Perceptions of Active Surveillance and Treatment Recommendations for Low-risk Prostate Cancer

Results from a National Survey of Radiation Oncologists and Urologists

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Background: With the growing concerns about overtreatment in prostate cancer, the extent to which radiation oncologists and urologists perceive active surveillance (AS) as effective and recommend it to patients are unknown.

Objective: To assess opinions of radiation oncologists and urologists about their perceptions of AS and treatment recommendations for low-risk prostate cancer.

Research Design: National survey of specialists.

Participants: Radiation oncologists and urologists practicing in the United States.

Measures: A total of 1366 respondents were asked whether AS was effective and whether it was underused nationally, whether their patients were interested in AS, and treatment recommendations for low-risk prostate cancer. Pearson's χ^2 test and multivariate logistic regression were used to test for differences in physician perceptions on AS and treatment recommendations.

Results: Overall, 717 (52.5%) of physicians completed the survey with minimal differences between specialties ($P = 0.92$). Although most physicians reported that AS is effective (71.9%) and underused in the United States (80.0%), 71.0% stated that their patients were not interested in AS. For low-risk prostate cancer, more physicians recommended radical prostatectomy (44.9%) or brachytherapy (35.4%); fewer endorsed AS (22.1%). On multivariable analysis, urologists were more likely to recommend surgery [odds ratio (OR): 4.19; $P < 0.001$] and AS (OR: 2.55; $P < 0.001$), but less likely to recommend brachytherapy (OR: 0.13; $P < 0.001$) and external beam radiation therapy (OR: 0.11; $P < 0.001$) compared with radiation oncologists.

Conclusions and Relevance: Most prostate cancer specialists in the United States believe AS effective and underused for low-risk prostate cancer, yet continue to recommend the primary treatments their specialties deliver.

Key Words: active surveillance, outcomes, prostate cancer, recommendations, survey

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Among the approximately 230,000 patients diagnosed with prostate cancer each year, most men present with clinically localized disease and can achieve long-term survival with radiation therapy or surgery.[1–3] However, active surveillance (AS) has become an emerging disease management strategy for this common malignancy.[4] Clinical guidelines recommend AS, which involves close monitoring for disease progression by serial prostate-specific antigen (PSA) testing, digital rectal examinations and prostate biopsies, as 1 treatment alternative for patients with low-risk

disease (T1c, PSA: 4–10 ng/mL and Gleason 6).[5,6] To address the growing concern of overtreatment, a recent NIH consensus statement on the role of AS for prostate cancer concluded that it should be offered to eligible patients with low-risk disease and that approximately 100,000 patients are eligible for such an approach annually.[7] Yet, most patients are treated with radiation therapy or surgery with approximately 10% undergoing AS, despite the current guidelines and existing evidence.[8–11] A recent Veterans Affairs study also reported that a majority of men with low-risk prostate cancer and multiple comorbidities were being overtreated with brachytherapy, radiation therapy, or surgery.[12] Indeed, advanced treatment technology—intensity-modulated radiation therapy and robotic surgery—are being increasingly used among men who are least likely to benefit due to low-risk prostate cancer or limited life expectancy.[13] As a consequence, treatment recommendations of radiation oncologists and urologists for low-risk prostate cancer bear particular relevance on the national use of AS.

Current perceptions of radiation oncologists and urologists on whether AS is effective and the degree to which it is recommended may represent key barriers to its greater adoption in clinical practice. Attitudes toward this conservative disease management approach from specialists who treat prostate cancer may contextualize the relatively low adoption of AS in the United States. Therefore, we performed a national survey of radiation oncologists and urologists to assess their perceptions regarding the effectiveness of AS, comfort with routinely recommending it to patients, and typical treatment recommendations for low-risk PC. We also aimed to ascertain the physician-reported rates of patients who choose AS in clinical practice, whether their patients are interested in it, and their perceptions about the appropriate national utilization of different primary treatments for localized prostate cancer in the United States.

METHODS

Survey Sample

Upon Institutional Review Board approval, we acquired a random sample of radiation oncologists and urologists from the American Medical Association (AMA) Physician Masterfile in June 2011. The survey sample was restricted to physicians who had completed their residency training, aged less than 65 years, primarily involved in patient care, and practicing in the United States.

