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NCCN Guidelines Panel: Kidney Cancer Panel

On behalf of the Society of Interventional Oncology, we respectfully request the NCCN Guidelines Panel for Kidney Cancer review the enclosed recommendations:

Specific Change 1: Remove stereotactic body radiation therapy (SBRT) from KID-1 as a primary treatment and keep it as a footnote (e).

Rationale: NCCN Version 1.2026 currently lists SBRT alongside percutaneous ablation as a Category 2A primary option for T1a disease and as an option "in select patients" for T1b disease. However, the strength of evidence does not support this positioning. SBRT data derive predominantly from single-center prospective trials and retrospective series with limited patient numbers (36 studies, 822 patients) and short median follow-up (28–40 months).[1] In contrast, thermal ablation has extensive comparative data with long-term follow-up demonstrating comparable cancer-specific survival to partial nephrectomy (96–97% vs 97%).[2] Importantly, the recent Huang et al. Lancet Oncology 2025 meta-analysis comparing SBRT to thermal ablation applied fundamentally different local failure criteria, biasing results in favor of SBRT.[3] SBRT studies used RECIST 1.1 criteria (≥20% growth), whereas thermal ablation studies defined failure by any persistent enhancement or growth. Combined with more intensive early surveillance after ablation, this methodological inconsistency inflates apparent ablation failure rates and undermines direct comparison. Until SBRT is evaluated using equivalent criteria and demonstrates comparable long-term outcomes in adequately powered comparative studies, it should be designated a third-line option in footnote form.

References:

1. Stereotactic Body Radiotherapy for Primary Renal Cell Carcinoma: A Systematic Review and Practice Guideline From the International Society of Stereotactic Radiosurgery (ISRS). The Lancet. Oncology. 2023. Siva S, Louie AV, Kotecha R, et al.
2. Long-Term Outcomes of Partial Nephrectomy Versus Percutaneous Ablation for Renal Cell Carcinoma: A Propensity-Matched Analysis. Urology. 2025. Stamper M, Collins J, Arellano R, et al.
3. Comparative Efficacy and Safety of Ablative Therapies in the Management of Primary Localised Renal Cell Carcinoma: A Systematic Review and Meta-Analysis. The Lancet. Oncology. 2025. Huang RS, Chow R, Benour A, et al.

Specific Change 2: Add "(preferred)" after "Percutaneous ablation" for T1a tumors on KID-1.

Rationale: Contemporary 2025–2026 evidence demonstrates therapeutic equivalence with superior perioperative safety. A 2025 propensity-matched analysis of 12,546 patients showed identical 10-year survival for percutaneous ablation versus partial nephrectomy (89.2% vs 89.4%, p>0.05) with no difference in metastasis rates and significantly lower 90-day complications after ablation (8.9% vs 20.3%).[1] A 2026 multicenter study confirmed comparable 5-year metastasis-free and cancer-specific survival with microwave ablation versus surgery, with equivalent renal function preservation despite treatment of older, more comorbid patients.[2] A 2025 network meta-analysis of 8,568 T1a patients found no difference in recurrence-free survival between thermal ablation and partial nephrectomy, with microwave ablation demonstrating lower local recurrence and fewer postoperative adverse events.[3] A 2025 European Radiology review concluded that thermal ablation for tumors ≤4 cm "can be offered as an alternative to surgery" based on comparable oncologic outcomes.[4] Given consistent contemporary evidence of oncologic equivalence with lower complication burden, maintaining partial nephrectomy as preferred while excluding percutaneous ablation from this designation no longer reflects the strength of current data for appropriately selected T1a patients.

References:

1. Long-Term Outcomes of Partial Nephrectomy Versus Percutaneous Ablation for Renal Cell Carcinoma: A Propensity-Matched Analysis. Stamper M, Collins J, Arellano R, et al. Urology. 2025;:S0090-4295(25)00746-0. doi:10.1016/j.urology.2025.07.065.
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3. Thermal Ablation Modalities That Best Compete With Partial Nephrectomy for T1A and T1B Renal Cell Carcinoma: A Network Meta-Analysis. Abdelgalil MS, Ghazou A, Aldemerdash MA, et al. Journal of Vascular and Interventional Radiology : JVIR. 2025;:S1051-0443(25)00446-4. doi:10.1016/j.jvir.2025.05.032.
4. Image-Guided Percutaneous Ablative Treatments for Renal Cell Carcinoma. Auer TA, Uluk Y, Grasso RF, et al. European Radiology. 2025;:10.1007/s00330-025-11480-w. doi:10.1007/s00330-025-11480-w.

Specific Change 3: Remove the second bullet point "Percutaneous ablation is suitable for renal masses </= 3cm." on Kidney-A.

