment on fertility preservation in cancer patients, but not specifically on birth control … I think it's a topic that is missed.'' PR13, physician, surgical oncology
Lack of comfort initiating conversations due to lack of education	''I suppose I'd feel more comfortable if I had more knowledge leading into these conversations about how to answer specific questions, doesn't come up a lot, so I think that this is definitely an area where I could learn and grow.'' PR7, APC, medical oncology
Informal education (clinical or personal experiences) in place of formal education	''You learn from other oncologists about stuff and that's where I learned … you need to teach people not to have penetrative sex while neutropenic … you just … learn it as you go, nothing formal.'' PR3, physician, medical oncology ''Well I think we would want to know the most current … I mean a lot of us here in this clinic, out of the women here, are over 50. So lot of us are not of reproductive years anymore. So we're probably out of the loop on the lot of the newest IUDs or injections or whatever it is they are using. A lot of us are out of the loop on that … Years ago it was the pill. It's not the pill anymore.'' PR15, nurse, medical oncology

APC, advanced practice clinician; PCP, primary care provider.

inconsistent formalized education about contraception. Although the inclusion of reproductive health topics is standard in medical education, the content of this education appears to vary significantly across the country.[17] Our study found participants rarely received training specifically on contraception for oncology patients and perceived their underlying contraceptive training to be inadequate, perpetuating oncology clinicians' perceived lack of responsibility and discomfort in initiating contraception discussions. This finding affirms existing literature that identified provider discomfort and lack of education as a barrier to certain types of counseling, such as contraception counseling in pediatric oncology,[18] smoking cessation counseling in adult oncology,[19] and contraception counseling in primary care settings.[20]

In place of formal education, some used personal or clinical experiences to expand knowledge. This process of informal learning may have included inaccurate information, impacting some participants' contraceptive recommendations with specific clinical scenarios. For example, participants reported practices intended to replace contraception counseling, such as encouraging abstinence around time of neutropenia, or early pregnancy diagnosis. Prior studies have identified other misconceptions about the need for contraception during treatment, including misconceptions on rates of sexual activity, rates of and time to infertility during treatment, and risk of pregnancy during periods of amenorrhea.[5] Formalized education in medical school or through residency or fellowship focused on contraception during cancer care may improve future providers' perceived responsibility for, initiation of, and consistent messaging in contraception counseling. Furthermore, research suggests that patients prefer shared decision making for contraception counseling,[21] and this approach is considered best practice for the general population.[22] The variation and limitations in counseling offered by current oncology clinicians might be best addressed in the NCCN guidelines for AYAs as a source of continuing education to oncology clinicians to support a more standardized approach to contraception care during treatment.[1]

Context

Perceptions varied among participants with regard to the care team members who have or should have responsibility for contraception screening and referral. Participants identified individuals outside the cancer center (i.e., the patient's PCP or gynecologist) as well as different members within the cancer care team (i.e., surgical/medical/radiation oncologist vs. pharmacist vs. nursing staff) as clinicians who should be primarily responsible for contraceptive counseling. Recommendations seemed to vary depending on participants' knowledge of and experiences with specific disciplines and team members. This variability indicates unfamiliarity with how the care team is successfully and unsuccessfully working to address patients' contraceptive care needs, absent or unclear institutional protocols about the screening and referral process, and lack of leadership guiding the process. The unclear clinician role for contraception discussions suggests that oncology teams may not effectively communicate about this topic and instead assume someone else will address it. This ''bystander effect'' has been identified in other areas of contraception research,[23] and in other areas of medicine, particularly when multiple clinicians are engaged in a patient's care,[24] similar to that of oncology.

The Society of Family Planning recognizes the importance of collaboration between oncologists, PCPs, obstetrician–gynecologists, and family planning specialists to individualize contraception care during cancer treatment.[25] Recent research suggests that patients prefer to receive initial contraception counseling from their oncology team,[26] a practice that is supported by the 2018 NCCN guidelines,[1] which can facilitate this interprofessional approach to care. An institutional protocol that includes the clarity of roles within the oncology team is crucial to promoting adequate contraception counseling during treatment and to mitigating the bystander effect in this setting.

Recommendations

This study has identified steps to promote implementation of contraception screening and referral into this cancer center. Specifically, oncology clinicians may benefit from more formal education to facilitate optimal implementation of contraception screening and referral and improve patient care. We recommend that this education be tailored to the clinician's role within the oncologic care team (i.e., perioperative management of contraception for surgical clinicians, medical considerations for contraception for medical clinicians).