Survey Questionnaire and Administration

A pilot questionnaire was developed to assess the perceptions and beliefs of radiation oncologists and urologists on emerging issues in the treatment of localized prostate cancer. The pilot survey instrument was initially tested in a random sample of 50 radiation oncologists and 50 urologists from a single mailing in July 2011. Items were then revised according to the responses in the pilot survey.

To assess for possible barriers in clinical practice, we conceptualized case presentations where AS would be considered an acceptable treatment option based on clinical guidelines.[5,6] For the first clinical scenario, we presented a healthy 65-year-old patient diagnosed with low-risk prostate cancer based on the following clinical features: PSA 4–10 ng/mL, T1c, and Gleason 6. Respondents were queried about whether AS was effective as a disease management strategy and whether they felt comfortable routinely recommending AS in the clinical scenario (Appendix I, Supplemental Digital Content 1, http://links.lww.com/MLR/A728). Respondents could select from a 4-point Likert scale for each item, which was then dichotomized for the analysis.

The survey instrument also included items assessing physicians' perceptions regarding the patterns of care for men with localized prostate cancer. Considering a clinical scenario similar to the initial case presentations, respondents were asked to report the percentage of patients (<5%; 5%–10%; 11%–15%; or >15%) who choose AS in their clinical practice (Appendix II, Supplemental Digital Content 2, http://links.lww.com/MLR/A729). In addition, the survey included items that assessed whether the national rates of AS, brachytherapy, external beam radiation therapy, and radical prostatectomy were being "overused," "used at the right rate," or "underused" in United States (Appendix III, Supplemental Digital Content 3, http://links.lww.com/MLR/A730).

The survey included a second case presentation of a healthy 60-year-old patient diagnosed with localized prostate cancer with normal functional outcomes and greater than 10-year life expectancy (Appendix IV, Supplemental Digital Content 4, http://links.lww.com/MLR/A731). Physicians were asked to select a treatment recommendation of AS, brachytherapy, external beam radiation therapy, radical prostatectomy, or primary androgen deprivation for this case presentation.

Study Implementation Process

From November 2011 to April 2012, the survey was mailed to a random sample of 1366 physicians (n = 686 for radiation oncology; n = 680 for urology) in the United States. Each eligible respondent was mailed a cover letter, survey, and a token cash incentive. Nonresponders were mailed a reminder letter and another copy of the survey questionnaire for 3 successive waves approximately every 6 weeks. Framing variables obtained from the survey and AMA Masterfile included physician demographics, practice setting (academic or community), compensation structure (billing or salary with/without bonus), number of physicians in practice and prostate cancer patients seen each week, and geographic region (northeast, midwest, south, or west).

Statistical Analysis

Pearson's χ^2 test was used to assess for bivariate associations between physician specialty and perceptions of AS and treatment recommendations. We constructed multivariable logistic regression models to test for differences in treatment recommendations from the case presentation of a 60-year-old man with PSA 4–10 ng/mL, Gleason 6, and T1c prostate cancer, adjusting for physician characteristics, practice settings, compensation structure, geographic region, and specialty. A 2-sided P-value of ≤ 0.05 was used to determine statistical significance. Stata MP version 11.0

(College Station, TX) was used to perform all statistical analyses.

RESULTS

Characteristics of the respondents by physician specialty are shown in Table 1. Overall, 717 physicians returned the survey from the 1,366 eligible respondents (52.5%). Response rates were similar among radiation oncologists and urologists in our survey sample (52.6% vs. 52.3%; $P = 0.92$). Relative to urologists, radiation oncologists differed in having a higher proportion who were younger, female, practicing in academic medical centers and larger physician groups, and reimbursed by a salaried compensation structure (all $P < 0.05$). Radiation oncologists also tended to see a greater number of new prostate cancer patients per week than urologists ($P = 0.06$).

