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Factors that Influence Clinicians' Decisions to Decrease Active Surveillance Monitoring Frequency or Transition to Watchful Waiting for Localized Prostate Cancer: A Qualitative Study

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Complete List of Authors:	Lowenstein, Lisa; The University of Texas MD Anderson Cancer Center Division of Cancer Prevention and Population Sciences, Health Services Research Choi, Noah; The University of Texas MD Anderson Cancer Center Division of Cancer Prevention and Population Sciences, Health Services Research Hoffman, Karen; MD Anderson Division of Radiation Oncology, Radiation Oncology Volk, Robert; The University of Texas MD Anderson Cancer Center Division of Cancer Prevention and Population Sciences, Health Services Research Loeb, Stacy; New York University, Urology, Population Health
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Factors that Influence Clinicians' Decisions to Decrease Active Surveillance Monitoring Frequency or Transition to Watchful Waiting for Localized Prostate Cancer: A Qualitative Study

Short Title: Decisions about Transitioning to Watchful Waiting for Prostate Cancer

Lisa M. Lowenstein, PhD, MPH[a]

Noah J. Choi[a]

Karen E. Hoffman, MD, MPH[b]

Robert J. Volk, PhD[a]

Stacy Loeb, MD, MSc[c, d, e]

[a] Department of Health Services Research, The University of Texas MD Anderson Cancer Center, 1400 Pressler Street, Unit 1444, Houston, TX 77230, USA.

[b] Department of Radiation Oncology, The University of Texas MD Anderson Cancer Center

[c] Department of Urology, New York University, New York City, USA

[d] Department of Population Health, New York University, New York City, USA

[e] Manhattan Veterans Affairs Medical Center, New York City, USA

Corresponding Author:

Lisa M. Lowenstein, PhD, MPH

Department of Health Services Research

The University of Texas MD Anderson Cancer Center

1400 Pressler Street, Unit 1444

Houston, TX 77230

Phone: 713-792-5807

Fax: 713-563-0059

Email: LMLowenstein@mdanderson.org

Keywords: Active Surveillance; Cancer; Observational Study; Oncology, Prostatic Neoplasms; Qualitative Evaluation; Treatment Adherence and Compliance

ABSTRACT

Objective: Little is known about clinicians' decision-making about decreasing active surveillance (AS) testing/converting patients to watchful waiting (WW). The objective of this study was to identify factors that clinicians consider when decreasing surveillance testing or transitioning to WW.

Design: Exploratory study using a qualitative approach.

Setting: All participants interviewed in this study practiced in various institutions in the U.S.

Participants: Eligible clinicians had to provide clinical care for patients with prostate cancer in the U.S. and speak English. Clinicians could be either urologists or radiation oncologists. Of the 24 clinicians, 83% were urologists representing 11 states, 92% were male, and 62% were White.

Methods: This qualitative study used data from semi-structured interviews with clinicians who monitor men on AS. Purposive sampling was used to ensure geographic variation in the U.S. Data collection continued until thematic saturation was achieved. Framework analysis guided coding and identification of themes. Two researchers coded all transcripts independently, met to discuss, and reached consensus.

Results: Interviews with clinicians demonstrated that testing or monitoring for AS or transitioning to WW is happening in practice, whether intentionally or unintentionally. Decisions to decrease AS were personalized and tailored to patients' health status. Life expectancy was the dominant factor that influenced decision, but clinicians were generally hesitant to specify an age when they would decrease AS or transition to WW. Fear that poor adherence could lead to missed progression and concerns about the medical legal issue of not doing enough were cited as barriers to decreasing AS.

Conclusions: These findings suggest that AS test frequency is being reduced and men are being transitioned to WW in clinical practice, yet decisions appear to be inconsistent and there are no significant barriers. Recommendations are needed to guide decisions about converting to WW that explicitly consider patients values and preferences.

Strengths and Limitations of this study:

- Qualitative study to explore clinicians' decision making about decreasing or transitioning men with prostate cancer on active surveillance.
- Semi-structured interviews with clinicians from different regions of the United States from academic centers and Veterans Affairs hospitals.

BACKGROUND

PSA based screening reduces diagnosis of advanced prostate cancer but results in more men diagnosed with low-risk disease. In the Cancer of the Prostate Strategic urological Research Endeavor (CaPSURE), the prevalence of men diagnosed with low-risk disease increased from 14.8% in 1990 to 47.7% in 2013.[1] Data from the US Cancer Statistics 2005-2016 Public Use Research Database, suggest that the proportion of localized prostate cancer decreased from 88.1% to 80.5%.[2]

Low-risk disease is unlikely to cause symptoms or affect survival if left untreated. In contrast, unnecessary treatment may lead to treatment induced urinary dysfunction, rectal bleeding, and impotence.[3] As a result, overtreatment remains a major concern, with estimates ranging between 6% to 64%.[4] In response, clinical guidelines recommend active surveillance as the preferred management for patients with low-risk disease to minimize overtreatment.[5,6]

The decision to place a man on active surveillance for prostate cancer is often based upon clinical characteristics of the disease and life expectancy.[7] The National Comprehensive Cancer Network recommends active surveillance as the preferred management strategy for men with at least 10 years of life expectancy if they have low-risk disease; whereas, observation is recommended for those with life expectancy <10 years.[6] The American Urological Association, American Society of Radiation Oncology, and the Society of Urologic Oncology recommends active surveillance for men when they have a life expectancy of five years or more.[5] There is

some guidance on the frequency and modality of testing, but there is a significant amount of variability in practice.[7,8]

Although there is guidance about when to start active surveillance, discussion or literature on what clinicians consider or have experienced when decreasing the frequency of testing for active surveillance and/or transitioning to watchful waiting is largely absent. A consensus statement from the United Kingdom does state that the decision to convert to watchful waiting should consider men's preferences, clinical characteristics, comorbidities, functional impairment, and life expectancy.[9] The purpose of this study was to identify factors clinicians consider when decreasing surveillance testing frequency or converting to watchful waiting for prostate cancer.

METHODS

Study Design

This study used data from a previously published qualitative study of clinicians that care for patients with prostate cancer.[10] Eligible clinicians had to provide clinical care for patients with prostate cancer in the United States and speak English. Clinicians could be either urologists or radiation oncologists. All participants provided written informed consent and completed an intake questionnaire prior to their interview. The institutional review board approved this study (NYU: i14-02147; MD Anderson PA17-0642, exempt).

Recruitment

Loeb and colleagues used a combination of purposive sampling to select urologists from both the American Urological Association and the American Society of Clinical Oncology memberships and snowball sampling.[10] Purposive sampling ensured that each clinician was experienced with providing active surveillance care and were from geographically diverse settings across the United States. Eligible clinicians who were informed about the study were allowed to nominate other colleagues as potential participants as long as they also met eligibility criteria. Participants were contacted by email, and were given the choice to have their interview either in person, or over the phone.

Data Collection and Management

All interviews were conducted from July to December of 2015. Data collection procedures were described previously.[10] In brief, that study initially conducted 17 interviews, and then conducted seven more interviews to reach thematic saturation. Interviews were conducted with the study participants only and lasted between 22 to 51 minutes. Atlas.ti was used to facilitate data management and analysis.

Interview

The interviewers used an interview guide that was developed from a literature review and previous active surveillance research. The guide consisted of fifteen questions, including “What are your triggers to stop active surveillance and convert to watchful waiting?” and “What are your main concerns about active surveillance?” All interviews were audio recorded and anonymously transcribed by a third-party service.

Analysis

For this study, framework analysis guided our analytical approach.[11,12] Two researchers independently reviewed each transcript to develop codes and met to discuss the codes. As coding progressed, researchers met and discussed how to organize and conceptualize the coded text. We charted the coded text into matrices to facilitate identification of themes.

Patient and Public Involvement

No patient involvement.

