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Practice Guidelines

Chinese quality control indices for standardized diagnosis and treatment of renal cancer (2022 edition) ☆



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ABSTRACT

Renal cancer is one of the most common malignancies of the urinary system, and the number of deaths continues to increase. The standardized management of the diagnosis and treatment of renal cancer is challenging due to the great differences in the diagnosis and treatment of renal cancer in different regions. The Renal Cancer Expert Committee of the National Cancer Quality Control Center (NCQCC) identified a lack of authoritative quality control standards as an opportunity to utilize its multidisciplinary membership to improve the standardized diagnosis and treatment of renal cancer. The Renal Cancer Expert Committee of the NCQCC aims to promote quality control and national standardization, uniformity, and normalization of renal cancer diagnosis and treatment, which ultimately improved the survival rate and quality of life of renal cancer patients. A panel of experts with renal cancer surgery, renal cancer medicine, medical imaging, pathology and radiotherapy were drawn together and determined the quality control standards for the standardized diagnosis and treatment of renal cancer. The Indices includes 20 items that cover all key areas in the diagnosis and treatment of renal cancer, such as standard diagnosis, surgery treatment, systemic treatment, and prognostic evaluation.

Introduction

Renal cell carcinoma (RCC), referred to as renal cancer, accounts for about 2%–3% of adult malignant tumors worldwide, and its distribu-

tion has obvious regional differences. The incidences of RCC in developed countries in North America, Western Europe, and other regions are significantly higher than those in developing countries in Africa, Asia, and other regions. According to the annual report of cancer statistics in

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China in 2020, the incidence of RCC is 5.48/100 000, and the mortality is 1.95/100 000.¹ With the development and popularization of medical imaging in China, more than 50% of RCCs are unexpectedly discovered during examinations of other diseases, and the proportion of late-stage patients has significantly decreased. Although the 5-year survival of RCC in China is as high as 69.8%, there are still significant differences in the abilities of diagnosis and treatment levels among different regions.

In 2012, the National Health Committee of China established the National Cancer Quality Control Center (NCQCC) to implement quality control of cancer diagnosis and treatment, aiming to promote the standardization, uniformity, and normalization of cancer diagnosis and treatment across different regions around the country, and to ultimately improve the survival and quality of life of cancer patients.

To further promote the quality control for standardized diagnosis and treatment of RCC, the National Cancer Center and the NCQCC entrusted the Renal Cancer Expert Committee of National Cancer Quality Control Center to draft and formulate the Quality Control Indices for Standardized Diagnosis and Treatment of Renal Cancer in China (2022

edition)² based on the Chinese Guidelines for the Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition)³ and other authoritative domestic and international guidelines, as well as evidence-based medicine and clinical experience, following the principles of being scientific, universal, standard, and feasible. We hope RCC oncologists could practice the diagnosis and treatment for RCC in accordance with the indices.

Quality control indices for standardized diagnosis and treatment of RCC are described below:

I. Proportion of complete clinical TNM staging of RCC patients before the initial treatment

1. Index code: RCC-01.
2. Definition: proportion of RCC patients who underwent TNM staging before the initial treatment among all the RCC patients receiving initial treatment.
3. Formula of calculation: see Formula (1)

$$\begin{aligned} & \text{Proportion of complete clinical TNM staging of RCC patients before the initial treatment} \\ &= \frac{\sum \text{Number of RCC patients who underwent TNM staging before initial treatment}}{\sum \text{Number of all RCC patients receiving the initial treatment in the same time period}} \times 100\% \end{aligned} \quad (1)$$

4. Patient population: inpatients and outpatients.
5. Rationale: This index reflects the comprehensive disease evaluation before treatment and forms the basis of standardized RCC treatment.
6. Index type: quality control of results.
7. Form of expression: increased proportion.
8. Excluded cases: none.
9. References for this index: Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition)³ and American Joint Committee on Cancer (AJCC) TNM Cancer Staging of RCC (8th edition).⁴

$$\begin{aligned} & \text{Proportion of compliance with evaluation strategies of clinical TNM stage of RCC patients before the initial treatment} \\ &= \frac{\sum \text{Cases of RCC patients who underwent TNM staging evaluation before first treatment}}{\sum \text{Cases of RCC patients for the first treatment}} \times 100\% \end{aligned} \quad (2)$$