We recommend an interprofessional approach to establishing roles and responsibilities for contraception screening and referral within the oncology setting. While some participants perceived this responsibility to exist with the patient's PCP, we recommend that cancer centers identify specific people or disciplines within the cancer care team to lead contraception screening and referral, and outline clear roles and responsibilities for other interprofessional care team members. Teams vary between patients and over time, and a patient's individual contraceptive needs may change over her treatment course. In response, institutions should acknowledge that interprofessional roles and responsibilities may need to adapt to implement an individually tailored contraception screening and referral process. In addition, patients may benefit from repetition and reassessment of contraception counseling to maximize safety and to address patient needs over time. Formal mechanisms to evaluate the effectiveness of the screening and referral process from both the providers' and patients' perspectives should also be implemented.

Clinicians often turn to clinical guidelines from national organizations to lead clinical practice; however, the paucity of specific recommendations in available guidelines may contribute to the insufficient counseling practices described by our participants. The 2018 NCCN guidelines suggest oncology care teams discuss contraception with AYAs before treatment but do not specify which clinician(s) is/are responsible for this counseling or what content should be reviewed.[1] National organizations should further expand these guidelines to help inform oncology clinicians on contraception, identify consistent content to be included in contraception discussions, and offer guidance on identifying a clinician(s) within the oncology care team to lead these discussions.

Limitations

This study has several limitations. First, we recruited participants from one institution, which may limit the generalizability of these findings to other institutions. Specifically, the absence of a gynecologic service at other institutions may make internal referrals challenging. Additionally, our participants represented a range of disciplines, which may limit application to a specific cancer specialty; however, in our interprofessional setting, this approach helped us to comprehensively understand barriers to contraception screening and referral within our institution. Third, we excluded trainees from our recruitment given the transient nature of their time caring for patients. Fourth, we excluded pediatric clinicians, who may have unique barriers or facilitators to this practice. Fifth, we may have had response bias as an obstetrician–gynecologist completed all interviews, although given the participants' candor we believe this bias was minimal. Sixth, our interview guide was not validated, although we modified the questions iteratively as the data collection and analysis simultaneously occurred. Finally, this study may have had selection bias based on the willingness of participants. However, the insight we gained about the current practices of the participants was broad and our recruitment strategy facilitated the inclusion of diverse perspectives.

Conclusion

For female AYAs with cancer, a pregnancy during treatment could result in detrimental effects both on their treatment and on a developing fetus. Contraception screening and referral in the oncology setting is crucial to prevent harm. However, challenges exist in current practice. These include counseling to avoid pregnancy, early pregnancy diagnosis conflated with contraception, and inaccurate contraceptive recommendations for specific clinical scenarios. Barriers exacerbating these practices include lack of clear responsibility for contraception among oncology clinicians, and clinician-perceived lack of education about contraception. We recommend that cancer centers identify their current practices, assess the presence of the barriers we described, and address these and any unique barriers to support future implementation of contraception screening and referral. Furthermore, we suggest that national organizations expand guidelines to inform and support this process in clinical practice. Future

studies should address implementation of our recommendations aimed at minimizing barriers and improving contraception screening and referral practices in the cancer setting. Findings from these studies may further our understanding of the facilitation element of the PARiHS framework, which was beyond the scope of our inquiry, but needed to assess the effectiveness of the recommendations presented here and improve contraceptive counseling for AYAs.

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(Appendix follows →)

Appendix A1. Provider Interview Guide

Contraception in AYAs with Cancer
Date of Interview: Respondent ID:
Brief Introduction:

- Thank you for participating in our study. We appreciate you making time to speak with us. Our goal today is to understand contraception screening and referral for cancer patients. This interview will be performed in a semi-structured manner. This means that we have a few specific questions but really want to hear your thoughts about this topic. If you think of anything after the interview that you would like to share with us, we would be happy to hear from you. We will give you our contact information at the completion of the interview.
- Consent and overview of research study

Interview/Focus Group Discussion Guide
Reproductive Health
For the purpose of this interview, we will be focusing on female adolescents and young adults with cancer from ages 18 to 45 since these women are most at risk of pregnancy.

