Survey on the Current Status and Needs of Critical Care Ultrasound Applications in Sichuan Province

Page 1: Informed Consent Form

Dear Colleagues:

As physicians deepen their understanding of critical care ultrasound, its application continues to expand. However, this growth has also brought about confusion and misconceptions in its use, making proper application increasingly crucial.

To further advance the development and application of critical care ultrasound in Sichuan Province, the Critical Care Ultrasound and Hemodynamics Committee of the Sichuan Medical Promotion Association has launched a "Survey on the Current Status and Needs of Critical Care Ultrasound Application in Sichuan Province." We sincerely appreciate your participation in this survey; your responses will be of great assistance to us.

Please carefully read and complete the questionnaire, accurately reflecting the current status and needs of critical care ultrasound application in your region. Your responses will be kept strictly confidential. This survey may take approximately 20 minutes to complete. Thank you for your cooperation and support!

If you agree to the above terms, please click "Next Page" to continue. Thank you!

Page 2: Basic Information

1. Your Gender [Single Choice] *

○ Male

○ Female

2. Your age (years) [Fill-in-the-blank] *

_____

3. Your role [Single-choice question] *

○ Physician

○Nurse

○ Technician

4. Your Professional Title [Single Choice] *

○ Chief Physician

○ Associate Chief Physician

○ Attending Physician

○Physician

○ Chief Nurse

○ Associate Chief Nurse

○ Senior Nurse

○Nurse

○Nurse

○Chief Technician

○ Associate Chief Technician

○Senior Technician

○ Technician

5. Your Highest Level of Education [Single Choice] *

○Doctorate

○ Master's Degree

○ Bachelor's Degree

○ Associate Degree

○ Vocational School

○ High School

6. Your highest degree major [Fill-in-the-blank] *

_____

7. In what year did you begin using critical care ultrasound? (e.g., 2018) [Fill-in-the-blank] *

_____

8. Have you previously participated in critical care-related training? [Multiple Choice] *

□5C

□Other _____

9. Years of experience using critical care ultrasound [Single-choice question] *

○ Never used

○1-3 years

○ 3–5 years

○5-10 years

○ Over 10 years

10. Have you previously participated in critical care ultrasound training courses (CCUSG)? [Multiple Choice] *

□ Basic Critical Care Ultrasound Training Course

□ Advanced Critical Care Ultrasound Training Course

□ Critical Care Ultrasound and Hemodynamics Training Course

□ Critical Care Pulmonary Ultrasound Training Course (Basic)

□ Critical Care Pulmonary Ultrasound Training Course (Advanced)

□ Critical Care Ultrasound and Critical Care Respiratory Training Course

□ Critical Care Ultrasound and ARDS

□ Critical Care Transesophageal Echocardiography Training Course

□Advanced Critical Care Ultrasound Training Course

□ Critical Care Ultrasound and Critical Care Neurology Training Course

□ Critical Care Ultrasound and Critical Care Gastroenterology Training Course

□ Critical Care Ultrasound and Critical Care Nephrology Training Course

□ Critical Care Ultrasound and Critical Care Trauma Training Course

□ Critical Care Ultrasound and Extracorporeal Circulation Training Course

□ Critical Care Ultrasound and Critical Care Procedures Training Course

□Critical Care Ultrasound Basic Application Standards Training and Quality Control Course

□ Critical Care Ultrasound and Sepsis Training Course

□Shock and Critical Care Ultrasound Workshop

□International Critical Care Ultrasound Fundamentals Training Course

□ Critical Care Ultrasound and Pediatric Critical Care Training Course

□ Critical Care Ultrasound and Pediatric Critical Care Hemodynamics Training Course

□ Critical Care Ultrasound and Critical Care Nursing Training Course

□Pulmonary Ultrasound Nursing Specialty Course

□ Critical Care Ultrasound and Pediatric Critical Care Nursing Training Course

□ Critical Care Ultrasound Gastrointestinal Specialty Course

11. Have you previously participated in other critical care ultrasound-related training? [Single-choice question] *

○ Never participated

○ Short-term training course (1-3 days)

○ Advanced training program (1 month)

○ Advanced training program (2-3 months or longer)