Rationale: This 3-cm size restriction is not supported by contemporary evidence and creates unnecessary confusion in patient selection. Recent 2025 data demonstrate excellent oncologic outcomes for tumors up to 4 cm. A 2025 European Radiology review concluded that thermal ablation of renal cell carcinoma up to 4 cm can be offered as an alternative to surgery based on comparable clinical and oncologic outcomes.[1] The 2025 Huang et al. Lancet Oncology meta-analysis similarly found comparable local control across ablative modalities for T1 tumors.[2] A 2025 German registry analysis of 1,102 patients showed that while heat-based ablation had slightly lower technical success in 3–4 cm tumors compared to ≤3 cm lesions, cryoablation demonstrated no significant size-related difference, supporting its effectiveness in the 3–4 cm range.[3] A 2025 network meta-analysis of 8,568 T1a patients found no significant difference in 5-year recurrence-free survival between thermal ablation and partial nephrectomy.[4] For selected T1b tumors, emerging evidence further supports ablation. Sequential embolization and cryoablation for tumors

>3 cm (median 4.5 cm) achieved high primary efficacy and durable progression-free survival.[5] Percutaneous cryoablation for T1b tumors achieved 98.8% 24-month local progression-free survival when adequate margins were obtained.[6] Importantly, NCCN already lists percutaneous ablation as a Category 2B option for T1b masses in select nonsurgical candidates. Maintaining a rigid ≤3 cm bullet point contradicts this recommendation and implies a cutoff that lacks evidence-based justification. Patient selection should instead reflect tumor location, complexity, patient comorbidity, and operator expertise rather than an arbitrary size threshold.

1. Image-Guided Percutaneous Ablative Treatments for Renal Cell Carcinoma. Auer TA, Uluk Y, Grasso RF, et al. European Radiology. 2025;:10.1007/s00330-025-11480-w. doi:10.1007/s00330-025-11480-w.
2. Comparative Efficacy and Safety of Ablative Therapies in the Management of Primary Localised Renal Cell Carcinoma: A Systematic Review and Meta-Analysis. Huang RS, Chow R, Benour A, et al. The Lancet. Oncology. 2025;26(3):387-398. doi:10.1016/S1470-2045(24)00731-9.
3. Current Use of Percutaneous Ablation in Renal Tumors: An Analysis of the Registry of the German Society for Interventional Radiology and Minimally Invasive Therapy. Schaarschmidt BM, Zensen S, Kesch C, et al. European Radiology. 2025;35(3):1723-1731. doi:10.1007/s00330-024-11343-w.
4. Thermal Ablation Modalities That Best Compete With Partial Nephrectomy for T1A and T1B Renal Cell Carcinoma: A Network Meta-Analysis. Abdelgalil MS, Ghazou A, Aldemerdash MA, et al. Journal of Vascular and Interventional Radiology : JVIR. 2025;:S1051-0443(25)00446-4. doi:10.1016/j.jvir.2025.05.032.
5. Efficacy and Safety of Sequential Transarterial Embolization and Cryoablation of Renal Masses Greater Than 3 Cm. Hung ML, Wang R, Yu C, et al. Urologic Oncology. 2025;:S1078-1439(25)00481-8. doi:10.1016/j.urolonc.2025.11.018.
6. Percutaneous Cryoablation of T1b Renal Tumors: A Retrospective Evaluation of Local Tumor Control, Renal Function Preservation, Adverse Events and Ablation Margins in 80 Patients. Michailidis A, Kosmoliaptsis P, Makri D, et al. Journal of Vascular and Interventional Radiology : JVIR. 2025;:S1051-0443(25)00624-4. doi:10.1016/j.jvir.2025.09.025.

Specific Change 4: Exchange “Active Surveillance” with "Percutaneous ablation (category 2B) (in select patients)” on KID-1 for Stage T1b tumors.

Rationale: We propose that on KID-1 for T1b tumors, “Active surveillance (in select patients)” be exchanged with “Percutaneous ablation (category 2B) (in select patients)” to better reflect the relative strength of evidence. Contemporary data support percutaneous ablation as an effective definitive therapy for appropriately selected T1b patients. A 2025 study of biopsy-proven T1b RCC treated with cryoablation demonstrated 95% primary efficacy, 98.8% 24-month local progression-free survival, minimal renal function decline, and no high-grade adverse events.[1] A 2025 network meta-analysis found no significant differences in 5-year recurrence-free survival, local recurrence, or postoperative adverse events between ablation and partial nephrectomy for T1b tumors.[2] Sequential embolization plus cryoablation for tumors >3 cm similarly achieved high primary efficacy and durable progression-free survival.[3] NCCN currently lists both active surveillance and ablation for T1b disease, yet active surveillance carries inherent risk of progression, and a 2026

meta-analysis demonstrated higher overall survival with ablative therapy compared with surveillance.[4] Reordering these options would clarify that percutaneous ablation provides definitive local control for nonsurgical candidates with adequate life expectancy, while active surveillance should remain reserved for patients with substantial competing risks.