- How do you feel about discussing reproductive health in general with your patients? Tell me about one conversation you have had with a patient.
  - What are some questions that patients have asked you in the past?
    - A patient has questions about reproductive health concerns regarding her cancer treatment, how do you address them?
- Where do you get information or answers?
  - Tell me about your comfort with these conversations. If positive, what has helped make this easier for you?
    - negative, what would make this easier for you?
- How often do you or someone in your office talk to your patients about reproductive health concerns in general?
  - When does this happen?
  - Are there certain patients with whom you feel this is more important to discuss?
- What reproductive health issues do you discuss with your patients?
  - Tell me about a time you discussed reproductive health with a patient. How did this conversation go?
  - Do you discuss fertility/fertility preservation?
    - How do you do this?
    - What options do you discuss?
    - Has this always been the case in your practice?
  - Do you discuss preventing pregnancy?
    - How do you do this?
    - What options do you discuss?
    - Has this always been the case in your practice?
    - How often do you discuss birth control with your female cancer patients?
      - Ever? Every visit? Only at initial? Any follow up? Only during treatment?
    - What patients do you think would most benefit from talking about birth control?
  - How often do you refer your female cancer patients for birth control counseling?
    - If ever, how does this process happen?
    - Do you refer within our hospital system? To PCP? To an outside provider?
- Have you ever told a patient to stop a birth control method during cancer treatment? Or are there certain birth control methods you prefer your patients not to use, or to use?
  - If so, why? i.e., interaction with medications, DVT risk
- Can you describe a scenario where you talked to a patient about birth control? Why did this conversation come up?
  - Are you familiar with how reproductive health discussions at other cancer centers are similar or different to your current practices?
  - Is there anything you wish you had in your current position to help with this?

Now I would like to talk about pregnancy specifically.

- Would a pregnancy during cancer treatment affect a patient's care?
- Should a patient avoid pregnancy during treatment? After treatment? If so, for how long?
- Do you see preventing pregnancy as part of your role as an oncology provider?
  - If so, how do you see it as part of your role? (Probe as appropriate of role-MD, RN, etc.)
  - If not, tell me more about this.
- What do you see as the best way for conversations around pregnancy prevention to happen?
- Have you ever had a patient under your care with an unintended pregnancy?
  - If so, how did you handle this situation?
  - If no, how do you think you would handle this situation?
- Between fertility and pregnancy prevention, does it seem that one is more important to your female patients in this age group?

Now I would like to talk specifically about your practice.
Current Practices

- Has your office ever *had* or *instituted* a screening program for birth control?
  - Was it successful? Unsuccessful? Why?
  - If none currently—some providers have expressed interest in developing a screening program for birth control during cancer care. What are your thoughts on this?
    - Would you be interested in incorporating a screening program for birth control into your current practice?
    - So, what would this look like?
      - Who would perform it? How often?
    - In a typical visit, which providers/staff members does a given patient see?

        - At an initial visit? follow up?
    - Who in these visits would be most appropriate to have a discussion about birth control?
- Who in the care team do you think should be responsible for assessing a patient's birth control use?
    - How often do you think this should be addressed? Why?
- How do you give your patients information during their visits? (i.e., paper handouts, visual aids of any kind?)
    - What kind of information do you provide with each of these options?
    - What form of these options do you think works the best for your patients? Why?
    - Some providers have suggested written information for birth control information for cancer patients. How do you feel this would work in your practice?
        - What kind of information do you think would be helpful in this written information?
        - Is there another form of information that you think would be more useful?

We would like to work with you to improve birth control screening and referral at the cancer center. These next questions will address how we can best address this.

Training/Education/Needs

- Tell me about any education you have had about birth control during cancer treatment.
    - Any training in discussing reproductive health needs with patients in general?
    - Other providers have expressed interest in getting more education on reproductive health during cancer treatment. Would additional education be helpful to you in your current practice? If so, how?
        - What would the education look like? Content? Format? (didactic, online, email/reading)
        - If not, why not?
- What specific education for staff/providers do you think would be useful to improving birth control screening and referral in your practice?
    - In general, what types of trainings have been or would be most helpful to you?
- What clinical resources do you think would be useful to improving this process?
    - I.e. some providers suggested the screening tool we discussed above, others suggested a simple handout, others suggested a point person within the OBGYN department either for clinical questions or for prompt scheduling
        - Would any of the above be particularly useful? Not useful?
        - Are there any other resources you can think of that would be helpful?
- For a screening tool: Who do you think should be responsible for screening each appropriate patient?
    - How often do you think screening should occur?
    - What kinds of questions would be included in this screening program?
- In the past, when something new has been introduced into your office, what were some factors that you think helped with success? Factors that limited uptake?

Is there anything you want to discuss that has not already been discussed?

Thank you for meeting with me today. Please feel free to contact us if you have any questions or comments.