4. Patient population: inpatients and outpatients.
5. Rationale: This index reflects the comprehensive disease evaluation before treatment and forms the basis of standardized cancer treatment.
6. Index type: quality control of results.
7. Form of expression: increased proportion.
8. Excluded cases: none.
9. References for this index: Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 Edition).³

$$\begin{aligned} & \text{Proportion of pathological diagnosis of RCC patients before the first non-surgical treatment} \\ &= \frac{\sum \text{Cases of RCC patients who received pathological diagnosis before the first non-surgical treatment}}{\sum \text{Cases of RCC patients for the first non-surgical treatment}} \times 100\% \end{aligned} \quad (3)$$

4. Patient population: inpatients and outpatients.
5. Rationale: This index reflects the standardization of pathological diagnosis and treatment for RCC and guides the reasonable selection of non-surgical treatment.
6. Index type: quality control of processes.
7. Form of expression: increased proportion.
8. Excluded cases: none.

II. Proportion of compliance with evaluation strategies of clinical TNM stage of RCC patients before the initial treatment

1. Index code: RCC-02.
2. Definition: proportion of RCC patients who underwent TNM staging examination and evaluation before the first treatment among all RCC patients for the first treatment. The evaluation strategy for clinical TNM staging should comply with Strategy 1 or Strategy 2. Strategy 1: Abdominal enhanced CT/abdominal enhanced MRI + abdominal color ultrasound + chest CT/chest X-ray; Strategy 2: PET-CT.
3. Formula of calculation: see Formula (2)

III. Proportion of pathological diagnosis of RCC patients before the first non-surgical treatment

1. Index code: RCC-03.
2. Definition: proportion of RCC patients who received pathological diagnosis before the first non-surgical treatment among all RCC patients underwent first non-surgical treatment.
3. Formula of calculation: see Formula (3)

9. References for this index: Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition)³ and American Joint Committee on Cancer (AJCC) TNM Cancer Staging of RCC (8th edition).⁴

IV. Proportion of postoperative pTNM staging of RCC patients

1. Index code: RCC-04.

2. Definition: proportion of RCC patients with confirmed postoperative pT (tumor staging), pN (lymph node staging) and pM (distant metastasis) among all RCC patients treated by surgery.

$$\begin{aligned} & \text{Proportion of postoperative pTNM staging of RCC patients} \\ &= \frac{\sum \text{Cases of RCC patients with postoperative pTNM staging performed}}{\sum \text{Cases of RCC patients treated by surgery}} \times 100\% \end{aligned} \quad (4)$$

4. Patient population: inpatients and outpatients.
5. Rationale: Accurate pathological TNM staging is an important basis for tumor classification, staging, and prognosis evaluation. By correcting and supplementing preoperative clinical staging through postoperative pathological TNM staging, prognosis can be more accurately judged and postoperative comprehensive treatment can be guided.
6. Index type: quality control of results.
7. Form of expression: increased proportion.
8. Excluded patients: none.
9. References for this index: Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition).³

$$\begin{aligned} & \text{Proportion of RCC patients with complete postoperative pathology reports} \\ &= \frac{\sum \text{Cases of RCC patients with complete postoperative pathology reports}}{\sum \text{Cases of RCC patients with postoperative pathology reports}} \times 100\% \end{aligned} \quad (5)$$

4. Patient population: inpatients and outpatients.
5. Rationale: This index reflects the standardization of pathological diagnosis reports and helps to more accurately assess prognosis and guide postoperative comprehensive treatment.
6. Index type: quality control of results.
7. Form of expression: increased proportion.
8. Excluded cases: RCC patients with only biopsy pathology.
9. References for this index: Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition)³ and American Joint Committee on Cancer (AJCC) TNM Cancer Staging of RCC (8th edition).⁴

$$\begin{aligned} & \text{Proportion of RCC patients treated using endoscopy surgery} \\ &= \frac{\sum \text{Cases of RCC patients treated using endoscopy surgery}}{\sum \text{Cases of RCC patients treated by surgery}} \times 100\% \end{aligned} \quad (6)$$

