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## Association of delayed intervention after active surveillance vs immediate intervention of small renal masses with nephron-sparing interventions

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### INTRODUCTION AND OBJECTIVE:

While active surveillance (AS) has become an integral aspect of management for patients with T1RM, tumor growth can occur over time, and is a common indication for delayed intervention (DI). It remains unknown whether patients undergo nephron-sparing intervention (NSI) at similar rates after a period of AS compared to immediate intervention (II). We hypothesized the proportion of NSI is similar in both the II and DI cohorts.

### METHODS:

This is a retrospective review of the Michigan Urological Surgery Improvement Collaborative (MUSIC) KIDNEY prospectively maintained registry. We included all patients with newly diagnosed renal masses  $\leq 7$ cm from 05/2017 to 09/2023 who underwent either radical nephrectomy (RN) or NSI. NSI included partial nephrectomy, ablation, or stereotactic body radiation therapy. We compared the proportion of patients who received NSI vs RN among those undergoing II vs DI (>90 days). We fit a mixed-effects multivariable logistic regression model to assess for the adjusted association of II vs DI with the receipt of NSI.

### RESULTS:

We identified 2135 patients, of whom 94% underwent II and 6% underwent a period of AS prior to definitive intervention. Median time from initial clinical encounter to intervention was 43 (IQR 28-62) and 410 (IQR 245-1744) days in the II and DI groups, respectively. We did not appreciate a significant association between DI with receipt of NSI (OR 1.21, 95% CI: 0.71-2.06,  $p=0.5$ ). The adjusted proportion of NSI from the multivariable model was 75% for patients in both the II and DI cohorts (Figure 1). Instead, fewer comorbidities, lower BMI and RENL score, complex cysts vs. solid mass, and cT1a were associated with the receipt of NSI over RN (Table 1).

### CONCLUSIONS:

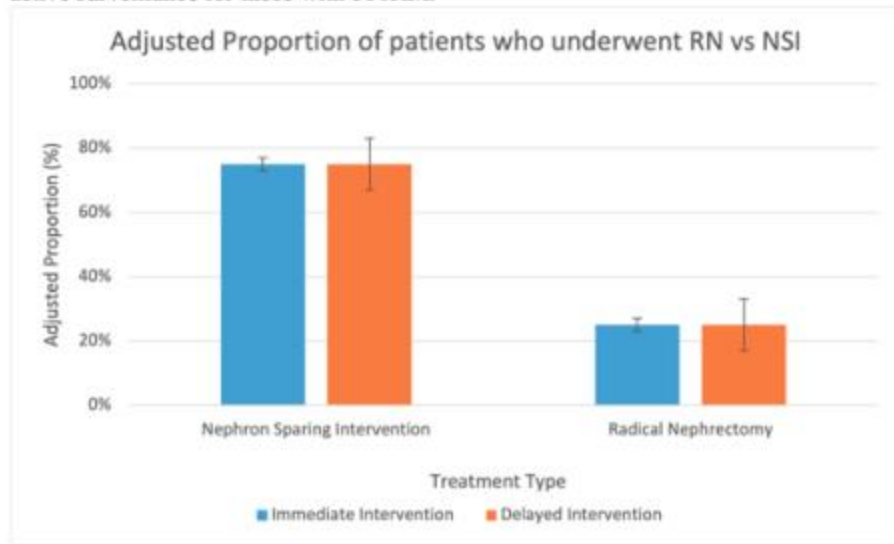
Patients undergoing delayed intervention after AS had a similar rate of NSI compared to those undergoing immediate intervention. Active surveillance for SRM does not compromise the ability to perform nephron sparing interventions.

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**Table 1:**  
Mixed-effects multivariable logistic regression model to assess patient and tumor factors associated with NSI (vs. RN) for patients with cT1 renal masses. OR > 1 is more likely to review NSI.

Comparison	Odds Ratio	95% Confidence Interval	p-value
Delayed vs Immediate	1.21	0.71 2.06	0.5
Age	0.99	0.98 1.00	0.10
Female vs Male	1.03	0.81 1.32	0.8
Race (vs. White)			0.3
African American	0.94	0.64 1.40	
Other	1.18	0.63 2.21	
Unknown	0.65	0.41 1.04	
Insurance (vs. private)			0.7
Public	0.90	0.69 1.17	
None/Unknown	1.18	0.38 3.70	
Practice Type (vs. community)			0.10
Academic	2.02	1.06 3.87	
Hybrid	1.60	0.90 2.85	
BMI	1.02	1.01 1.05	0.002
CCI (vs. 0)			0.005
1	0.80	0.58 1.10	
2	0.61	0.45 0.82	
Tumor Type (vs. solid)			0.024
Complex cyst	2.44	1.26 4.71	
Indeterminate	0.9	0.59 1.38	
T1a vs T1b	8.24	6.41 10.59	<0.001
RENLI score (vs. low)			<0.001
Intermediate	0.40	0.26 0.65	
High	0.074	0.043 0.13	
Unknown	0.24	0.15 0.38	

**Figure 1:** Adjusted proportion of patients who underwent radical nephrectomy vs nephron sparing intervention for those undergoing immediate treatment vs. delayed intervention after active surveillance for those with cT1RM.



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