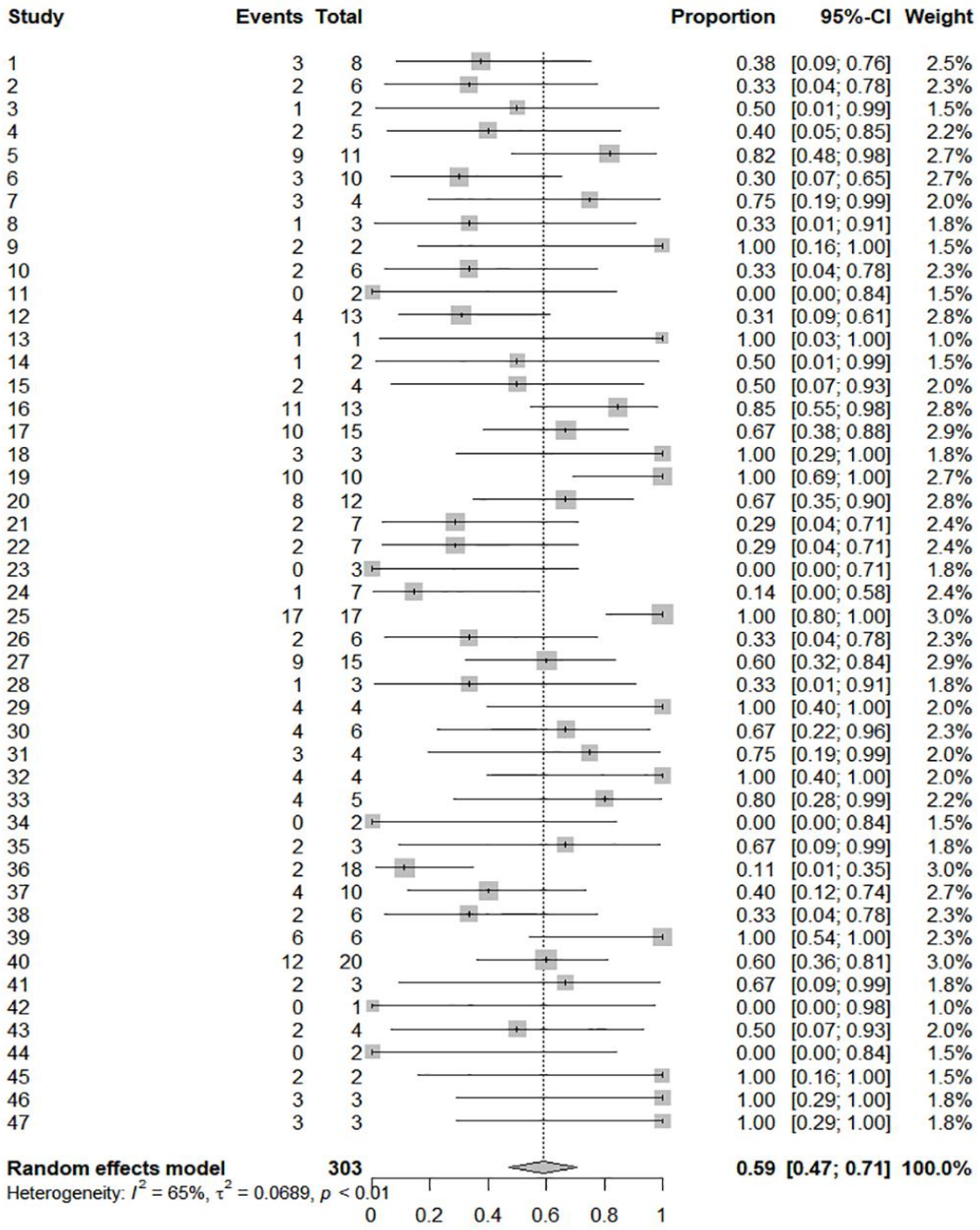

Figure S1: the median proportion of trained physicians in a single team.