○ Other _____

12. Total number of critical care ultrasound assessments you have performed [Single choice] *

○ Never used

○Fewer than 50 cases

○ 50–200 cases

○200–500 cases

○ Over 500 cases

13. Average monthly number of critical care ultrasound assessments performed in the past year [Single-choice question] *

○Never used

○3 cases or fewer

○3–10 cases

○10–20 cases

○20 or more cases

14. Your city [Single choice] *

○ Aba Tibetan and Qiang Autonomous Prefecture

○ Bazhong

○Chengdu

○Dazhou

○Deyang

○Ganzi Tibetan Autonomous Prefecture

○Guang'an

○Guangyuan

○Leshan

○Liangshan Yi Autonomous Prefecture

○ Luzhou City

○Meishan

○Mianyang

○Nanchong

○Neijiang

○Panzhihua

○Suining

○Ya'an

○Yibin

○Ziyang

○Zigong

15. Full Name of Your Organization [Fill-in-the-blank] *

_____

16. Hospital Level [Single Choice] *

○ Grade III Special Class

○ Grade III Class A

○ Grade 3 Class B

○ Grade III Class C

○ Grade II Class A

○Grade 2, Class B

○Grade 2 Class C

○Grade 1 Class A

○Grade 1 Class B

○Class 1 Grade C

17. Type of ICU You Are In [Single Choice] *

○General ICU

○ Surgical ICU

○ Cardiac ICU

○ Respiratory ICU

○ Emergency ICU

○Neurology ICU

○ Pediatric ICU

○ Ophthalmology ICU

○Oncology ICU

○Thoracic Surgery ICU

○Other _____

18. Number of ICU beds in your location [Fill-in-the-blank] *

_____

19. Number of ultrasound machines in your ICU [Fill-in-the-blank] *

_____

20. Types of ultrasound machines in your ICU [Multiple choice] *

□ Handheld ultrasound (please enter number of units) _____

□ Portable/Laptop Ultrasound (Please enter number of units) _____

□ Desktop Ultrasound (Please enter number of units) _____

□ Other (please specify number separately) _____

21. Ultrasound machine brands in your ICU [Multiple choice] *

□ Sonosite (Please enter number of units) _____

□ Mindray (Please enter number of units) _____

□GE (Please enter number of units) _____

□ Philips (Please enter number of units) _____

□ Siemens (Please enter number of units) _____

□Kaili (Please enter number of units) _____

□Hitachi (Please enter number of units) _____

□Huasheng (Please enter number of units) _____

□ Feiyino (Please enter number of units) _____

□Other (Please enter number separately) _____

22. The probes equipped on your ICU ultrasound machine include [multiple selections] *

□ Cardiac probe

□ Abdominal probe

□ Vascular probe

□Esophageal probe

□ Other _____

23. Does your ICU store and archive data records? [Single-choice question] *

○ Yes

○ No (Please specify reason) _____

24. Does your ICU have established critical care ultrasound operational protocols? [Single-choice question] *

○ Yes

○ No

25. Does your ICU have personnel with critical care ultrasound proficiency on duty daily? [Single-choice question] *

○ Yes

○ No

26. Does your ICU collaborate with the Ultrasound Department? [Single-choice question] *

○Yes

○ No

27. Percentage of personnel in your department capable of performing critical care ultrasound for cardiopulmonary assessment [Single-choice question] *

○Less than 20%

○ 20%-50%

○50%-80%

○80%-100%

○None

28. Percentage of Guike personnel capable of performing cardiopulmonary assessments and other organ evaluations using critical care ultrasound [Single-choice question] *

○Less than 20%

○20%-50%

○50%-80%

○80%-100%

○None

29. Percentage of personnel at Guike capable of performing procedure guidance using critical care ultrasound [Single-choice question] *

○Less than 20%

○20%-50%

○50%-80%

○80%-100%

○None

30. Percentage of Guike personnel capable of conducting teaching rounds using critical care ultrasound [Single-choice question] *

○Less than 20%

○20%-50%

○50%-80%

○80%-100%

○None

Page 3: Current Application Status in Different Scenarios

Current Status of Critical Care Ultrasound Application Across Different Diseases

31. Your use of critical care ultrasound for assessment in shock patients over the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Below 20%	20%-50%	50%-80%	80%-100%	None
Approxim	○	○	○	○	○

ate proportion using critical care ultrasound for assessment					
What percentage of clinical decisions do you estimate change after using critical care ultrasound?	○	○	○	○	○
Based on past experience, the proportion of patients whose mortality rate	○	○	○	○	○

improves after using critical care ultrasound is approximately					
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound without providing effective information?	○	○	○	○	○
What percentage of cases do you estimate involve	○	○	○	○	○

misdiagnosis despite the use of critical care ultrasound?					