RESULTS

Sample characteristics

A total of 24 of 48 clinicians participated in the interviews. The characteristics of the participants were published previously.[10] Majority of the clinicians were urologists (n=20), male (n=22), and White (n=15) and represented 11 states.

Overview of qualitative findings

From these interviews, we found that the frequency of surveillance testing is being reduced and patients are being transitioned to watchful waiting, whether intentionally or unintentionally. Life expectancy considering age and existing comorbidities was the dominant factor influencing these decisions. However, there were some barriers to decreasing test frequency and transitioning to watchful waiting. One barrier is the concern of poor adherence leading to missed disease progression. They also discussed the fear of being potentially sued.

Reduced Testing and Converting to Watchful Waiting is Happening in Practice

Patients and/or clinicians are reducing the frequency of surveillance testing, whether unintentionally or intentionally. The surveillance testing frequency may be spread out due to patients missing or cancelling appointments. Reasons could include the general discomfort with the biopsy procedure and/or issues with transportation. They also noted that the appointments take time, which interferes with their work.

> "*Because not just with these patients but every patient has to come to the office every three months, take time off work or you know, wait in the office. I think that really bugs them."* Clinician 19

One clinician mentioned how there isn't really a trigger to switch to watchful waiting, unless patients stops showing up.

> *"Yes if you mean by watchful waiting we don't see the people or the individuals anymore or perform any other tests on them then I would say we don't ever convert someone to watchful waiting unless they can't make it back for a visit."* Clinician 14

Clinicians discussed situations where the patients have wanted to switch to watchful waiting because they have not progressed for many years.

"[…] he actually went through like five years of yearly consecutive biopsies where his PSA didn't change much, his DRE is the same. The pathology was nothing or one or two core right. And, you know, alternating, you know, nothing or a little something. And after year five he was like I'm done, you know, no more we're done. I'm like you know what if I were you I would do the same thing." Clinician 07

The role of life expectancy, age, and comorbidities

Life expectancy, considering age and comorbidities, was the primary factor that influenced decisions to reduce surveillance testing and/or transition to watchful waiting. The decision to space out testing required clinicians to balance a patient's risk of dying from prostate cancer compared to their other comorbidities, and how the patient values its impact on quality of life and potential for benefit.

"Well, whenever I see a patient, we're always thinking about based on what we know about this patient now, what's their risk of dying of prostate cancer, and then what's their risk of dying of other disease? And finally, how do they value their quality of life?" Clinician 18

It was clear that clinicians tailor their decisions about transitioning to watchful waiting based on patients' health status.

"I mean, there's two different scenarios. One scenario is you've watched someone for a while; maybe you've gotten biopsies on them. Their PSA has remained stable, and now

you know, instead of being in the early seventies, now they're in their late seventies or early eighties, and so I think it's reasonable to convert that person to an observation… On the other hand, I think that there are some patients that you can look at very quickly and see this is a patient who's not going to benefit from repeat biopsy or close monitoring because they have too many other medical issues that they're dealing with." Clinician 03

In general, clinicians were reticent to specify an exact age where they would consistently transition to watchful waiting. One clinician noted the need for a guideline to guide this decision.

"But I would think like after the age of 80, you know, we could probably just stop because you know, you and I know that you know, most men already are going to have prostate cancer. Most men over 70 will have some cancer cells in them. But I would need some kind of guideline or something somewhere." Clinician 19

However, one clinician felt that 75 years should be the cut-off and will only keep patients on AS if they insist.

"I would say if someone is on it for 6 years, has gone through our protocol and now they're over 75 years of age then I'll move to, I'll go to watchful waiting… I tell them if you came to me with a normal PSA and a normal rectal exam since age 75 I would stop

following you at age 75. Sometimes I'll go to 80 if they're really healthy and they're insisting on it but most patients I try to encourage them to say listen we've made it to 75 without a problem it's reasonable to just not check it." Clinician 09

Barriers to decrease testing and transitioning to watchful waiting

Concerns about poor adherence leading to missed disease progression. One barrier to decreasing test frequency or transitioning to watchful waiting was clinicians' concern about poor adherence, resulting in missing disease progression. One clinician had a patient who did not adhere to the active surveillance schedule and came back and had progressed.

"Cause if you've got a patient that should come back in six months and they kind of fall off the radar, then there's a chance that there are patients out there -- by the way, this happened a couple times where patients come back a year and a half later and they've had progression… that if patients aren't compliant, then active surveillance doesn't work." Clinician 06

Fear of litigation/retribution. Clinicians expressed that fear of legal action is in the back of their mind, but acknowledged that it is rare that they are sued.

"The third barrier is worry over legal stuff although I've never heard of someone being sued because of surveillance or not but I think that's in the back of people's minds. When I talk to private practice guys they say that". Clinician 12

The fear of litigation is further amplified by the misalignment of active surveillance and the natural context of the field and purpose of their work.

> *"Well there is misalignment of how should I say let's say perverse incentives for managing people with low grade disease. In other words, physicians get reimbursed for doing something not for doing nothing."* Clinician 14

DISCUSSION

Our qualitative analysis found that surveillance testing for prostate cancer is being decreased and/or transitioned to watchful waiting in clinical practice. Intentional decisions to decrease surveillance testing/transition to watchful waiting consider patients' age, health, and life expectancy. These decisions may also take into consideration patients' values and preferences. Unintentional decisions to decrease surveillance testing/transition to watchful waiting are due to poor adherence to missed or cancelled appointments. These missed appointments may be an indicator that patients are prioritizing their quality of life or ability to work over the management of their prostate cancer.

The influence of age, health, and life expectancy has been noted in other studies examining clinician's decision making about starting active surveillance [13] and is incorporated in guidelines.[14] In contrast, a study where clinicians were presented with scenarios and rank

ordered factors that influenced their decision making about starting active surveillance, found that clinicians used 10-year survival probability, stage, and PSA.[15]

A modeling study demonstrated that generally active surveillance had greater quality adjusted life years than watchful waiting, except among patients diagnosed older than 65 years.[16] Another study found that for men older than 65 years, one biopsy round resulted in a loss of one quality adjusted life year, likely due to other quality of life outcomes and potential biopsy-related complications.[17] The University of Toronto stops serial biopsies once a man is 80 years old and has a life expectancy of less-than five years.[18] However, the consensus statement from the United Kingdom does state that age as well as other factors need to be considered, including frailty.[9]

As time on active surveillance increases, clinicians' and patients' comfort with the idea that they are unlikely to progress may support them in making the decision to decrease the frequency of surveillance testing/transition to watchful waiting. This finding is consistent with the literature around men who select active surveillance. Patients and their families who may be more anxious are less likely to choose active surveillance initially or stop active surveillance for immediate treatment.[13,19] One qualitative study found that men on active surveillance understood their disease was low-risk and were confident there would be time for curative treatment if they progressed. These men also had to convince family members that they were not crazy for having a cancer and not treating it immediately.[20]

The issue of adherence is also associated with the fear of missing the window of curability. Clinicians noted that active surveillance only works if patients show up for the appointments. However, they recognized that there are practical barriers (e.g., transportation issues and time off from work) that may contribute to nonadherence to the active surveillance protocol. In a large cohort of men with grade group 1 prostate cancer, about 24% were lost to follow-up among men who were not reclassified.[21] However, the increased use of telemedicine due to the COVID-19 pandemic may help with some of the practical barriers in the future.

Finally, the fear of litigation may be a barrier to decreasing testing for disease progression and transitioning to watchful waiting. The fear of litigation is likely related to the fear of missing a cancer that will become metastatic and its downstream consequences, such as patients and family members being upset and wanting to sue or submit a complaint.