4. Patient population: inpatients.
5. Rationale: This index reflects the surgical technical level of medical institutions.
6. Index type: quality control of results.
7. Form of expression: increased proportion.
8. Excluded cases: none.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals (2022 edition)⁵ and Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition).³

$$\begin{aligned} & \text{Proportion of T1a stage RCC patients treated with partial nephrectomy} \\ &= \frac{\sum \text{Cases of T1a stage RCC patients treated with partial nephrectomy}}{\sum \text{Cases of T1a stage RCC patients treated by surgery}} \times 100\% \end{aligned} \quad (7)$$

4. Patient population: inpatients.
5. Rationale: This index reflects the surgical technology level and early stage RCC treatment level of medical institutions.
6. Index type: quality control of results.
7. Form of expression: increased proportion.

3. Formula of calculation: see Formula (4)

V. Proportion of RCC patients with complete postoperative pathology reports

1. Index code: RCC-05.
2. Definition: proportion of RCC patients with complete postoperative pathology reports among all RCC patients with pathology reports after surgery. Among them, a complete pathological report should at least (but not limited to) record the following content: surgical specimen type (radical nephrectomy specimen, partial nephrectomy specimen, or renal tumor enucleation specimen), tumor evaluation (tumor size, number of lesions, histological type, histological grade, and tumor infiltration degree).
3. Formula of calculation: see Formula (5)

VI. Proportion of rcc patients treated using endoscopy surgery

1. Index code: RCC-06.
2. Definition: proportion of RCC patients treated using endoscopy surgery among all RCC patients treated by surgery. Endoscopy surgical treatment refers to radical nephrectomy or partial nephrectomy under laparoscopy (including robot assisted laparoscopy).
3. Formula of calculation: see Formula (6)

VII. Proportion of T1a stage RCC patients treated with partial nephrectomy

1. Index code: RCC-07.
2. Definition: proportion of T1a stage RCC patients treated with partial nephrectomy among all T1a stage RCC patients treated by surgery.
3. Formula of calculation: see Formula (7)

8. Excluded cases: none.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals (2022 edition)⁵ and Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition).³

VIII. Proportion of RCC surgery patients received intraoperative or postoperative blood transfusion

1. Index code: RCC-08.

$$\begin{aligned} & \text{Proportion of RCC surgery patients received intraoperative or postoperative blood transfusion} \\ &= \frac{\sum \text{Cases of RCC surgery patients received intraoperative or postoperative blood transfusion}}{\sum \text{Cases of RCC patients treated by surgery}} \times 100\% \end{aligned} \quad (8)$$

4. Patient population: inpatients.
5. Rationale: This index reflects the surgical technical level and surgical safety of medical institutions.
6. Index type: quality control of results.
7. Form of expression: decreased proportion.
8. Excluded cases: none.
9. References for this index: Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition)³ and American Joint Committee on Cancer (AJCC) TNM Cancer Staging of RCC (8th edition).⁴

$$\begin{aligned} & \text{Mortality of perioperative RCC patients} \\ &= \frac{\sum \text{Cases of RCC patients who died in the perioperative period during hospitalization}}{\sum \text{Cases of RCC patients treated by surgery during the same period}} \times 100\% \end{aligned} \quad (9)$$

4. Patient population: inpatients.
5. Rationale: Perioperative mortality is an important index for evaluating the quality and safety of surgery and anesthesia, reflecting the degree and level of standardization of medical activities, such as surgical indication selection and perioperative management. Reducing perioperative mortality can further improve the quality and safety of surgical treatment for RCC.
6. Index type: quality control of results.
7. Form of expression: decreased proportion.
8. Excluded cases: Patients who died without surgery.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals

$$\begin{aligned} & \text{Proportion of RCC patients with an unplanned return to the hospital within 30d after surgery} \\ &= \frac{\sum \text{RCC patients with unplanned return to hospital within 30d after surgery}}{\sum \text{RCC patients who underwent surgery}} \times 100\% \end{aligned} \quad (10)$$

4. Patient population: inpatients.
5. Rationale: The proportion of unplanned return to hospital within 30 days after surgery is a major index of surgery quality and patient safety.
6. Index type: quality control of results.