References:

1. Percutaneous Cryoablation of T1b Renal Tumors: A Retrospective Evaluation of Local Tumor Control, Renal Function Preservation, Adverse Events and Ablation Margins in 80 Patients. Michailidis A, Kosmoliaptsis P, Makri D, et al. Journal of Vascular and Interventional Radiology: JVIR. 2025;:S1051-0443(25)00624-4. doi:10.1016/j.jvir.2025.09.025.
2. Thermal Ablation Modalities That Best Compete With Partial Nephrectomy for T1A and T1B Renal Cell Carcinoma: A Network Meta-Analysis. Abdelgalil MS, Ghazou A, Aldemerdash MA, et al. Journal of Vascular and Interventional Radiology : JVIR. 2025;:S1051-0443(25)00446-4. doi:10.1016/j.jvir.2025.05.032.
3. Efficacy and Safety of Sequential Transarterial Embolization and Cryoablation of Renal Masses Greater Than 3 Cm. Hung ML, Wang R, Yu C, et al. Urologic Oncology. 2025;:S1078-1439(25)00481-8. doi:10.1016/j.urolonc.2025.11.018.
4. Oncologic and Functional Outcomes of Active Surveillance and Ablative Therapy for Small Renal Masses: A Systematic Review and Meta-Analysis. Nguyen TT, Yang YJ, Yang EJ, et al. Journal of Vascular and Interventional Radiology : JVIR. 2026;:108582. doi:10.1016/j.jvir.2026.108582.

Specific Change 5: On page KID-A, under section “Active surveillance is an option for the initial management of clinical stage T1 renal lesion, for example:”, remove “Active surveillance of patient with T1a tumors (</-4cm) that have a predominantly cystic component is recommended” and place in the previous section entitled “Percutaneous ablation (eg cryosurgery, radiofrequency ablation, microwave ablation)…” consider adding: “Percutaneous may be an option for patients with cystic renal masses.”

Rationale: Contemporary evidence demonstrates that ablation is safe and effective for cystic renal masses, while the assumption that these lesions are uniformly indolent is not supported. A 2026 study of Bosniak III/IV cystic masses treated with microwave ablation demonstrated 95.1% primary technical success, no significant renal function decline, and no Grade ≥2 complications.[1] Earlier series consistently showed high primary and secondary efficacy (91–100%) with minimal morbidity following RFA of Bosniak III/IV lesions.[2][3][4] In parallel, a 2025 meta-analysis reported malignancy rates of 80% for Bosniak III and 88% for Bosniak IV lesions,[5] and a 2023 pathology series demonstrated 23% high-grade disease and faster growth rates for Bosniak IV lesions.[6]

Given these malignancy rates, a blanket recommendation for surveillance is difficult to justify. While long-term comparisons of surveillance and surgery show similar metastasis-free and cancer-specific survival in selected patients,[7] surgery remains the primary treatment for Bosniak IV lesions due to their high malignant potential. Percutaneous ablation offers definitive local control with renal preservation and minimal morbidity, providing an evidence-based alternative to

surgery without deferring treatment in lesions with substantial risk of progression. Moving this recommendation to the Percutaneous Ablation section would better align the guidelines with contemporary data.

References:

1. Percutaneous Microwave Ablation of Complex Cystic Renal Masses: Assessment of Technique, Safety and Clinical Outcomes. Garza-Frias E, Dai R, Dhami R, Chung R, Arellano RS. Journal of Vascular and Interventional Radiology : JVIR. 2026;:108546. doi:10.1016/j.jvir.2026.108546.
2. Efficacy of Imaging-Guided Percutaneous Radiofrequency Ablation for the Treatment of Biopsy-Proven Malignant Cystic Renal Masses. Felker ER, Lee-Felker SA, Alpern L, Lu D, Raman SS. AJR. American Journal of Roentgenology. 2013;201(5):1029-35. doi:10.2214/AJR.12.10210.
3. Percutaneous Radiofrequency Ablation of Sporadic Bosniak III or IV Lesions: Treatment Techniques and Short-Term Outcomes. Park JJ, Park BK, Park SY, Kim CK. Journal of Vascular and Interventional Radiology : JVIR. 2015;26(1):46-54. doi:10.1016/j.jvir.2014.09.014.
4. Imaging-Guided Radiofrequency Ablation of Cystic Renal Neoplasms. Allen BC, Chen MY, Childs DD, Zagoria RJ. AJR. American Journal of Roentgenology. 2013;200(6):1365-9. doi:10.2214/AJR.12.9336.
5. Bosniak Classification of Cystic Renal Masses Version 2019: Proportion of Malignancy by Class and Subclass-Systematic Review and Meta-Analysis. McGrath TA, Davenport MS, Silverman SG, et al. AJR. American Journal of Roentgenology. 2025;224(3):e2432342. doi:10.2214/AJR.24.32342.
6. Pathological and Clinical Outcomes in a Large Surveillance and Intervention Cohort of Radiographically Cystic Renal Masses. Lee RA, Uzzo RG, Anaokar J, et al. The Journal of Urology. 2023;209(4):686-693. doi:10.1097/JU.0000000000003158.
7. Active Surveillance Versus Initial Surgery in the Long-Term Management of Bosniak IIF-IV Cystic Renal Masses. Luomala L, Rautiola J, Järvinen P, Mirtti T, Nisén H. Scientific Reports. 2022;12(1):10184. doi:10.1038/s41598-022-14056-6.

Thank you for your consideration of these recommendations.

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