Although this study provides new information regarding what clinicians consider when making the decision to decrease the frequency of surveillance monitoring or to transition to watchful waiting, limitations need to be considered when interpreting the results. The sample consisted of clinicians at academic and Veterans Affairs hospitals. Their perspectives and the patients they treat may not represent the wider group of clinicians who see and treat men with prostate cancer, such as general urologists and primary care providers. Some of the interviews were conducted by a female urologist who is well known among the medical community, which may have introduced response bias. However, this interviewer used open-ended and non-judgmental questioning to facilitate an open-dialogue. The interviewers did not participate in

the analysis process for this study, limiting the ability to incorporate the insights of the interviewers in the analysis process. The results and interpretation of this analysis was shared and discussed with the primary study lead and interviewer.

These findings suggested that surveillance testing frequency is being decreased and patients are being transitioned to watchful waiting, either intentionally or unintentionally. These decisions are preference-sensitive and patients' values and priorities in addition to their health status needs to be considered. Interventions to support shared decision making may be helpful to identify patients' values and goals of care in making the decision to transition to watchful waiting. Clinicians and men need guidance to make thoughtful decisions to decrease surveillance testing or transition to watchful waiting. These guidelines could also emphasize the need to consider men's preferences in addition to clinical characteristics and encourage shared decision making.

Contributorship statement

Study conception and design: LML; drafting of the study protocol: LML; obtaining of research funding: LML and SL; acquisition of data: SL. performing of qualitative analysis: LML and NJC drafting, editing and preparing of the final version of the manuscript: LML, NJC, and SL; Critical feedback and additional edits: NJC, RJV, KEH, and SL. All authors approved the final manuscript.

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Data Sharing Statement

Research data are not shared.

Competing Interests

The authors have no competing interests to report.

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Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

No	Item	Guide questions/description	Page
Domain 1: Research team and reflexivity			
Personal Characteristics			
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?	16
2.	Credentials	What were the researcher's credentials? *E.g. PhD, MD*	1
3.	Occupation	What was their occupation at the time of the study?	1
4.	Gender	Was the researcher male or female?	16
5.	Experience and training	What experience or training did the researcher have?	1
Relationship with participants			
6.	Relationship established	Was a relationship established prior to study commencement?	16
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? e.*g. personal goals, reasons for doing the research*	16
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. *Bias, assumptions, reasons and interests in the research topic*	16
Domain 2: study design			
Theoretical framework			
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis*	7

No	Item	Guide questions/description	Page
Participant selection			
10.	Sampling	How were participants selected? *e.g. purposive, convenience, consecutive, snowball*	8
11.	Method of approach	How were participants approached? e.*g. face-to-face, telephone, mail, email*	8
12.	Sample size	How many participants were in the study?	8
13.	Non-participation	How many people refused to participate or dropped out? Reasons?	9
Setting			
14.	Setting of data collection	Where was the data collected? e.*g. home, clinic, workplace*	8
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	8
16.	Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*	7
Data collection			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	8
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?	8
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?	8
20.	Field notes	Were field notes made during and/or after the interview or focus group?	NR
21.	Duration	What was the duration of the interviews or focus group?	8

No	Item	Guide questions/description	Page
22.	Data saturation	Was data saturation discussed?	8
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	NR
Domain 3: analysis and findings			
Data analysis			
24.	Number of data coders	How many data coders coded the data?	9
25.	Description of the coding tree	Did authors provide a description of the coding tree?	NR
26.	Derivation of themes	Were themes identified in advance or derived from the data?	9
27.	Software	What software, if applicable, was used to manage the data?	8
28.	Participant checking	Did participants provide feedback on the findings?	NR
Reporting			
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.*g. participant number*	10
30.	Data and findings consistent	Was there consistency between the data presented and the findings?	10
31.	Clarity of major themes	Were major themes clearly presented in the findings?	9
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	10

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Noah J. Choi[a]

Karen E. Hoffman, MD, MPH[b]

Robert J. Volk, PhD[a]

Stacy Loeb, MD, MSc[c, d, e]

[a] Department of Health Services Research, The University of Texas MD Anderson Cancer Center, 1400 Pressler Street, Unit 1444, Houston, TX 77230, USA.

[b] Department of Radiation Oncology, The University of Texas MD Anderson Cancer Center

[c] Department of Urology, New York University, New York City, USA

[d] Department of Population Health, New York University, New York City, USA

[e] Manhattan Veterans Affairs Medical Center, New York City, USA

Corresponding Author:

Lisa M. Lowenstein, PhD, MPH

Department of Health Services Research

The University of Texas MD Anderson Cancer Center

1400 Pressler Street, Unit 1444

Houston, TX 77230

Phone: 713-792-5807

Fax: 713-563-0059

Email: LMLowenstein@mdanderson.org

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ABSTRACT

Objective: Little is known about clinicians' decision-making about decreasing active surveillance (AS) testing/converting patients to watchful waiting (WW), nor are there any guidelines. The objective of this study was to identify factors that clinicians consider when decreasing AS testing/converting to WW for men with prostate cancer.

Design: Exploratory qualitative study.

Setting: All participants practiced in various institutions in the U.S.

Participants: Eligible clinicians had to provide clinical care for patients with prostate cancer in the U.S. and speak English. Clinicians could be either urologists or radiation oncologists. Of the 24 clinicians, 83% were urologists representing 11 states, 92% were male, and 62% were White.

Methods: This qualitative study used data from semi-structured interviews. Purposive sampling was used to ensure geographic variation in the U.S. Data collection continued until thematic saturation was achieved. Framework analysis guided coding and identification of themes. Two researchers coded all transcripts independently, met to discuss, and reached consensus.

Results: Interviews with clinicians demonstrated that testing or monitoring for AS or transitioning to WW is happening in practice, whether intentionally or unintentionally. Decisions to decrease AS were personalized and tailored to patients' health status. Life expectancy was the dominant factor that influenced decision, but clinicians were generally hesitant to specify an age when they would decrease AS or transition to WW. Fear that poor adherence could lead to missed progression and concerns about the medical legal issue of not doing enough were cited as barriers to decreasing AS.

Conclusions: These findings suggest that in certain situations, AS frequency is reduced or transitioned to WW, yet decisions appear to be inconsistent and there are no significant barriers. These findings could inform further areas to explore when drafting recommendations that consider patients' values and preferences when making decisions about decreasing AS/converting to WW.

Strengths and Limitations of this study:

- First study to explore clinician decision making about decreasing AS testing/transitioning to WW for men with prostate cancer.
- Semi-structured interviews with clinicians from different regions of the United States from academic centers and Veterans Affairs hospitals representing 11 states, which unlikely will represent all viewpoints or clinical practices regarding decreasing AS/transitioning to WW for men with prostate cancer.
- Although clinical practice has evolved over the past several years for managing men with prostate cancer on active surveillance, there is no clear consensus nor empirical studies on clinician attitudes on when or how to decrease AS testing/transition to WW.

BACKGROUND

Many men diagnosed with prostate cancer are diagnosed with localized prostate cancer, which includes those who have low-risk and intermediate risk disease.[1] For many of these men their prostate cancer is unlikely to cause symptoms or affect survival if left untreated.[2,3] In contrast, unnecessary treatment may lead to treatment induced urinary dysfunction, rectal bleeding, and impotence.[4] As a result, overtreatment remains a major concern, with estimates ranging between 6% to 64%.[5] In response, clinical guidelines recommend active surveillance as the preferred management for patients with low-risk disease to minimize overtreatment.[2,6]

The decision to place a man on active surveillance or watchful waiting for prostate cancer is often based upon clinical characteristics of the disease and life expectancy.[3] The National Comprehensive Cancer Network recommends active surveillance as the preferred management strategy for men with at least 10 years of life expectancy if they have low-risk disease; whereas, observation (watchful waiting) is recommended for those with life expectancy <10 years.[6] The American Urological Association, American Society of Radiation Oncology, and the Society of Urologic Oncology recommends active surveillance for men when they have a life expectancy of five years or more.[2] There is some guidance on the frequency and modality of testing, but there is a significant amount of variability in practice.[3,7]

In active surveillance, men are typically monitored closely with prostate-specific antigen (PSA) test every six months, a digital rectal exam at least annually, and repeat prostate biopsies and imaging every one to three years. If the cancer progresses, then curative treatment is delivered.