Overall, 71.9% of physicians in the survey responded that AS was effective and 68.6% reported feeling comfortable routinely recommending it as a disease management strategy from the case presentation of 65-year-old diagnosed with low-risk prostate cancer. However, 71.0% of physicians responded that their patients were not interested in AS. Responses to these items differed markedly by physician specialty (Fig. 1A). For example, urologists were more likely to agree than radiation oncologists that AS is effective (75.5% vs. 65.7%; $P < 0.001$), and to report comfort recommending it (75.8% vs. 61.7%; $P < 0.001$) to low-risk prostate cancer patients. Conversely, more radiation oncologists stated that patients were not interested in AS as a treatment option compared with urologists (82.3% vs. 59.1%; $P < 0.001$). Not surprisingly, these perceptions were accompanied by differences in reported management strategies: approximately a quarter of radiation oncologists stated that >10% of their patients are managed with AS compared with 40% of urologists in the survey sample ($P < 0.001$; Fig. 1B).

Radiation oncologists and urologists also disagreed in their assessment of population-level underuse or overuse of different primary treatments (Fig. 2). Approximately 80% of physicians in each specialty stated that AS is underused in the United States. However, a higher proportion of radiation oncologists viewed that radical prostatectomy is overused in the United States than urologists (70.3% vs. 45.6%; $P < 0.001$), whereas a higher proportion of urologists believed that brachytherapy (37.1% vs. 17.8%; $P < 0.001$) and external beam radiation therapy (48.2% vs. 32.4%; $P < 0.001$) are both overused nationally compared with radiation oncologists. Interestingly, a small percentage from

TABLE 1. Physician Characteristics (n = 717)

Features	Percent: Radiation Oncologists (n = 361)	Percent: Urologists (n = 356)	*P*
Age (y)			0.006
<40	23.0	14.3	
40–54	46.8	48.0	
≥55	30.2	37.7	
Race			0.74
Nonwhite	14.7	15.4	
White	85.3	84.6	
Sex			<0.001
Female	18.6	5.6	
Male	81.4	94.4	
Type of practice			<0.001
Academic	23.5	12.1	
Community	76.5	87.9	
Compensation structure			0.001
Billing	32.6	44.4	
Salary ± bonus	67.4	55.6	
No. prostate cancer patients/ week			0.06
0–3	74.7	81.9	
4–6	18.1	13.6	
≥7	7.2	4.5	
No. physicians in group			0.009
Solo	11.4	19.6	
2–9	32.8	28.1	
≥10	55.8	52.3	
Region			0.82
Northeast	24.3	22.5	
Midwest	22.1	22.5	
South	36.2	35.4	
West	17.1	19.6	

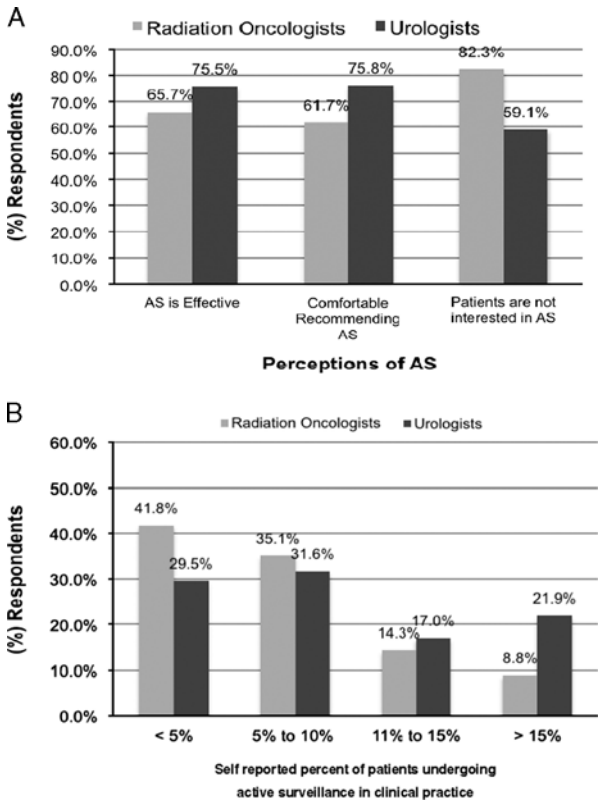

FIGURE 1. A, Perceptions in effectiveness of and comfortable routinely recommending routinely active surveillance, and patients not interested in active surveillance from a case presentation of a 65-year-old patient diagnosed with low-risk prostate cancer by physician specialty. All $P < 0.001$. B, Percentage of respondents reporting that patients undergoing active surveillance for low-risk prostate cancer in clinical practice by physician specialty. All $P < 0.001$. AS indicates active surveillance.

