

The Survey on the Current Status of Pharmaceutical Care for Solid Organ Transplant Recipients

Dear Transplant Pharmacist,

To gain a deeper understanding of the current status of pharmaceutical care provided by transplant pharmacists in China, and to better meet the needs of patients while improving healthcare quality and patient satisfaction, we invite you to complete this questionnaire. Your insights are crucial for advancing the development of transplant pharmaceutical care in China. We sincerely appreciate your participation and valuable feedback, which will contribute to the growth of transplant pharmacy services in our country! This questionnaire was part of the research project titled "Development and Application of Evidence-Based and Implementation Science-Informed Pharmaceutical Care Guidelines for Solid Organ Transplant Recipients" approved by the Ethics Committee of Beijing Chaoyang Hospital (Approval No. 2024-KE-951). Thank you for supporting our research!

Please read this informed consent document carefully before deciding whether to participate:

Informed Consent

1. Participation in this study is entirely voluntary. You may refuse to participate without providing a reason.
2. This survey focuses solely on the current status of pharmaceutical care and will not affect your personal or professional life, nor will it result in adverse events.
3. Your privacy will be protected. Personal information will remain confidential and accessible only to researchers involved in this study. Survey records will be stored securely within the research team. Results and data may be published, but no identifiable information about you or your institution will be disclosed.
4. For any questions, please contact the project leader:
Yang Hui, Number: 010-85231077.

If you voluntarily agree to participate, please answer the following questions after reviewing the above information:

Part I: Demographic Information

1. Your age (years): [Open-ended Question]
2. Your highest educational qualification: [Single Choice]
 - Doctorate
 - Master's degree
 - Bachelor's degree

- Other

3. Name of your institution: [Open-ended Question]

4. Your professional title:[Single Choice]

- Senior-level
- Associate Senior-level
- Intermediate-level
- Junior-level

5. Years of experience as a transplant pharmacist:[Open-ended Question]

6. Do you hold qualifications as a transplant pharmacy educator? [Single Choice]

- Yes
- No

7. Years since obtaining educational qualifications (if applicable): [Open-ended Question]

8. Daily standard working hours (e.g., 8 hours): [Open-ended Question]

9. Does your institution employ other transplant pharmacists?[Single Choice]

- Yes
- No

10. Please provide basic information about other transplant pharmacists in your institution:

Format: Age/Title/Education/Years of experience/Transplant educator status (if yes, specify qualification years).

Example: 34 years/Clinical Pharmacist/Master's degree/5 years/Educator (3 years) or Not an educator.

[Open-ended Question]

11. Transplant procedures performed at your institution and the number of surgeries in 2023:[Multiple Choice]

Please select organs involved and specify the number of surgeries for each in 2023.

- ☐ Heart (____ cases)
- ☐ Kidney (____ cases)
- ☐ Liver (____ cases)
- ☐ Lung (____ cases)
- ☐ Small intestine (____ cases)

Part II: Daily Practices of Transplant Pharmacists Across Transplant Stages

Note: Please describe the overall workload of transplant pharmacists at your institution.

12. Do you assess patients' medication adherence? [Single Choice]

- ☐ Yes
- ☐ No

13. Timing of adherence assessments:[Multiple Choice]

- ☐ First patient encounter
- ☐ During hospitalization
- ☐ At discharge education
- ☐ During follow-up
- ☐ Other

14. Tool used for medication adherence assessment: [Single Choice]

- ☐ Morisky Medication Adherence Scale
- ☐ Medication Adherence Report Scale (MARS)
- ☐ Basel Assessment of Adherence Scale
- ☐ Other

First time seeing the patient

15. Do you conduct medication reconciliation to understand the patient's baseline status? [Single Choice]

- ☐ Yes
- ☐ No

16. Content covered during medication reconciliation: [Multiple Choice]

- ☐ Medical history
- ☐ Medication history
- ☐ Adverse drug reaction history
- ☐ Allergy history
- ☐ Laboratory results
- ☐ Other