32. Your use of critical care ultrasound for assessment in ARDS patients over the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care ultrasound for assessment	○	○	○	○	○
What percentage of clinical decisions do you estimate change	○	○	○	○	○

after using critical care ultrasound ?					
Based on past experience , the proportion of improved mortality rates after using critical care ultrasound is approxima tely	○	○	○	○	○
What percentage of critical care ultrasound cases do you estimate involve	○	○	○	○	○

the use of ultrasound without providing effective information?					
What percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?	○	○	○	○	○

33. Your use of critical care ultrasound for assessment in TBI patients over the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using	○	○	○	○	○

critical care ultrasound for assessment					
What percentage of clinical decisions do you estimate change after using critical care ultrasound?	○	○	○	○	○
Based on past experience, the proportion of improved mortality rates after using critical care	○	○	○	○	○

ultrasound is approximately					
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound without providing effective information?	○	○	○	○	○
What percentage of cases do you estimate involve misdiagnosis despite the use of critical	○	○	○	○	○

care ultrasound ?					

34. Your use of critical care ultrasound for stroke patient assessment in the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care ultrasound for assessment	○	○	○	○	○
What percentage of clinical decisions do you estimate change after using critical care ultrasound	○	○	○	○	○

?					
Based on past experience, the proportion of patients whose mortality rate improves after using critical care ultrasound is approximately	○	○	○	○	○
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound without	○	○	○	○	○

providing effective information?					
What percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?	○	○	○	○	○

35. Your use of critical care ultrasound for assessment in sepsis patients over the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care ultrasound	○	○	○	○	○

for assessment					
What percentage of clinical decisions do you estimate change after using critical care ultrasound?	○	○	○	○	○
Based on past experience, the proportion of improved mortality rates after using critical care ultrasound is approxima	○	○	○	○	○

tely					
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound without providing effective information?	○	○	○	○	○
What percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?	○	○	○	○	○

36. In the past three years (2020, 2021, 2022), how often did you use critical care ultrasound to assess patients with pancreatitis? [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care ultrasound for assessment	○	○	○	○	○
What percentage of clinical decisions do you estimate change after using critical care ultrasound?	○	○	○	○	○
Based on past	○	○	○	○	○

experience, the proportion of improved mortality rates after using critical care ultrasound is approximately					
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound without providing effective information?	○	○	○	○	○

What percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?	○	○	○	○	○

37. In the past three years (2020, 2021, 2022), how often did you use critical care ultrasound to assess patients after CPR? [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care ultrasound for assessment	○	○	○	○	○
What	○	○	○	○	○

percentage of clinical decisions do you estimate change after using critical care ultrasound ?					
Based on past experience , the proportion of patients whose mortality rate improves after using critical care ultrasound is approxima tely	○	○	○	○	○
What percentage	○	○	○	○	○

of critical care ultrasound cases do you estimate involve the use of ultrasound without providing effective information?					
What percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?	○	○	○	○	○

Current Status of Critical Care Ultrasound Applications in Different Operational Scenarios

38. Your tracheal intubation procedures over the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care ultrasound for assessment	○	○	○	○	○
What percentage of clinical decisions do you estimate change after using critical care ultrasound?	○	○	○	○	○
Based on past	○	○	○	○	○

experience, the success rate improvement after using critical care ultrasound is approximately					
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound without providing effective information?	○	○	○	○	○
What	○	○	○	○	○

percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound ?					

39. Your deep vein puncture procedures over the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
The proportion of cases evaluated using critical care ultrasound is approximately	○	○	○	○	○
What percentage	○	○	○	○	○

of clinical decisions do you estimate change after using critical care ultrasound ?					
Based on past experience , the success rate improvem ent after using critical care ultrasound is approxima tely	○	○	○	○	○
What percentage of critical care ultrasound	○	○	○	○	○

cases do you estimate involve the use of ultrasound without providing effective information?					
What percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?	○	○	○	○	○

40. Chest and abdominal puncture procedures you performed in the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
	○	○	○	○	○

Approximate proportion using critical care ultrasound for assessment					
What percentage of clinical decisions do you estimate change after using critical care ultrasound?	○	○	○	○	○
Based on past experience, the success rate improvement after	○	○	○	○	○

using critical care ultrasound is approximately					
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound without providing effective information?	○	○	○	○	○
What percentage of cases do you estimate involve misdiagno	○	○	○	○	○

sis despite the use of critical care ultrasound ?					