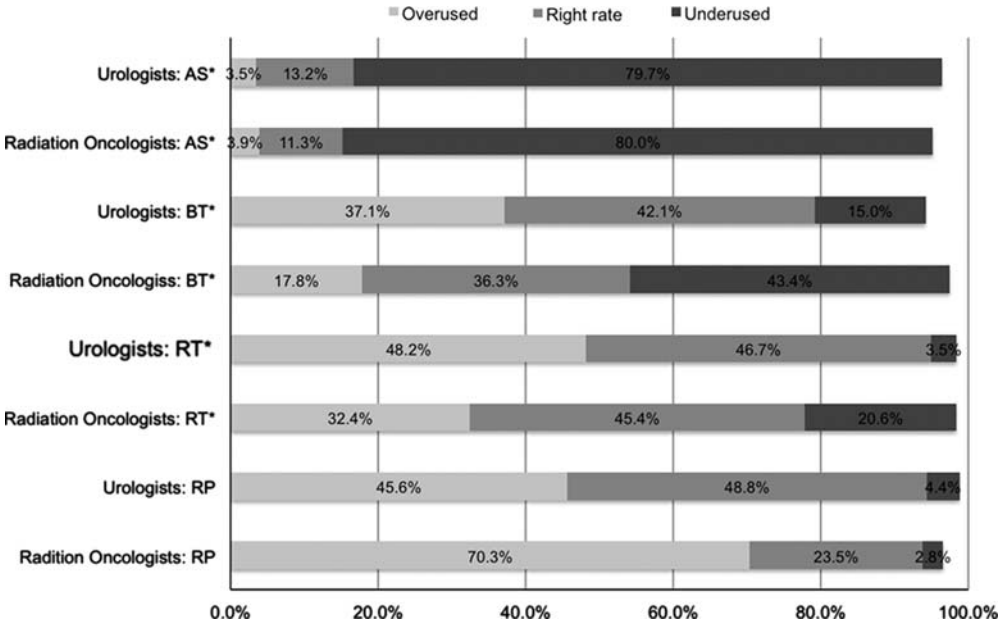

FIGURE 2. Perceptions about current rates of different types of primary therapy for localized prostate cancer by physician specialty. *$P<0.05$. AS indicates active surveillance; BT, brachytherapy; RT, radiation therapy; RP, radical prostatectomy.

both specialties viewed that most primary therapies for localized prostate cancer are underused. However, 43.4% and 20.6% of radiation oncologists believed that there is a national underuse of brachytherapy and external beam radiation therapy, respectively.

Despite a majority of physicians viewing AS as effective and underused, radiation oncologists and urologists consistently selected brachytherapy or surgery from the case presentation inquiring for treatment recommendations of a 60-year-old man diagnosed with low-risk prostate cancer (Fig. 3). Although a small minority of urologists endorsed brachytherapy (8.4%) or external beam radiation therapy (2.0%), radiation oncologists preferred brachytherapy (42.8%) as the treatment recommendation. Conversely, a markedly higher percentage of urologists chose radical prostatectomy compared with radiation oncologists (61.5% vs. 28.0%; $P<0.001$). More urologists also recommended AS relative to radiation oncologists from the case presentation (27.8% vs. 16.2%; $P<0.001$). On multivariable analysis adjusting for physician demographics, practice setting, compensation structure, and number of prostate cancer patients seen, urologists were more likely to recommend surgery [odds ratio (OR): 4.19; 95% confidence interval (CI), 2.99–5.89; $P<0.001$] and AS (OR: 2.55; 95% CI, 1.72–3.88; $P<0.001$), but less likely to recommend brachytherapy (OR: 0.13; 95% CI, 0.05–0.27; $P<0.001$) and external beam radiation therapy (OR: 0.11; 95% CI, 0.08–0.24; $P<0.001$) relative to radiation oncologists (Table 2). In addition, we also found that physicians practicing in academic medical centers had higher adjusted ORs for recommending AS compared with those practicing in the community setting (OR: 2.35; 95% CI, 1.42–3.89; $P<0.001$). The remaining