In watchful waiting, men may have fewer tests and rely more on symptom-based monitoring. If the cancer progresses, then treatment would be started to help control the symptoms but not cure the cancer.

Although there is guidance about when to start active surveillance, discussion or literature on what clinicians consider or have experienced when decreasing the frequency of testing for active surveillance and/or transitioning to watchful waiting is largely absent. There is a commentary[8], few modelling studie,[9,10], and a narrative review.[11] A consensus statement from the United Kingdom does state that the decision to convert to watchful waiting should consider men's preferences, clinical characteristics, comorbidities, functional impairment, and life expectancy.[12] No currently published study reports on what clinicians think about decreasing active surveillance and converting to watchful waiting. The purpose of this study was to identify factors clinicians consider when decreasing surveillance testing frequency or converting to watchful waiting for prostate cancer.

METHODS

Study Design

This study used data from a previously published qualitative study of clinicians that care for patients with prostate cancer, which reported on physician decision-making regarding general active surveillance practices such as, protocol selection, comfort with active surveillance, impact of patient selection for active surveillance.[13] Eligible clinicians had to provide clinical care for patients with prostate cancer in the United States and speak English. Clinicians could be

either urologists or radiation oncologists. All participants provided written informed consent and completed an intake questionnaire prior to their interview. The University of Texas MD Anderson Cancer Center Institutional Review Board (PA17-0642) deemed this protocol as exempt because the study was a secondary analysis of existing data from the parent study. The parent study was approved by NYU (NYU: i14-02147).

Recruitment

Loeb and colleagues used a combination of purposive sampling to select urologists from both the American Urological Association and the American Society of Clinical Oncology memberships and snowball sampling.[13] Purposive sampling is a non-probability sampling strategy to obtain information for a pre-specified population and ensured that each clinician provided care for men with localized prostate cancer on active surveillance and were from geographically diverse settings across the United States. Eligible clinicians who were informed about the study were allowed to nominate other colleagues as potential participants as long as they also met eligibility criteria. Participants were contacted by email and were given the choice to have their interview either in person, or over the phone.

Data Collection and Management

All interviews were conducted from July to December of 2015 either over the phone or in person by a female urologist or a female research assistant. Data collection procedures were described previously.[13] In brief, that study initially conducted 17 interviews, and then conducted seven more interviews to reach thematic saturation. Thematic saturation is

commonly used to determine when enough interviews have been conducted and when no new insights are identified.[14] Interviews were conducted with the study participants only and lasted between 22 to 51 minutes. Atlas.ti was used to facilitate data management and analysis.

Interview

The interviewers used a semi-structured interview guide that was developed from a literature review and previous active surveillance research. [15] [15-18] The guide was pilot tested with two clinicians and was edited for improved clarity. The guide consisted of fifteen questions, including "What are your triggers to stop active surveillance and convert to watchful waiting?" and "What are your main concerns about active surveillance?" All interviews were audio recorded and anonymously transcribed by a third-party service.

Analysis

For this study, framework analysis guided our analytical approach.[19,20] Two researchers independently reviewed each full transcript and coded any discussion relevant to de-escalating AS or transitioning to WW. As coding progressed, researchers met and discussed how to organize and conceptualize the coded text. We charted the coded text into matrices to facilitate identification of themes. We determined that data saturation was reached when the coded interviews did not generate additional codes or themes or further our understanding.

Patient and Public Involvement

No patient involvement.

RESULTS

Sample characteristics

A total of 24 clinicians agreed to participate out of the 48 invited. The characteristics of the participants were published previously.[13] Majority of the clinicians were urologists (n=20), male (n=22), and White (n=15) and represented 11 states.

Overview of qualitative findings

These interviews suggested that some clinicians are reducing the frequency of surveillance testing and transitioning patients to watchful waiting, whether intentionally or unintentionally. Life expectancy considering age and existing comorbidities was the dominant factor influencing these decisions. However, there were some barriers to decreasing test frequency and transitioning to watchful waiting. One barrier is the concern of poor adherence leading to missed disease progression. They also discussed the fear of being potentially sued.

Patient Preferences May Be Leading to Reduced Testing and Converting to Watchful Waiting

Patients and/or clinicians are reducing the frequency of surveillance testing, whether unintentionally or intentionally. The surveillance testing frequency may be spread out due to patients missing or cancelling appointments. Reasons could include the general discomfort with the biopsy procedure and/or issues with transportation. They also noted that the appointments take time, which interferes with their work.

"*Because not just with these patients but every patient has to come to the office every three months, take time off work or you know, wait in the office. I think that really bugs them."* Clinician 19

One clinician mentioned how there isn't really a trigger to switch to watchful waiting, unless patients stops showing up.

"Yes if you mean by watchful waiting we don't see the people or the individuals anymore or perform any other tests on them then I would say we don't ever convert someone to watchful waiting unless they can't make it back for a visit." Clinician 14

Clinicians discussed situations where the patients have wanted to switch to watchful waiting because they have not progressed for many years.

"[…] he actually went through like five years of yearly consecutive biopsies where his PSA didn't change much, his DRE is the same. The pathology was nothing or one or two core right. And, you know, alternating, you know, nothing or a little something. And after year five he was like I'm done, you know, no more we're done. I'm like you know what if I were you I would do the same thing." Clinician 07

The role of life expectancy, age, and comorbidities

Life expectancy, considering age and comorbidities, was the primary factor that influenced decisions to reduce surveillance testing and/or transition to watchful waiting. The decision to space out testing required clinicians to balance a patient's risk of dying from prostate cancer compared to their other comorbidities, and how the patient values its impact on quality of life and potential for benefit.

> *"Well, whenever I see a patient, we're always thinking about based on what we know about this patient now, what's their risk of dying of prostate cancer, and then what's their risk of dying of other disease? And finally, how do they value their quality of life?"* Clinician 18

It was clear that clinicians tailor their decisions about transitioning to watchful waiting based on patients' health status.

> "*I mean, there's two different scenarios. One scenario is you've watched someone for a while; maybe you've gotten biopsies on them. Their PSA has remained stable, and now you know, instead of being in the early seventies, now they're in their late seventies or early eighties, and so I think it's reasonable to convert that person to an observation… On the other hand, I think that there are some patients that you can look at very quickly and see this is a patient who's not going to benefit from repeat biopsy or close monitoring because they have too many other medical issues that they're dealing with."* Clinician 03

In general, clinicians were reticent to specify an exact age where they would consistently transition to watchful waiting. One clinician noted the need for a guideline to guide this decision.

> *"But I would think like after the age of 80, you know, we could probably just stop because you know, you and I know that you know, most men already are going to have prostate cancer. Most men over 70 will have some cancer cells in them. But I would need some kind of guideline or something somewhere."* Clinician 19

However, one clinician felt that 75 years should be the cut-off and will only keep patients on AS if they insist.

> *"I would say if someone is on it for 6 years, has gone through our protocol and now they're over 75 years of age then I'll move to, I'll go to watchful waiting… I tell them if you came to me with a normal PSA and a normal rectal exam since age 75 I would stop following you at age 75. Sometimes I'll go to 80 if they're really healthy and they're insisting on it but most patients I try to encourage them to say listen we've made it to 75 without a problem it's reasonable to just not check it."* Clinician 09

Barriers to decrease testing and transitioning to watchful waiting

Concerns about poor adherence leading to missed disease progression. One barrier to decreasing test frequency or transitioning to watchful waiting was clinicians' concern about

poor adherence, resulting in missing disease progression. One clinician had a patient who did not adhere to the active surveillance schedule and came back and had progressed.

> *"Cause if you've got a patient that should come back in six months and they kind of fall off the radar, then there's a chance that there are patients out there -- by the way, this happened a couple times where patients come back a year and a half later and they've had progression… that if patients aren't compliant, then active surveillance doesn't work."*
>
> Clinician 06

The experience of having missed a progression due to poor adherence could perpetuate clinicians fear of missed progression and deter them from wanting to de-escalate active surveillance or transition to watchful waiting because they do not know which patients will have cancer progression.