2. Definition: proportion of RCC surgery patients received intraoperative or postoperative blood transfusion among all RCC patients treated by surgery.
3. Formula of calculation: see Formula (8)

IX. Mortality of perioperative RCC patients

1. Index code: RCC-09.
2. Definition: proportion of RCC patients who died in the perioperative period during hospitalization among all RCC patients treated by surgery during the same period.
3. Formula of calculation: see Formula (9)

(2022 edition)⁵ and Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition).³

X. Proportion of RCC patients with an unplanned return to the hospital within 30d after surgery

1. Index code: RCC-10.
2. Definition: Proportion of RCC patients with an unplanned return to the hospital within 30d after surgery among all RCC patients who underwent surgery.
3. Formula of calculation: see Formula (10)

7. Form of expression: decreased proportion.
8. Excluded cases: none.
9. References for this index: Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition)³ and American Joint Committee on Cancer (AJCC) TNM Cancer Staging of RCC (8th edition).⁴

XI. Proportion of patients with advanced RCC (clinical stage IV) who received systemic treatment

1. Index code: RCC-11.

$$\begin{aligned} & \text{Proportion of patients with advanced RCC (clinical stage IV) who received systemic treatment} \\ &= \frac{\sum \text{Cases of advanced renal cancer (clinical stage IV) patients who received systematic treatment}}{\sum \text{Cases of advanced renal cancer patients}} \times 100\% \end{aligned} \quad (11)$$

4. Patient population: inpatients and outpatients.
5. Rationale: This is an important procedural index reflecting the standardization of treatment for stage IV RCC.
6. Index type: quality control of processes.
7. Form of expression: increased proportion.
8. Excluded cases: none.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals (2022 edition)⁵ and Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition).³

$$\begin{aligned} & \text{Proportion of RCC patients who underwent efficacy evaluation after non-surgical treatment} \\ &= \frac{\sum \text{Cases of RCC patients who underwent efficacy evaluation after non-surgical treatment}}{\sum \text{Cases of RCC patients underwent non-surgical treatment}} \times 100\% \end{aligned} \quad (12)$$

4. Patient population: inpatients and outpatients.
5. Rationale: An accurate evaluation of treatment response is helpful in determining efficacy and formulating subsequent comprehensive treatment plans. This index reflects the standardization level of non-surgical treatment.
6. Index type: quality control of processes.
7. Form of expression: increased proportion.
8. Excluded cases: patients who receive treatment to prevent recurrence and metastasis after nephrectomy.
9. References for this index: Response Evaluation Criteria in Solid Tumors Version 1.1 (RECIST1.1),⁶ irRECIST,⁷ Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Dis-

$$\begin{aligned} & \text{Proportion of adverse events evaluation in RCC patients after systemic treatment} \\ &= \frac{\sum \text{RCC patients who underwent adverse events evaluation after systemic treatment}}{\sum \text{Cases of RCC patients who occurred adverse events after systemic treatment}} \times 100\% \end{aligned} \quad (13)$$

4. Patient population: inpatients and outpatients.
5. Rationale: Evaluating the adverse reactions of treatment helps to determine the adverse events and formulate subsequent comprehensive treatment plans. This index reflects the standardization level of non-surgical treatment.
6. Index type: quality control of processes.
7. Form of expression: increased proportion.
8. Excluded cases: patients who receive treatment to prevent recurrence and metastasis after nephrectomy.
9. References for this index: Response Evaluation Criteria in Solid Tumors Version 1.1 (RECIST1.1),⁶ irRECIST,⁷ Chinese Guidelines

2. Definition: proportion of patients with advanced RCC (clinical stage IV) who received systemic treatment among all advanced RCC patients. Systemic treatment refers to targeted drug therapy and immunotherapy.
3. Formula of calculation: see Formula (11)