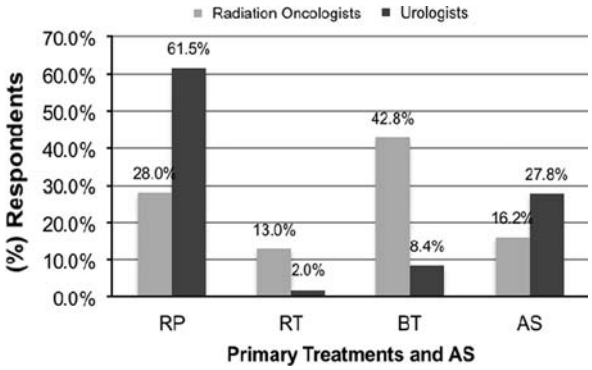

FIGURE 3. Treatment recommendations from the case presentation of a 60-year-old male diagnosed with low-risk prostate cancer by physician specialty. All $P<0.001$. AS indicates active surveillance; BT, brachytherapy; RT, radiation therapy; RP, radical prostatectomy.

TABLE 2. Adjusted Odds Ratios for Treatment Recommendations of Low-risk Prostate Cancer by Physician Specialty*

Physician Specialty (Reference)	OR (95% CI)	*P*
Radical prostatectomy		
Urologists (radiation oncologists)	4.19 (2.99–5.89)	<0.001
Radiation therapy		
Urologists (radiation oncologists)	0.11 (0.05–0.27)	<0.001
Brachytherapy		
Urologists (radiation oncologists)	0.13 (0.08–0.24)	<0.001
Active surveillance		
Urologists (radiation oncologists)	2.55 (1.72–3.88)	<0.001

*Adjusted for physician age, race, sex, practice setting, compensation structure, number of physicians in group practice, number of new prostate cancer patients per week, and geographic region.

CI indicates confidence interval; OR, odds ratio.

physician characteristics were not associated across all treatment recommendations.

DISCUSSION

This national survey of prostate cancer specialists builds upon prior work in several ways. At a time when there is increasing concern about overtreatment, we found that a vast majority of radiation oncologists and urologists considered AS effective and felt comfortable recommending it to patients. However, our study suggests that both specialties may not be routinely recommending AS in favor of radiation therapy or surgery. This bears particular relevance as the use of AS has been associated with physician recommendations and the use of multidisciplinary care. For instance, Davison et al[14] demonstrated that physician treatment recommendations strongly influenced whether appropriately selected patients received AS. Similarly, patients who were treated by physicians IN multidisciplinary clinics for prostate cancer were more likely to undergo AS.[15]

Our study evaluated if perceptions about AS for-low-risk prostate cancer may represent key barriers to its greater adoption in the United States. Our findings suggest that beliefs in the effectiveness of AS are not the main barrier to their use. These clinician perceptions are consistent with a growing amount of evidence that AS is reasonable approach in delaying treatment for those patients who progress and warrant treatment while minimizing the risk of overtreatment for those patients who have competing risks from other comorbidities greater than prostate cancer.[4,10,11,16–23]

Our study also provides important information about the perceptions of specialists about the state of prostate cancer treatment. The patterns of self-reported recommendations in this study mirror national trends documenting that most patients receive some form of primary therapy.[2,24–26] Our respondents also recognized the underuse of AS, yet recommended treatments with which they are most familiar. In our study, most radiation oncologists and urologists were concerned about overtreatment with radical prostatectomy and radiation therapy, but their perceptions of what treatments were the culprit in overtreatment varied by physician specialty. In this regard, radiation oncologists and urologists concluded that primary treatment provided by the other specialty as being overused. Fowler et al[27] performed a similar national survey of radiation oncologists and urologists about treatment recommendations for localized prostate cancer. In this study, each specialty viewed their primary therapy treatment more favorably in regards to providing better survival benefit and less loss of sexual function and urinary incontinence from radiation therapy. Furthermore, specialists similarly recognize that brachytherapy, radiation therapy, and surgery were being overused in 2000, but respondents were somewhat biased in viewing the other treatments provided by the other specialty as being more responsible for overtreatment. Therefore, our study suggests that little has changed in that both specialties continue to acknowledge the growing concerns about the overtreatment of localized prostate cancer even if that has not consistently translated into their self-reported patterns of treatment recommendations.[28,29]