Fear of litigation/retribution. Clinicians expressed that fear of legal action is in the back of their mind, but acknowledged that it is rare that they are sued.

> *"The third barrier is worry over legal stuff although I've never heard of someone being sued because of surveillance or not but I think that's in the back of people's minds. When I talk to private practice guys they say that".* Clinician 12

The fear of litigation is further amplified by the misalignment of active surveillance and the natural context of the field and purpose of their work.

> *"Well there is misalignment of how should I say let's say perverse incentives for managing people with low grade disease. In other words, physicians get reimbursed for doing something not for doing nothing."* Clinician 14

DISCUSSION

Our qualitative analysis suggest that surveillance testing for prostate cancer is being decreased and/or transitioned to watchful waiting in clinical practice. Intentional decisions to decrease surveillance testing/transition to watchful waiting may consider patients' age, health, and life expectancy. These decisions may also take into consideration patients' values and preferences. Unintentional decisions to decrease surveillance testing/transition to watchful waiting may be due to missed or cancelled appointments. These missed appointments may be an indicator that patients are prioritizing their quality of life or ability to work over the management of their prostate cancer.

This study suggests that the issues of age, health, and life expectancy may also play a role in decisions to decrease surveillance testing or transitioning to watchful waiting, similar to the decisions to start active surveillance.[2122] In contrast, a study where clinicians were presented with scenarios and rank ordered factors that influenced their decision making about starting active surveillance, found that clinicians used 10-year survival probability, stage, and PSA.[23]

A modeling study demonstrated that generally active surveillance had greater quality adjusted life years than watchful waiting, except among patients diagnosed older than 65 years.[24] Another study found that for men older than 65 years, one biopsy round resulted in a loss of one quality adjusted life year, likely due to other quality of life outcomes and potential biopsy-related complications.[9] The University of Toronto stops serial biopsies once a man is 80 years old and has a life expectancy of less-than five years.[25] However, the consensus statement from the United Kingdom does state that age as well as other factors need to be considered, including frailty.[12]

As time on active surveillance increases, clinicians' and patients' comfort with active surveillance and acceptance of the low probability of progression may support them in making the decision to decrease the frequency of surveillance testing/transition to watchful waiting. This finding is consistent with the literature around men who select active surveillance. Patients and their families who may be more anxious are less likely to choose active surveillance initially or stop active surveillance for immediate treatment.[21,26] One qualitative study found that men on active surveillance understood their disease was low-risk and were confident there would be time for curative treatment if they progressed. These men also had to convince family members that they were not crazy for having a cancer and not treating it immediately.[27] In a study that followed men on active surveillance for three years found that over time, men adopted coping mechanisms and became less anxious about their prostate cancer.[28]

The issue of adherence may be associated with the fear of missing the window of curability, which then in turn may serve as a barrier to decreasing surveillance testing or transitioning to watchful waiting. Clinicians noted that active surveillance only works if patients show up for the appointments. However, they recognized that there are practical barriers (e.g., transportation issues and time off from work) that may contribute to nonadherence to the active surveillance protocol. In a large cohort of men with grade group 1 prostate cancer, about 24% were lost to follow-up among men who were not reclassified.[29] However, the increased use of telemedicine due to the COVID-19 pandemic may help with some of the practical barriers in the future. It may also help to explore the goals of care at the start of active surveillance and during active surveillance, so that the clinicians can be aware of what is important to the patient. Another would be to set the expectation that surveillance testing may decrease over time and that they may transition to watchful waiting in the future. The MUSIC improvement program is taking this approach to their active surveillance patients.[30]

Finally, the fear of litigation may be a barrier to decreasing testing for disease progression and transitioning to watchful waiting. The fear of litigation is likely related to the fear of missing a cancer that will become metastatic and its downstream consequences, such as patients and family members being upset and wanting to sue or submit a complaint. The qualitative study by Loeb and colleagues found that there are medico-legal considerations when starting active surveillance because the clinicians felt the need to protect themselves.[13]

Although this study provides new information regarding what clinicians consider when making the decision to decrease the frequency of surveillance monitoring or to transition to watchful waiting, limitations need to be considered when interpreting the results. The interviews focused on a variety of issues about active surveillance, such as testing frequency and modality and decreasing surveillance testing frequency or converting to watchful waiting were only one area of focus. The sample consisted of clinicians at academic and Veterans Affairs hospitals representing 11 states. Their perspectives and the patients they treat may not represent the wider group of clinicians who see and treat men with prostate cancer, such as general urologists and primary care providers outside of the institutions in this study. Additionally, clinicians who practice outside the United States may have different experiences because of the differences in the healthcare system. Some of the interviews were conducted by a female urologist who is well known among the medical community, which may have introduced response bias. However, this interviewer used open-ended and non-judgmental questioning to facilitate an open-dialogue. The interviewers did not participate in the analysis process for this study, limiting the ability to incorporate the insights of the interviewers in the analysis process. The results and interpretation of this analysis was shared and discussed with the primary study lead and interviewer.

Since the time of the interviews, it is possible that clinical practices regarding de-escalation of active surveillance and transitioning to watchful waiting have changed. However, the AUA guidelines on the management of localized prostate cancer does not address the issue of when or how to de-escalate active surveillance and transition to watchful waiting.[2] The authors aware

of one formal group that has a staged approach to active surveillance, the Michigan Urological Surgery Initiative.[30]

These findings suggested that decreasing surveillance testing frequency or transitioning to watchful waiting may be happening in certain situations. More research is needed to explore all the scenarios when clinicians and patients may be amenable to decreasing active surveillance testing or transitioning to watchful waiting and communication strategies to facilitate this difficult conversation. These decisions are preference-sensitive and patients' values and priorities in addition to their health status needs to be considered. Interventions to support shared decision making, such as patient facing decision aids and encounter based decision aids, may be helpful to identify patients' values and goals of care in making the decision to transition to watchful waiting. Clinicians and men need guidance to make thoughtful decisions to decrease surveillance testing or transition to watchful waiting. These guidelines could also emphasize the need to consider men's preferences in addition to clinical characteristics and encourage shared decision making.

Contributorship statement

Study conception and design: LML; drafting of the study protocol: LML; obtaining of research funding: LML and SL; acquisition of data: SL. performing of qualitative analysis: LML and NJC drafting, editing and preparing of the final version of the manuscript: LML, NJC, and SL; Critical feedback and additional edits: NJC, RJV, KEH, and SL. All authors approved the final manuscript.

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Data Sharing Statement

Research data are not shared.

Ethics Statements

Patient consent for publication

Not required

Ethics approval

The University of Texas MD Anderson Cancer Center Institutional Review Board (PA17-0642) deemed this protocol as exempt because the study was a secondary analysis of existing data from the parent study. The parent study was approved by NYU (NYU: i14-02147).

Competing Interests

The authors have no competing interests to report.