17. Frequency of medication reconciliation during hospitalization: [Single Choice]

- ☐ 1 time
- ☐ 2 times
- ☐ 3 times
- ☐ 4 times
- ☐ 5 times

18. Scope of medication reconciliation services: [Single Choice]

- ☐ All patients
- ☐ Some patients (>50%)
- ☐ Some patients (≤50%)

19. Average time spent per patient per reconciliation (minutes): [Single Choice]

- ☐ <5
- ☐ 5–10
- ☐ 10–20
- ☐ 20–30
- ☐ 30–40
- ☐ 40–50
- ☐ 50–60
- ☐ >60

20. Documentation format for reconciliation:[Single Choice]

- ☐ Standard template
- ☐ No standard template
- ☐ Other

21. Is reconciliation documentation entered into the hospital information system?
[Single Choice]

- ☐ Yes
- ☐ No

Perioperative Period

22. Average length of hospital stay for transplant patients (days): [Open-ended Question]

23. Does your hospital perform therapeutic drug monitoring (TDM) for transplant-related medications? If yes, specify the drugs: [Single Choice]

- ☐ Yes (____)
- ☐ No

24. Does your hospital perform pharmacogenetic testing for transplant-related medications? If yes, specify the drugs: [Single Choice]

- ☐ Yes (____)
- ☐ No

25. Do you provide pharmaceutical care during the perioperative period? [Single Choice]

- ☐ Yes
- ☐ No

26. Pharmaceutical care services provided: [Multiple Choice]

- ☐ Medication order review
- ☐ Pharmacist-led ward rounds
- ☐ TDM

- ☐ Personalized pharmaceutical care
- ☐ Patient education
- ☐ Pharmacogenetic testing guidance
- ☐ Cost-benefit analysis support
- ☐ Other

27. Scope of perioperative pharmaceutical care:[Single Choice]

- ☐ All patients
- ☐ Some patients (>50%)
- ☐ Some patients (\leq 50%)

28. Are re-transplant recipients given special attention? If yes, specify focus areas:[Single Choice]

- ☐ Yes
- ☐ No

Medication Order Review

29. Frequency of medication order review: [Single Choice]

- ☐ Daily
- ☐ \geq 3 times/week
- ☐ \leq 2 times/week

30. Content of medication order review: [Multiple Choice]

- ☐ Indications
- ☐ Dosage/administration
- ☐ Duplicate therapy
- ☐ Drug interactions
- ☐ Compatibility
- ☐ Other

31. Scope of medication order review: [Single Choice]

- ☐ All patients
- ☐ Some patients (>50%)
- ☐ Some patients (\leq 50%)

32. Average time spent per patient per review (minutes): [Single Choice]

- ☐ <5
- ☐ 5–10
- ☐ 10–20
- ☐ 20–30
- ☐ 30–40
- ☐ 40–50
- ☐ 50–60
- ☐ >60

33. Is the review process/results recorded in the hospital information system? [Single Choice]

- ☐ Yes
- ☐ No

Pharmacist-Led Ward Rounds

34. Rounds format: [Single Choice]

- ☐ Independent pharmacist rounds
- ☐ Joint rounds with physicians
- ☐ Both

35. Frequency of rounds per patient: [Single Choice]

- ☐ Daily
- ☐ ≥ 3 times/week
- ☐ ≤ 2 times/week

36. Average time per patient for independent rounds (minutes): [Single Choice]

- ☐ <5
- ☐ 5–10
- ☐ 10–20
- ☐ 20–30
- ☐ 30–40
- ☐ 40–50
- ☐ 50–60
- ☐ >60

37. Average time per patient for joint rounds (minutes): [Single Choice]

- ☐ <5
- ☐ 5–10
- ☐ 10–20
- ☐ 20–30
- ☐ 30–40
- ☐ 40–50
- ☐ 50–60
- ☐ >60

38. Is there a standardized template for rounds? [Single Choice]

- ☐ Yes
- ☐ No

39. Are rounds documented in the hospital information system? [Single Choice]

- ☐ Yes
- ☐ No

Patient Education

40. Content of patient education: [Multiple Choice]

- ☐ Dosage/administration
- ☐ Timing of administration
- ☐ Managing missed doses
- ☐ Medication storage
- ☐ Adverse reactions and management
- ☐ Lifestyle guidance
- ☐ Other