So why are so many men with low-risk prostate cancer being treated, if clinicians feel that AS is underused? Our study also sheds light on this question. In our survey study, radiation oncologists and urologist appeared biased in favor of treatments from their particular specialty. Two thirds of urologists recommended surgery, whereas half of radiation oncologists endorsed either brachytherapy or radiation therapy. Furthermore, only a small fraction of physicians chose AS for the primary treatment recommendation of low-risk disease (22.1%). There also appeared to be key differences in responses on whether prostate cancer patients are interested in AS that also raise concern about its broader use in the United States. Although a majority of both specialties stated that patients were not interested in this disease management option, more radiation oncologists responded this way compared with urologists. Furthermore, a greater number of radiation oncologists had reported fewer patients undergoing AS in their clinical practice. This difference may be attributable to the clinical aspects of AS (serial digital rectal examinations, PSA testing, and biopsies) that are traditionally part of the clinical practice for urologists than radiation oncologists. Nonetheless, our study suggests that there remain some key attitudinal barriers to AS among prostate cancer specialists, especially considering radiation oncologists and urologists may view their treatment as superior. It is also concerning that a large percentage of respondents from both specialties reported that most prostate cancer patients are not interested in AS. Increased attention to education at the time of the diagnosis may help alleviate distressed patients who are concerned about risks of progression and the intensity of diagnostic testing from undergoing AS.

We acknowledge that several limitations exist in this study. Although the response rate in this study may limit the results due to possible bias, it is on par with previous studies, especially among specialists.[30,31] Furthermore, the demographic characteristics (age and sex) from the AMA Masterfile were similar between responders and nonresponders. However, response rates were higher among physicians practicing in academic hospitals or reimbursed by a billing compensation structure. Therefore, this difference in practice settings may possibly explain some of our findings. We also recognize that physicians were asked for perceptions about AS and treatment recommendations for low-risk prostate cancer in the setting of case presentations. It is feasible that attitudes about AS and treatment recommendations would have changed due to differing clinical characteristics such as advanced age, poor existing health-related quality of life, or limited life expectancy. Survey data on self-reported behavior and attitudes are also more limited THAN directly observed behavior. Finally, we recognize that the preferences of prostate cancer patients for treatment may have influenced the responses of both the specialties. For instance, Jang et al[32] recently reported that approximately 40% of Medicare beneficiaries visited with both a radiation oncologist and urologist and were then more likely to receive radiation therapy. It is possible that radiation oncologists may be seeing more patients who prefer radiation therapy, thereby potentially biasing the survey responses.

In summary, our study is the first to gauge the attitudes and perceptions of AS and the relative merits of different

treatment options for low-risk prostate cancer from a national survey of radiation oncologists and urologists. We highlight the apparent disconnect between the perceptions of specialists that AS is effective and yet it does not translate into treatment recommendations for low-risk disease. Furthermore, our results suggest that both radiation oncologists and urologists agree with the growing concerns of overtreatment with prostate cancer. Possible explanations of these findings may be the belief from both specialties that most patients are not interested in pursuing AS and possible specialty biases regarding better survival from their primary therapy. To overcome this disconnect of AS and treatment recommendations in favor of radiation therapy and surgery, efforts to improve the clinical encounter between patients and physicians at the time of diagnosis and treatment decisions by bringing the evidence-based benefits for improved survival and treatment-related quality of life issues into the discussion has the potential to improve the role of AS in the United States. Decision aids, which incorporate the principles of shared decision making, have been shown to improve patient knowledge about prostate cancer and incorporate patient preferences into treatment decisions.[33,34] This is particularly concerning as only a third of Medicare beneficiaries reported that conservative management was discussed in a recent national survey.[35] Furthermore, the use of multidisciplinary care in a coordinated manner with radiation oncologists, urologists, and primary care providers may afford the opportunity to better balance treatment decisions regarding the possible benefits and risks of primary therapy in the context of life expectancy and competing comorbidities.[15,32,36] However, our previous study demonstrated that radiation oncologists and urologists do not routinely make use of instruments that objectively measure prostate cancer severity, life expectancy, and quality of life.[37] Therefore, increased attention is needed to ensure that patient preferences are incorporated into treatment decisions and decision aids and tools are more easily implemented into clinical practice. By doing so, AS may then become a more acceptable disease management strategy for low-risk prostate cancer among newly diagnosed patients and specialists.

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