XII. Proportion of RCC patients who underwent efficacy evaluation after non-surgical treatment

1. Index code: RCC-12.
2. Definition: proportion of RCC patients who underwent efficacy evaluation after non-surgical treatment among all RCC patients underwent non-surgical treatment.
3. Formula of calculation: see Formula (12)

eases (2019 edition)³ and American Joint Committee on Cancer (AJCC) TNM Cancer Staging of RCC (8th edition).⁴

XIII. Proportion of adverse events evaluation in RCC patients after systemic treatment

1. Index code: RCC-13.
2. Definition: proportion of RCC patients who underwent adverse events evaluation after experiencing adverse events due to systemic treatment among all RCC patients who occurred adverse events after systemic treatment.
3. Formula of calculation: see Formula (13)

for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edition)³ and American Joint Committee on Cancer (AJCC) TNM cancer staging of RCC (8th edition).⁴

XIV. Proportion of hospitalized RCC patients who underwent follow-up

1. Index code: RCC-14.
2. Definition: proportion of RCC patients with complete follow-up within 5 years after anti-tumor treatment in hospitals among all the RCC patients receiving anti-tumor treatment in hospitals.
3. Formula of calculation: see Formula (14)

$$\begin{aligned} & \text{Proportion of hospitalized RCC patients who underwent follow-up} \\ &= \frac{\text{Number of hospitalized RCC patients with complete follow-up within 5 years after treatment}}{\sum \text{Total number of hospitalized RCC patients in the same period}} \times 100\% \end{aligned} \quad (14)$$

4. Patient population: inpatients and outpatients.
5. Rationale: This index reflects the overall management and information level of medical institutions for RCC patients, laying the foundation for patient efficacy evaluation and standardized overall management, and helping to better evaluate the long-term efficacy of various treatment plans.
6. Index type: quality control of results.
7. Form of expression: increased proportion.
8. Excluded cases: none.
9. References for this index: Chinese Guidelines for Diagnosis and Treatment of Urological and Andrological Diseases (2019 edi-

tion)³ and American Joint Committee on Cancer (AJCC) TNM Cancer Staging of RCC (8th edition).⁴

XV. The incidence of complications in RCC patients with surgery

1. Index code: RCC-15.
2. Definition: proportion of RCC patients with complications after surgery among all RCC patients treated with surgery during the same period.
3. Formula of calculation: see Formula (15)

$$\begin{aligned} & \text{The incidence of complications in RCC patients with surgery} \\ &= \frac{\sum \text{Cases of RCC patients with surgery who occurred complications}}{\sum \text{Cases of RCC patients with surgery during the same period}} \times 100\% \end{aligned} \quad (15)$$

4. Patient population: inpatients.
5. Rationale: This index is used to measure the medical technology capability and management level of medical institutions.
6. Index type: quality control of results.
7. Form of expression: decreased proportion.
8. Excluded cases: patients who have already experienced complications at the time of admission.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals (2022 edition).⁵

XVI. Average days of hospitalization for RCC surgery patients

1. Index code: RCC-16.
2. Definition: ratio of total days of stay for RCC patients who underwent surgery to the total number of RCC patients who underwent surgery during the same period.
3. Formula of calculation: see Formula (16)

$$\begin{aligned} & \text{Average days of hospitalization for RCC surgery patients} \\ &= \frac{\sum \text{The total days of stay for RCC surgery patients}}{\sum \text{Number of discharged RCC surgery patients during the same period}} \end{aligned} \quad (16)$$

4. Patient population: inpatients.
5. Rationale: This index reflects the diagnosis and treatment capabilities and technical level of each hospital.
6. Index type: quality control of results.
7. Form of expression: monitoring and comparison.
8. Excluded cases: none.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals (2022 edition)⁵ and Chinese evaluation criteria for tertiary hospitals (2020 edition).⁸

XVII. Average cost per surgery for RCC patients

1. Index code: RCC-17.
2. Definition: ratio of the total hospitalization cost of RCC surgery patients to the total number of RCC surgery patients during the same period.
3. Formula of calculation: see Formula (17)

$$\begin{aligned} & \text{Average cost per surgery for RCC patients} \\ &= \frac{\sum \text{Hospitalization cost of RCC surgery patients}}{\sum \text{Cases of RCC surgery patients}} \end{aligned} \quad (17)$$

4. Patient population: inpatients.
5. Rationale: This index reflects the cost situation of the hospital.
6. Index type: quality control of results.
7. Form of expression: monitoring and comparison.

