

Dear Teachers,

Greetings! Thank you for participating in this questionnaire survey concerning the application of the BOPPPS+AI teaching model in nephrology clerkship training. This questionnaire aims to collect your views on the feasibility, teaching value and implementation barriers of this model, so as to provide evidence for its optimization and popularization in medical clerkship education.

The questionnaire covers your evaluation of the compatibility between the six-stage BOPPPS framework and nephrology clerkship, the practicality of AI-assisted tools (e.g., the Shengyun Medical Education Platform), as well as your expectations regarding the model's effects on students' competency cultivation and teaching efficiency improvement. Your professional insights are vital to this research. All collected information will be kept strictly confidential and used solely for academic analysis.

Please complete the questionnaire truthfully based on your clinical teaching experience. It will take approximately 8 to 10 minutes to finish. We sincerely appreciate your valuable time and support!

Basic Information

1. Your Gender:

- A. Male
- B. Female

2. Your Age:

- A. 21–30
- B. 31–35
- C. 36–40
- D. 41–45
- E. 45–50
- F. 50–55
- G. 55–60
- H. Over 60

3. Your Professional Title:

- A. Teaching Assistant
- B. Lecturer
- C. Associate Professor
- D. Professor

Feasibility Assessment of the Model

1. How well do you think the six BOPPPS stages match nephrology clerkship content (e.g., uremia management, puncture operations)?

- A. 1 = Extremely mismatched
- B. 2 = Mismatched
- C. 3 = Neutral
- D. 4 = Matched

E. 5 = Extremely matched

2. How practical are the virtual training functions on the Shengyun Medical Education Platform (puncture simulation, postoperative management) for clinical teaching?

- A. 1 = Extremely impractical
- B. 2 = Impractical
- C. 3 = Neutral
- D. 4 = Practical

E. 5 = Extremely practical

3. How well does the time arrangement of the six-stage BOPPPS+AI model fit the current nephrology clerkship schedule?

- A. 1 = Extremely unfeasible
- B. 2 = Unfeasible
- C. 3 = Neutral
- D. 4 = Feasible

E. 5 = Extremely feasible

Expected Teaching Value

1. Predict how students' interest in nephrology clerkship will change after implementing the BOPPPS+AI model.

- A. 1 = Significantly decreased

B. 2 = Decreased

C. 3 = No obvious change

D. 4 = Increased

E. 5 = Significantly increased

2. Predict how well students will systematically master thoracentesis standards, contraindications and related knowledge under the BOPPPS+AI model.

A. 1 = Barely grasp any knowledge

B. 2 = Master very little

C. 3 = Master partial knowledge

D. 4 = Master well

E. 5 = Master excellently

3. Predict the improvement degree of students' practical operation skills brought by the BOPPPS+AI model.

A. 1 = No improvement at all

B. 2 = Minimal improvement

C. 3 = Moderate improvement

D. 4 = Significant improvement

E. 5 = Great improvement

4. Predict the effectiveness of this model in cultivating students' clinical thinking (case analysis → puncture risk assessment → individualized treatment planning).

A. 1 = No improvement at all

B. 2 = Minimal improvement

C. 3 = Moderate improvement

D. 4 = Significant improvement

E. 5 = Great improvement

5. Predict how much the BOPPPS+AI model improves teaching efficiency (e.g., reducing repetitive explanations, accurately identifying students' knowledge weaknesses).

A. 1 = No improvement at all

B. 2 = Minimal improvement

C. 3 = Moderate improvement

D. 4 = Significant improvement

E. 5 = Great improvement

Comparison with Other Teaching Models

1. What are the biggest advantages of BOPPPS+AI over traditional LBL/PBL? (Multiple choices allowed)

A. Better stimulate student participation

B. More accurate evaluation of learning outcomes

C. Better integrate theory and practice

D. Higher personalization

E. Others (please specify)

2. Among LBL, PBL and BOPPPS+AI, which model most effectively improves students' participation in nephrology clerkship?

A. BOPPPS+AI model

B. LBL model

C. PBL model

3 Which model best helps students systematically master core thoracentesis knowledge (indications, contraindications, complication management)?

A. BOPPPS+AI model

B. LBL model

C. PBL model

4. Which model can better optimize teaching resources (e.g., reduce repetitive teaching, relieve the shortage of physical training equipment via virtual simulation)?

A. BOPPPS+AI model

B. LBL model

C. PBL model

Implementation Barriers and Promotion Willingness

1. Would you recommend the BOPPPS+AI model to other clinical departments?

A. 1 = Extremely unwilling

B. 2 = Unwilling

C. 3 = Uncertain

D. 4 = Willing

E. 5 = Extremely willing

2. What are the main barriers to promoting this model? (Multiple choices allowed)

A. Teachers require additional training for AI tools, increasing lesson preparation workload

B. Insufficient hardware support (network, computers, software) in hospitals and universities

C. Lack of supporting teaching resources (high-quality virtual case libraries, standardized operation templates)

D. Incompatible existing teaching management systems (class hour arrangement, assessment standards)

E. Others (please specify)

Open-ended Suggestions

From the perspective of clinical teachers, which aspects of this model need to be improved for better practical implementation?