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Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

No	Item	Guide questions/description	Page
Domain 1: Research team and reflexivity			
Personal Characteristics			
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?	16
2.	Credentials	What were the researcher's credentials? *E.g. PhD, MD*	1
3.	Occupation	What was their occupation at the time of the study?	1
4.	Gender	Was the researcher male or female?	16
5.	Experience and training	What experience or training did the researcher have?	1
Relationship with participants			
6.	Relationship established	Was a relationship established prior to study commencement?	16
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? e.*g. personal goals, reasons for doing the research*	16
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. *Bias, assumptions, reasons and interests in the research topic*	16
Domain 2: study design			
Theoretical framework			
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis*	7

No	Item	Guide questions/description	Page
Participant selection			
10.	Sampling	How were participants selected? *e.g. purposive, convenience, consecutive, snowball*	8
11.	Method of approach	How were participants approached? e.*g. face-to-face, telephone, mail, email*	8
12.	Sample size	How many participants were in the study?	8
13.	Non-participation	How many people refused to participate or dropped out? Reasons?	9
Setting			
14.	Setting of data collection	Where was the data collected? e.*g. home, clinic, workplace*	8
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	8
16.	Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*	7
Data collection			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	8
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?	8
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?	8
20.	Field notes	Were field notes made during and/or after the interview or focus group?	NR
21.	Duration	What was the duration of the interviews or focus group?	8

No	Item	Guide questions/description	Page
22.	Data saturation	Was data saturation discussed?	8
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	NR
Domain 3: analysis and findings			
Data analysis			
24.	Number of data coders	How many data coders coded the data?	9
25.	Description of the coding tree	Did authors provide a description of the coding tree?	NR
26.	Derivation of themes	Were themes identified in advance or derived from the data?	9
27.	Software	What software, if applicable, was used to manage the data?	8
28.	Participant checking	Did participants provide feedback on the findings?	NR
Reporting			
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.*g. participant number*	10
30.	Data and findings consistent	Was there consistency between the data presented and the findings?	10
31.	Clarity of major themes	Were major themes clearly presented in the findings?	9
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	10

BMJ Open

Factors that Influence Clinicians' Decisions to Decrease Active Surveillance Monitoring Frequency or Transition to Watchful Waiting for Localized Prostate Cancer: A Qualitative Study

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Factors that Influence Clinicians' Decisions to Decrease Active Surveillance Monitoring Frequency or Transition to Watchful Waiting for Localized Prostate Cancer: A Qualitative Study

Short Title: Decisions about Transitioning to Watchful Waiting for Prostate Cancer

Lisa M. Lowenstein, PhD, MPH[a]

Noah J. Choi[a]

Karen E. Hoffman, MD, MPH[b]

Robert J. Volk, PhD[a]

Stacy Loeb, MD, MSc, PhD (Hon)[c, d, e]

[a] Department of Health Services Research, The University of Texas MD Anderson Cancer Center, 1400 Pressler Street, Unit 1444, Houston, TX 77230, USA.

[b] Department of Radiation Oncology, The University of Texas MD Anderson Cancer Center

[c] Department of Urology, New York University, New York City, USA

[d] Department of Population Health, New York University, New York City, USA

[e] Manhattan Veterans Affairs Medical Center, New York City, USA

Corresponding Author:

Lisa M. Lowenstein, PhD, MPH

Department of Health Services Research

The University of Texas MD Anderson Cancer Center

1400 Pressler Street, Unit 1444

Houston, TX 77230

Phone: 713-792-5807

Fax: 713-563-0059

Email: LMLowenstein@mdanderson.org

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ABSTRACT

Objective: Little is known about clinicians' decision-making about decreasing active surveillance (AS) testing/converting patients to watchful waiting (WW), nor are there any guidelines. The objective of this study was to identify factors that clinicians consider when decreasing AS testing/converting to WW for men with prostate cancer.

Design: Exploratory qualitative study.

Setting: All participants practiced in various institutions in the U.S.

Participants: Eligible clinicians had to provide clinical care for patients with prostate cancer in the U.S. and speak English. Clinicians could be either urologists or radiation oncologists. Of the 24 clinicians, 83% were urologists representing 11 states, 92% were male, and 62% were White.

Methods: This qualitative study used data from semi-structured interviews. Purposive sampling was used to ensure geographic variation in the U.S. Data collection continued until thematic saturation was achieved. Framework analysis guided coding and identification of themes. Two researchers coded all transcripts independently, met to discuss, and reached consensus.

Results: Interviews with clinicians demonstrated that testing or monitoring for AS or transitioning to WW is happening in practice, whether intentionally or unintentionally. Decisions to decrease AS were personalized and tailored to patients' health status. Life expectancy was the dominant factor that influenced decision, but clinicians were generally hesitant to specify an age when they would decrease AS or transition to WW. Fear that poor adherence could lead to missed progression and concerns about the medico-legal issue of not doing enough were cited as barriers to decreasing AS.

Conclusions: These findings suggest that in certain situations, AS frequency is reduced or transitioned to WW, yet decisions appear to be inconsistent and there are no significant barriers. These findings could inform further areas to explore when drafting recommendations that consider patients' values and preferences when making decisions about decreasing AS/converting to WW.

Strengths and Limitations of this study:

- First study to explore clinician decision making about decreasing AS testing/transitioning to WW for men with prostate cancer.
- Data from these semi-structured interviews with clinicians from different regions of the United States from academic centers and Veterans Affairs hospitals representing 11 states, may not represent all viewpoints or clinical practices regarding decreasing AS/transitioning to WW for men with prostate cancer.
- Although clinical practice has evolved over the past several years for managing men with prostate cancer on active surveillance, there is no clear consensus nor empirical studies on clinician attitudes on when or how to decrease AS testing/transition to WW.

BACKGROUND

Many men diagnosed with prostate cancer are diagnosed with localized prostate cancer, which includes those who have low-risk and intermediate risk disease.[1] For many of these men their prostate cancer is unlikely to cause symptoms or affect survival if left untreated.[2,3] In contrast, unnecessary treatment may lead to treatment induced urinary problems, rectal bleeding, and sexual dysfunction.[4] As a result, overtreatment remains a major concern, with estimates ranging between 6% to 64%.[5] In response, clinical guidelines recommend active surveillance as the preferred management for patients with low-risk disease to minimize overtreatment.[2,6]

The decision about active surveillance or watchful waiting for prostate cancer includes consideration of clinical characteristics of the disease and life expectancy.[3] The National Comprehensive Cancer Network recommends active surveillance as for men with at least 10 years of life expectancy if they have low-risk disease; whereas, observation (watchful waiting) is recommended for those with life expectancy <10 years.[6] The American Urological Association, American Society of Radiation Oncology, and the Society of Urologic Oncology recommends active surveillance for men when they have a life expectancy of five years or more.[2] There is some guidance on the frequency and modality of testing, but there is a significant amount of variability in practice.[3,7]

In active surveillance, men are typically monitored closely with prostate-specific antigen (PSA) test every six months, a digital rectal exam at least annually, and repeat prostate biopsies and imaging every one to three years. If the cancer progresses, then curative treatment is delivered.

In watchful waiting, men may have fewer tests and rely more on symptom-based monitoring. If the cancer progresses, then treatment would be started to help control the symptoms but not cure the cancer.

Although there is guidance about when to start active surveillance, discussion or literature on what clinicians consider or have experienced when decreasing the frequency of testing for active surveillance and/or transitioning to watchful waiting is largely absent. There is a commentary,[8] few modelling studies,[9,10], and a narrative review.[11] These articles indicate that the decision to de-escalate active surveillance and/or convert to watchful waiting is complex and needs to consider age, comorbidities, and patient preferences. A consensus statement from the United Kingdom does state that the decision to convert to watchful waiting should consider men's preferences, clinical characteristics, comorbidities, functional impairment, and life expectancy.[12] No currently published study reports on what clinicians think about decreasing active surveillance and/or converting to watchful waiting. The purpose of this study was to identify factors clinicians consider when decreasing surveillance testing frequency or converting to watchful waiting for prostate cancer.

METHODS

Study Design

This study used data from a previously published qualitative study of clinicians that care for patients with prostate cancer, which reported on physician decision-making regarding general active surveillance practices such as, protocol selection, comfort with active surveillance,

impact of patient selection for active surveillance.[13] Eligible clinicians had to provide clinical care for patients with prostate cancer in the United States and speak English. Clinicians could be either urologists or radiation oncologists. All participants provided written informed consent and completed an intake questionnaire prior to their interview. The University of Texas MD Anderson Cancer Center Institutional Review Board (PA17-0642) deemed this protocol as exempt because the study was a secondary analysis of existing data from the parent study. The parent study was approved by NYU (NYU: i14-02147).