41. Education delivery format: [Multiple Choice]

- ☐ Verbal
- ☐ Printed materials
- ☐ Video
- ☐ Verbal + printed materials
- ☐ Other

42. Average time spent per patient per education session (minutes): [Single Choice]

- ☐ <5
- ☐ 5–10
- ☐ 10–20
- ☐ 20–30
- ☐ 30–40
- ☐ 40–50
- ☐ 50–60
- ☐ >60

43. Is there a standardized education template? [Single Choice]

- ☐ Yes
- ☐ No

44. Is education documented in the hospital information system? [Single Choice]

- ☐ Yes
- ☐ No

Post-Transplant Phase

45. Does your hospital have a dedicated transplant pharmacy clinic? [Single Choice]

- ☐ Yes
- ☐ No

46. Start date of the clinic (if applicable): [Open-ended Question]

47. Services provided in the clinic: [Multiple Choice]

- ☐ Medication therapy evaluation (e.g., efficacy, adverse reactions)
- ☐ Therapeutic interventions (e.g., resolving drug-related problems, deprescribing, reconciliation)
- ☐ Developing personalized medication records (prescription/OTC drugs, herbs, supplements)
- ☐ Adherence assessment
- ☐ Personalized education
- ☐ Lifestyle guidance
- ☐ Follow-up
- ☐ Other

48. Average weekly patient volume (cases/week): [Open-ended Question]

49. Clinic fee per patient (pre-reimbursement, RMB): [Open-ended Question]

50. Pharmacist qualifications for clinic: [Single Choice]

- ☐ Clinical Pharmacist
- ☐ Associate Chief Pharmacist
- ☐ Chief Pharmacist

51. Average consultation time per patient: [Single Choice]

- ☐ <5 min
- ☐ 5–10 min
- ☐ 10–20 min
- ☐ 20–30 min
- ☐ 30–40 min
- ☐ 40–50 min
- ☐ 50–60 min
- ☐ >60 min

52. Clinic documentation format: [Single Choice]

- ☐ Standard template
- ☐ No standard template
- ☐ Other

53. Are clinic records entered into the hospital information system? [Single Choice]

- ☐ Yes
- ☐ No

54. Additional follow-up methods (if applicable): [Multiple Choice]

- ☐ Phone
- ☐ SMS
- ☐ Hospital app
- ☐ Patient education groups

- ☐ None
- ☐ Other

55. Average frequency of follow-up per patient: [Single Choice]

- ☐ 1–2 times/week
- ☐ 1–2 times/month
- ☐ 1–2 times/year
- ☐ No routine follow-up
- ☐ Adjusted based on discharge time

Part III: Non-Transplant Responsibilities

Note: Please describe your workload unrelated to transplant care.

56. Time spent daily on pharmacy management (e.g., data reporting, order review) (hours): [Open-ended Question]

57. Do you teach pharmacy students? [Single Choice]

- ☐ Yes
- ☐ No

58. Do you train pharmacy residents? [Single Choice]

- ☐ Yes
- ☐ No

59. Daily time spent on teaching/training (hours): [Open-ended Question]

60. Daily time spent on research (hours): [Open-ended Question]

Part IV: Opinions on Pharmaceutical Care

61. Do you believe there is a shortage of transplant pharmacists in China? [Single Choice]

- ☐ Yes
- ☐ No

62. Severity of the shortage: [Single Choice]

- ☐ Severe
- ☐ Moderate
- ☐ Mild

63. Do you believe there is a lack of transplant pharmaceutical care services in China? [Single Choice]

- ☐ Yes
- ☐ No

64. Causes of the shortage (rate 1–5, with 1 = least significant, 5 = most significant):

Causes	Degree 1-5				
Insufficient legal/policy support:	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Lack of institutional incentives:	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Shortage of transplant pharmacists:	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Heavy workload limiting service time:	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Low demand from clinicians:	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Low patient demand:	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

65. Are there other reasons for the lack of services? [Single Choice]

- ☐ Yes, please specify:
- ☐ No

Thank you for your participation!
Your responses are invaluable to our research. We wish you success in your work and happiness in life!