41. Perforation of the pericardium in the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care ultrasound for assessment	○	○	○	○	○
What percentage of clinical decisions do you estimate change after using	○	○	○	○	○

critical care ultrasound ?					
Based on past experience , the success rate improvem ent after using critical care ultrasound is approxima tely	○	○	○	○	○
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound	○	○	○	○	○

without providing effective information?					
What percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?	○	○	○	○	○

42. Your peripheral arterial and venous puncture procedures over the past three years (2020, 2021, 2022) [Matrix single-choice question] *

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care	○	○	○	○	○

ultrasound for assessment					
What percentage of clinical decisions do you estimate change after using critical care ultrasound?	○	○	○	○	○
Based on past experience, the success rate improvement after using critical care ultrasound is approxima	○	○	○	○	○

tely					
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound without providing effective information?	○	○	○	○	○
What percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?	○	○	○	○	○

43. ECMO cannulation/guidance procedures performed in the past three years (2020, 2021, 2022) [Matrix single-choice question]

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care ultrasound for assessment	○	○	○	○	○
What percentage of clinical decisions do you estimate change after using critical care ultrasound?	○	○	○	○	○
Based on past	○	○	○	○	○

experience, the success rate improvement after using critical care ultrasound is approximately					
What percentage of critical care ultrasound cases do you estimate involve the use of ultrasound without providing effective information?	○	○	○	○	○
What	○	○	○	○	○

percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?					

44. Your IABP placement/guidance procedures over the past three years (2020, 2021, 2022) [Matrix single-choice question]

	Less than 20%	20%-50%	50%-80%	80%-100%	None
Approximate proportion using critical care ultrasound for assessment	○	○	○	○	○
What percentage	○	○	○	○	○

of clinical decisions do you estimate change after using critical care ultrasound ?					
Based on past experience , the success rate improvem ent after using critical care ultrasound is approxima tely	○	○	○	○	○
What percentage of critical care ultrasound	○	○	○	○	○

cases do you estimate involve the use of ultrasound without providing effective information?					
What percentage of cases do you estimate involve misdiagnosis despite the use of critical care ultrasound?	○	○	○	○	○

45. The percentage of critical care ultrasounds used during urgent consultations is (%) [Single-choice question] *

○ Never used

○ Rarely used (≤20%)

○Frequently used (20%-50%)

○Frequently used (50%-80%)

○ Almost always used (over 80%)

46. The percentage of cases where critical care ultrasound was used within 1 hour during acute respiratory or circulatory failure (%) [Single choice] *

○ Never used

○ Rarely used (≤20%)

○ Relatively frequent use (20%-50%)

○Frequently used (50%-80%)

○ Almost always used (80% or more)

47. The percentage of cases where critical care ultrasound is used during vascular access is (%) [Single choice] *

○ Never used

○ Rarely used (≤20%)

○ Fairly often (20%-50%)

○Frequently used (50%-80%)

○ Almost always used (over 80%)

48. The percentage of patients undergoing critical care ultrasound assessment who receive a follow-up critical care ultrasound assessment after treatment to evaluate its effectiveness is (%) [Single-choice question] *

○ Never evaluated

○ Less than 20%

○ 20%-50%

○ 50%-80%

○ 80%-100%

49. The proportion of sepsis patients undergoing critical care ultrasound assessment (%) [Single-choice question] *

○ Never assessed

○Less than 20%

○20%-50%

○50%-80%

○ 80%-100%

50. The proportion of ARDS patients undergoing critical care ultrasound assessment (%) [Single-choice question] *

○Never assessed

○Less than 20%

○20%-50%

○50%-80%

○ 80%-100%

51. The proportion of shock patients undergoing critical care ultrasound assessment (%) [Single-choice question] *

○ Never assessed

○Less than 20%

○20%-50%

○50%-80%

○ 80%-100%

52. Your average time spent performing critical care ultrasound assessments on individual cases per day is [Single Choice] *

○ Never assessed

○ Within 10 minutes

○10-30 minutes

○30-60 minutes

○ Over 60 minutes

53. The proportion of patients undergoing a complete critical care ultrasound protocol is [Single Choice] *

○ Never used

○ Rarely used (≤20%)