Recruitment

Loeb and colleagues used a combination of purposive sampling to select urologists from both the American Urological Association and the American Society of Clinical Oncology memberships and snowball sampling.[13] Clinicians were enrolled onto the study until data saturation was reached. Purposive sampling is a non-probability sampling strategy to obtain information for a pre-specified population and ensured that each clinician provided care for men with localized prostate cancer on active surveillance and were from geographically diverse settings across the United States. Eligible clinicians who were informed about the study were allowed to nominate other colleagues as potential participants as long as they also met eligibility criteria. Participants were contacted by email and were given the choice to have their interview either in person, or over the phone.

Data Collection and Management

All interviews were conducted from July to December of 2015 either over the phone or in person by a female urologist or a female research assistant. Data collection procedures were described previously.[13] In brief, that study initially conducted 17 interviews, and then conducted seven more interviews to reach thematic saturation. Thematic saturation is commonly used to determine when enough interviews have been conducted and when no new insights are identified.[14] Interviews were conducted with the study participants only and lasted between 22 to 51 minutes. Atlas.ti was used to facilitate data management and analysis.

Interview

The interviewers used a semi-structured interview guide that was developed from a literature review and previous active surveillance research. [15] [15-18] The guide was pilot tested with two clinicians and was edited for improved clarity. The guide consisted of fifteen questions, including "What are your triggers to stop active surveillance and convert to watchful waiting?" and "What are your main concerns about active surveillance?" All interviews were audio recorded and anonymously transcribed by a third-party service.

Analysis

For this study, framework analysis guided our analytical approach.[19,20] Two researchers independently reviewed each full transcript and coded any discussion relevant to de-escalating AS or transitioning to WW. Researchers met to discuss their coding and how to organize and conceptualize the coded text (refine code definitions) until all transcripts were discussed. After all transcripts were coded, we charted the coded text into matrices, where rows represented codes and columns represented participants, to facilitate identification of themes. For each

participant, we summarized when and how the code was applied and an example quote from the coded transcript. We determined that data saturation was reached when the coded interviews did not generate additional codes or themes or further our understanding.

Patient and Public Involvement

No patient involvement.

RESULTS

Sample characteristics

A total of 48 invitations were sent with enrollment on a rolling basis. Enrollment was stopped after 24 clinicians because data saturation was achieved. The characteristics of the participants were published previously.[13] Majority of the clinicians were urologists (n=20), male (n=22), and White (n=15) and represented 11 states.

Overview of qualitative findings

These interviews suggested that some clinicians are reducing the frequency of surveillance testing and transitioning patients to watchful waiting, whether intentionally (e.g., clinician and patient discussed de-escalating surveillance testing and/or converting to watchful waiting) or unintentionally (e.g., patient stopped following up for visits at pre-set intervals, every 6 months for PSA testing). Life expectancy considering age and existing comorbidities was the dominant factor influencing these decisions. However, there were some barriers to decreasing test

frequency and transitioning to watchful waiting. One barrier is the concern of poor adherence leading to missed disease progression. They also discussed the fear of being potentially sued.

Patient Preferences May Be Leading to Reduced Testing and Converting to Watchful Waiting

Patients and/or clinicians are reducing the frequency of surveillance testing, whether unintentionally or intentionally. The surveillance testing frequency may be spread out due to patients missing or cancelling appointments. Reasons could include the general discomfort with the biopsy procedure and/or issues with transportation. They also noted that the appointments take time, which interferes with their work.

> "*Because not just with these patients but every patient has to come to the office every three months, take time off work or you know, wait in the office. I think that really bugs them."* Clinician 19

One clinician mentioned how there isn't really a trigger to switch to watchful waiting, unless patients stops showing up.

> *"Yes if you mean by watchful waiting we don't see the people or the individuals anymore or perform any other tests on them then I would say we don't ever convert someone to watchful waiting unless they can't make it back for a visit."* Clinician 14

Clinicians discussed situations where the patients have wanted to switch to watchful waiting because they have not progressed for many years.

> *"[…] he actually went through like five years of yearly consecutive biopsies where his PSA didn't change much, his DRE is the same. The pathology was nothing or one or two cores. And, you know, alternating, nothing or a little something. And after year five he was like I'm done, no more we're done. I'm like you know what if I were you I would do the same thing*." Clinician 07

The role of life expectancy, age, and comorbidities

Life expectancy, considering age and comorbidities, was the primary factor that influenced decisions to reduce surveillance testing and/or transition to watchful waiting. The decision to space out testing required clinicians to balance a patient's risk of dying from prostate cancer compared to their other comorbidities, and how the patient values its impact on quality of life and potential for benefit.

> *"Well, whenever I see a patient, we're always thinking about based on what we know about this patient now, what's their risk of dying of prostate cancer, and then what's their risk of dying of other disease? And finally, how do they value their quality of life?"* Clinician 18

It was clear that clinicians tailor their decisions about transitioning to watchful waiting based on patients' health status.

> *"I mean, there's two different scenarios. One scenario is you've watched someone for a while; maybe you've gotten biopsies on them. Their PSA has remained stable, and now you know, instead of being in the early seventies, now they're in their late seventies or early eighties, and so I think it's reasonable to convert that person to an observation… On the other hand, I think that there are some patients that you can look at very quickly and see this is a patient who's not going to benefit from repeat biopsy or close monitoring because they have too many other medical issues that they're dealing with."* Clinician 03

In general, clinicians were reticent to specify an exact age where they would consistently transition to watchful waiting. One clinician noted the need for a guideline to guide this decision.

> *"But I would think like after the age of 80, you know, we could probably just stop because you know, you and I know that you know, most men already are going to have prostate cancer. Most men over 70 will have some cancer cells in them. But I would need some kind of guideline or something somewhere."* Clinician 19

However, one clinician felt that 75 years should be the cut-off and will only keep patients on AS if they insist.

"I would say if someone is on it for 6 years, has gone through our protocol and now they're over 75 years of age then I'll move to, I'll go to watchful waiting… I tell them if you came to me with a normal PSA and a normal rectal exam since age 75 I would stop following you at age 75. Sometimes I'll go to 80 if they're really healthy and they're insisting on it but most patients I try to encourage them to say listen we've made it to 75 without a problem it's reasonable to just not check it." Clinician 09

Barriers to decrease testing and transitioning to watchful waiting

Concerns about poor adherence leading to missed disease progression. One barrier to decreasing test frequency or transitioning to watchful waiting was clinicians' concern about poor adherence, resulting in missing disease progression. One clinician had a patient who did not adhere to the active surveillance schedule and came back and had progressed.

"Cause if you've got a patient that should come back in six months and they kind of fall off the radar, then there's a chance that there are patients out there -- by the way, this happened a couple times where patients come back a year and a half later and they've had progression… that if patients aren't compliant, then active surveillance doesn't work." Clinician 06

The experience of having missed a progression due to poor adherence could perpetuate clinicians fear of missed progression and deter them from wanting to de-escalate active

surveillance or transition to watchful waiting because they do not know which patients will have cancer progression.

Fear of litigation/retribution. Clinicians expressed that fear of legal action is in the back of their mind, but acknowledged that it is rare that they are sued.

> *"The third barrier is worry over legal stuff although I've never heard of someone being sued because of surveillance or not but I think that's in the back of people's minds. When I talk to private practice guys they say that".* Clinician 12

The fear of litigation is further amplified by the misalignment of active surveillance and the natural context of the field and purpose of their work.

> *"Well there is misalignment of how should I say let's say perverse incentives for managing people with low grade disease. In other words, physicians get reimbursed for doing something not for doing nothing."* Clinician 14

DISCUSSION

Our qualitative analysis suggest that surveillance testing for prostate cancer is being decreased and/or transitioned to watchful waiting in clinical practice. Intentional decisions to decrease surveillance testing/transition to watchful waiting may consider patients' age, health, and life expectancy. These decisions may also take into consideration patients' values and preferences.