8. Excluded cases: none.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals (2022 edition)⁵ and Chinese evaluation criteria for tertiary hospitals (2020 edition).⁸

XVIII. Proportion of RCC surgery patients who underwent unplanned secondary surgery

1. Index code: RCC-18.

$$\begin{aligned} & \text{Proportion of RCC surgery patients who underwent unplanned secondary surgery} \\ &= \frac{\sum \text{cases of RCC patients who underwent unplanned secondary surgery}}{\sum \text{cases of RCC surgery patients during the same period}} \times 100\% \end{aligned} \quad (18)$$

4. Patient population: inpatients.
5. Rationale: This index reflects the medical technology capabilities and treatment quality of medical institutions.
6. Index type: quality control of results.
7. Form of expression: decreased proportion.
8. Excluded cases: none.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals (2022 edition)⁵ and Chinese evaluation criteria for tertiary hospitals (2020 edition).⁸

$$\begin{aligned} & \text{Average postoperative hospitalization time for RCC patients who underwent radical nephrectomy} \\ &= \frac{\sum \text{Postoperative hospitalized days of discharged RCC patients who underwent radical nephrectomy}}{\sum \text{Cases of discharged RCC patients who underwent radical nephrectomy}} \times 100\% \end{aligned} \quad (19)$$

4. Patient population: inpatients.
5. Rationale: This index reflects the level of medical technology capabilities of medical institutions.
6. Index type: quality control of results.
7. Form of expression: monitoring and comparison.
8. Excluded cases: none.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals (2022 edition)⁵ and Chinese evaluation criteria for tertiary hospitals (2020 edition).⁸

$$\begin{aligned} & \text{Average postoperative hospitalization for RCC patients who underwent partial nephrectomy} \\ &= \frac{\sum \text{Postoperative hospitalized days of discharged RCC patients who underwent partial nephrectomy}}{\sum \text{Cases of discharged RCC patients who underwent partial nephrectomy}} \end{aligned} \quad (20)$$

4. Patient population: inpatients.
5. Rationale: This index reflects the level of medical technology capabilities of medical institutions.
6. Index type: quality control of results.
7. Form of expression: monitoring and comparison.
8. Excluded cases: none.
9. References for this index: Chinese Operation Manual of Performance Appraisal of National Tertiary Public Hospitals (2022 edition)⁵ and Chinese evaluation criteria for tertiary hospitals (2020 edition).⁸

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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2. Definition: proportion of RCC patients who underwent more than one surgical treatment due to various reasons during the same hospitalization among all RCC surgery patients during the same period.
3. Formula of calculation: see Formula (18)

XIX. Average postoperative hospitalization time for RCC patients who underwent radical nephrectomy

1. Index code: RCC-19.
2. Definition: ratio of the total postoperative hospitalized days of discharged RCC patients who underwent radical nephrectomy to the total number of discharged RCC patients who underwent radical nephrectomy.
3. Formula of calculation: see Formula (19)

XX. Average postoperative hospitalization time in RCC patients who underwent partial nephrectomy

1. Index code: RCC-20.
2. Definition: ratio of the total postoperative hospitalized days of discharged RCC patients who underwent partial nephrectomy to the total number of discharged RCC patients who underwent partial nephrectomy.
3. Formula of calculation: see Formula (20)

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Author contributions

L.Y., Y.D., W.D., X.G., J.G., J.Q., Q.W., S.W., D.Y., W.Y., H.Z., Q.Z., Y.Z., Z.Z., F.Z., W.Y., H.W., X.Z., and Z.H. drafted and revised this article; all members of the Renal Cancer Quality Control Expert Committee of National Cancer Center conceived and supervised the revision of this article.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.jncc.2023.11.004](https://doi.org/10.1016/j.jncc.2023.11.004).

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