○Frequently used (20%-50%)

○Frequently used (50%-80%)

○ Almost always used (80% or more)

54. Do you believe you can accurately obtain critical care ultrasound images and meet quality control standards? [Single choice] *

○ Occasionally non-standard (less than 10%)

○ Frequently non-standard (10%-50%)

○ Frequently non-compliant (50% or more)

○Unclear about specific standards

55. Do you believe you can accurately assess structural abnormalities and functional issues in the heart, lungs, or other organs using ultrasound images? [Single-choice question] *

○ Occasionally accurate (≤20%)

○ Fairly often accurate (20%-50%)

○ Often accurate (50%-80%)

○Nearly always accurate (80% or higher)

56. Do you believe you can accurately interpret a patient's pathophysiological abnormalities and physiological dysregulation based solely on ultrasound images within a comprehensive ultrasound examination protocol? [Single-choice question] *

○ Occasionally accurate (≤20%)

○ Fairly often accurate (20%-50%)

○ Frequently accurate (50%-80%)

○ Almost always accurate (80% or higher)

57. The precise incidence rate of critical care ultrasound-related adverse events is (%) [Single-choice question] *

○Less than 5%

○5%-10%

○ Over 10%

○None

58. The average quarterly microbial sampling positivity rate for ultrasound probes is approximately [Single Choice] *

○Below 5%

○5%-10%

○10%-20%

○Above 20%

○None

59. Transesophageal ultrasound implementation rate (%) [Single-choice question] *

○Never performed

○Below 20%

○20%-50%

○50%-80%

○ 80%-100%

60. Implementation rate of transcranial color Doppler (TCCD) in patients with traumatic brain injury (%) [Single-choice question] *

○Never performed

○Less than 20%

○20%-50%

○50%-80%

○ 80%-100%

61. Implementation rate of renal blood flow ultrasound assessment (%) [Single-choice question] *

○Never performed

○Below 20%

○20%-50%

○50%-80%

○ 80%-100%

62. Implementation rate of gastrointestinal ultrasound assessment (%) [Single-choice question] *

○Never implemented

○Less than 20%

○20%-50%

○50%-80%

○ 80%-100%

63. Critical Care Ultrasound Utilization Rate (%) [Single Choice] *

○Never adopted

○Less than 20%

○20%-50%

○50%-80%

○80%-100%

64. Treatment Decision Change Rate (%) [Single Choice] *

○Never changed

○Below 20%

○20%-50%

○50%-80%

○ 80%-100%

Page 4: Challenges and Needs

65. In your opinion, the main difficulties encountered during critical care ultrasound applications include [multiple choice] *

□Insufficient qualified personnel

□ Insufficient critical care ultrasound equipment

□ Inadequate training program coverage

□ Unclear examination objectives

□ Difficulty interpreting critical care ultrasound images

□Difficulty interpreting ultrasound findings

□ Overwhelming visual information complicates application

□Other _____

66. In your opinion, the main uncertainties encountered during critical care ultrasound application include [multiple choice] *

□ How to establish a critical care ultrasound visualization team

□How to advance critical care ultrasound

□Integrating critical care ultrasound with clinical practice

□Other _____

67. Is there a need for training courses? [Single-choice question] *

○ Yes (Please proceed to Question 68)

○ No (Please proceed to Question 70)

68. Which areas [Multiple Choice] *

□ Theoretical foundation

□ Image acquisition skills

□ Interpretation of critical care ultrasound abnormalities

□ Integration of critical care ultrasound with clinical analysis and decision-making

□ Other _____

69. Which specialties [Multiple Choice] *

□ Acute Respiratory and Circulatory Failure

□ Critical Care Ultrasound Quality Control Management

□Critical Care Ultrasound-Guided Shock Management

□Critical Care Ultrasound-Guided Extubation Management

□ Critical care ultrasound-guided ARDS management

□Critical Care Ultrasound-Guided Pancreatitis Management

□ Critical Care Ultrasound-Guided Post-Cerebral Resuscitation Management

□Critical Care Ultrasound-Guided Lesion Management

□ Critical Care Ultrasound-Guided Nutrition Management

□ Critical Care Ultrasound-Guided Rehabilitation Therapy

□ Critical Care Ultrasound-Guided Sepsis Management

□Other _____

70. Other Suggestions and Ideas [Fill-in-the-blank] *

_____

If you have completed filling out the form, you may click submit. Thank you for your participation!