Unintentional decisions to decrease surveillance testing/transition to watchful waiting may be due to missed or cancelled appointments. These missed appointments may be an indicator that patients are prioritizing their quality of life or ability to work over the management of their prostate cancer.

This study suggests that the issues of age, health, and life expectancy may also play a role in decisions to decrease surveillance testing or transitioning to watchful waiting, similar to the decisions to start active surveillance.[21,22] In contrast, a study where clinicians were presented with scenarios and rank ordered factors that influenced their decision making about starting active surveillance, found that clinicians used 10-year survival probability, stage, and PSA.[23]

A modeling study demonstrated that generally active surveillance had greater quality adjusted life years than watchful waiting, except among patients diagnosed older than 65 years.[24] Another study found that for men older than 65 years, one biopsy round resulted in a loss of one quality adjusted life year, likely due to other quality of life outcomes and potential biopsy-related complications.[9] The University of Toronto stops serial biopsies once a man is 80 years old and has a life expectancy of less-than five years.[25] However, the consensus statement from the United Kingdom does state that age as well as other factors need to be considered, including frailty.[12]

As time on active surveillance increases, clinicians' and patients' comfort with active surveillance and acceptance of the low probability of progression may support them in making

the decision to decrease the frequency of surveillance testing/transition to watchful waiting. This finding is consistent with the literature around men who select active surveillance. Patients and their families who may be more anxious are less likely to choose active surveillance initially or stop active surveillance for immediate treatment.[21,26] One qualitative study found that men on active surveillance understood their disease was low-risk and were confident there would be time for curative treatment if they progressed. These men also had to convince family members that they were not crazy for having a cancer and not treating it immediately.[27] In a study that followed men on active surveillance for three years found that over time, men adopted coping mechanisms and became less anxious about their prostate cancer.[28]

The issue of adherence may be associated with the fear of missing the window of curability, which then in turn may serve as a barrier to decreasing surveillance testing or transitioning to watchful waiting. Clinicians noted that active surveillance only works if patients show up for the appointments. However, they recognized that there are practical barriers (e.g., transportation issues and time off from work) that may contribute to nonadherence to the active surveillance protocol. In a large cohort of men with grade group 1 prostate cancer, about 24% were lost to follow-up among men who were not reclassified.[29] However, the increased use of telemedicine due to the COVID-19 pandemic may help with some of the practical barriers in the future. It may also help to explore the goals of care at the start of active surveillance and during active surveillance, so that the clinicians can be aware of what is important to the patient. Another would be to set the expectation that surveillance testing may decrease over time and that they

may transition to watchful waiting in the future. The MUSIC improvement program is taking this approach to their active surveillance patients.[30]

Finally, the fear of litigation may be a barrier to decreasing testing for disease progression and transitioning to watchful waiting. The fear of litigation is likely related to the fear of missing a cancer that will become metastatic and its downstream consequences, such as patients and family members being upset and wanting to sue or submit a complaint. The qualitative study by Loeb and colleagues found that there are medico-legal considerations when starting active surveillance because the clinicians felt the need to protect themselves.[13]

Although this study provides new information regarding what clinicians consider when making the decision to decrease the frequency of surveillance monitoring or to transition to watchful waiting, limitations need to be considered when interpreting the results. The interviews focused on a variety of issues about active surveillance, such as testing frequency and modality and decreasing surveillance testing frequency or converting to watchful waiting were only one area of focus. The sample consisted of clinicians at academic and Veterans Affairs hospitals representing 11 states. Their perspectives and the patients they treat may not represent the wider group of clinicians who see and treat men with prostate cancer, such as general urologists and primary care providers outside of the institutions in this study. Additionally, clinicians who practice outside the United States may have different experiences because of the differences in the healthcare system. Some of the interviews were conducted by a female urologist who is well known among the medical community, which may have introduced

response bias. However, this interviewer used open-ended and non-judgmental questioning to facilitate an open-dialogue. The interviewers did not participate in the analysis process for this study, limiting the ability to incorporate the insights of the interviewers in the analysis process. The results and interpretation of this analysis was shared and discussed with the primary study lead and interviewer.

Since the time of the interviews, it is possible that clinical practices regarding de-escalation of active surveillance and transitioning to watchful waiting have changed. However, the AUA guidelines on the management of localized prostate cancer does not address the issue of when or how to de-escalate active surveillance and transition to watchful waiting.[2] The authors aware of one formal group that has a staged approach to active surveillance, the Michigan Urological Surgery Initiative.[30]

These findings suggested that decreasing surveillance testing frequency or transitioning to watchful waiting may be happening in certain situations. More research is needed to explore all the scenarios when clinicians and patients may be amenable to decreasing active surveillance testing or transitioning to watchful waiting and communication strategies to facilitate this difficult conversation. These decisions are preference-sensitive and patients' values and priorities in addition to their health status needs to be considered. Interventions to support shared decision making, such as patient facing decision aids and encounter based decision aids, may be helpful to identify patients' values and goals of care in making the decision to transition to watchful waiting. Clinicians and men need guidance to make thoughtful decisions to

decrease surveillance testing or transition to watchful waiting. These guidelines could also emphasize the need to consider men's preferences in addition to clinical characteristics and encourage shared decision making.

Contributorship statement

Study conception and design: LML; drafting of the study protocol: LML; obtaining of research funding: LML and SL; acquisition of data: SL. performing of qualitative analysis: LML and NJC drafting, editing and preparing of the final version of the manuscript: LML, NJC, and SL; Critical feedback and additional edits: NJC, RJV, KEH, and SL. All authors approved the final manuscript.

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Data Sharing Statement

Research data are not shared.

Ethics Statements

Patient consent for publication

Not required

Ethics approval

The University of Texas MD Anderson Cancer Center Institutional Review Board (PA17-0642) deemed this protocol as exempt because the study was a secondary analysis of existing data from the parent study. The parent study was approved by NYU (NYU: i14-02147).

Competing Interests

The authors have no competing interests to report.

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Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

No	Item	Guide questions/description	Page
Domain 1: Research team and reflexivity			
Personal Characteristics			
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?	16
2.	Credentials	What were the researcher's credentials? *E.g. PhD, MD*	1
3.	Occupation	What was their occupation at the time of the study?	1
4.	Gender	Was the researcher male or female?	16
5.	Experience and training	What experience or training did the researcher have?	1
Relationship with participants			
6.	Relationship established	Was a relationship established prior to study commencement?	16
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? e.*g. personal goals, reasons for doing the research*	16
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. *Bias, assumptions, reasons and interests in the research topic*	16
Domain 2: study design			
Theoretical framework			
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis*	7

No	Item	Guide questions/description	Page
Participant selection			
10.	Sampling	How were participants selected? *e.g. purposive, convenience, consecutive, snowball*	8
11.	Method of approach	How were participants approached? e.*g. face-to-face, telephone, mail, email*	8
12.	Sample size	How many participants were in the study?	8
13.	Non-participation	How many people refused to participate or dropped out? Reasons?	9
Setting			
14.	Setting of data collection	Where was the data collected? e.*g. home, clinic, workplace*	8
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	8
16.	Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*	7
Data collection			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	8
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?	8
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?	8
20.	Field notes	Were field notes made during and/or after the interview or focus group?	NR
21.	Duration	What was the duration of the interviews or focus group?	8

No	Item	Guide questions/description	Page
22.	Data saturation	Was data saturation discussed?	8
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	NR
Domain 3: analysis and findings			
Data analysis			
24.	Number of data coders	How many data coders coded the data?	9
25.	Description of the coding tree	Did authors provide a description of the coding tree?	NR
26.	Derivation of themes	Were themes identified in advance or derived from the data?	9
27.	Software	What software, if applicable, was used to manage the data?	8
28.	Participant checking	Did participants provide feedback on the findings?	NR
Reporting			
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.*g. participant number*	10
30.	Data and findings consistent	Was there consistency between the data presented and the findings?	10
31.	Clarity of major themes	Were major themes clearly presented in the findings?	9
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	10