Investigation on the current situation of flexible bronchoscopy in children in Western China
(2018.01.01-2018.12.30)

1. Your name and contact information:
2. Area (province/city):
3. The name and grade of the hospital:
4. General overview of the bronchoscopy team:
   (1) Number of doctor
   (2) Number of nurse
   (3) Number of anesthesiologist
   (4) Others
5. General overview of bronchoscopy operator team:
   (1) Total staff
   (2) The highest professional title
   (3) The lowest professional title
   (4) The highest educational background
   (5) The lowest educational background
   (6) Number of bronchoscopy training certificates
6. Team members and number during bronchoscopy procedure:
   (1) Operation physician
   (2) Nurse
   (3) Anesthesiologist
   (4) Other
7. The site and number of bronchoscopies:
   (1) Endoscopy Center
   (2) Bronchoscopy Room
   (3) Ward
   (4) ICU
   (5) Other
8. Minimum and maximum age of children:
   (1) Maximum age
   (2) Minimum age
9. Type and number bronchoscopy:
   (1) Rigid bronchoscope
   (2) Flexible bronchoscope
   (3) Both
10. Type and brand of flexible bronchoscope:
   (1) Fiberoptic bronchoscope
   (2) Electronic bronchoscope
   (3) Combined bronchoscope
   (4) Other
11. Mirror of flexible bronchoscope:
   (1) Brand and type
   (2) Number
12. Preoperative examination:
   (1) Blood routine
   (2) Coagulation
   (3) Hepatitis B / hepatitis C / syphilis / HIV antibody test
   (4) Liver and kidney function
   (5) Chest imaging (if required to be a chest CT or a specific imaging, mark it)
   (6) Echocardiography
   (7) Electrocardiogram
   (8) Pulmonary function
   (9) Other
13. First aid equipment:
   (1) No
   (2) Oxygen
   (3) Ambu bag
   (4) Suction apparatus
   (5) Tracheal cannula
   (6) Electrocardiogram monitor
   (7) Defibrillators
   (8) Anesthesia Machine
   (9) Ventilator
   (10) Other(please specify)
14. Is it necessary to inhale oxygen during flexible bronchoscope procedure:
   (1) Yes

（2）No

15. Type of anesthesia during flexible bronchoscopy procedure:

（1）Local anesthesia combined with conscious sedation

（2）Intravenous anesthesia

（3）General anesthesia with laryngeal mask ventilation

（4）General Anesthesia with tracheal Intubation

（5）General anesthesia with high frequency ventilation

（6）Other

16. Sedative during flexible bronchoscopy procedure:

（1）Midazolam

（2）Lidocaine

（3）Diazepam

（4）Propofol

（5）Fentanyl

（6）Ketamine

（7）Other

17. Indication and number of cases:

（1）Persistent/recurrent wheeze

（2）Stridor

（3）Chronic cough

（4）Persistent/recurrent pneumonia

（5）Atelectasis/lobar pneumonia

（6）Pulmonary nodule

（7）Interstitial pneumonia

（8）Tuberculosis (TB)

（9）Hemoptysis

（10）Tuberculosis

（11）Suspected lung malformation

（12）Foreign body

（13）Other

18.Purpose and number of cases:

（1）Bronchoscopic diagnosis

（2）Bronchoscopic treatment

（3）Other

19. Traditional bronchoscopic intervention:

（1）No

（2）Bronchoalveolar lavage

（3）Transbronchial injection

（4）Bronchoscopic brush

（5）Bronchoscopic forceps

20. Advanced bronchoscopic intervention:

（1）No

（2）Balloon dilatation

（3）Thermal ablation

（4）Cryoablation

（5）Stent placement

（6）Transbronchiallung biopsy

（7）Other

21. Examination of sample:

（1）No

（2）BALF routine test

（3）BALF culture

（4）Pathogenic antigen for BALF

（5）Pathogenic PCR for BALF

（6）Bronchial mucosa

（7）Lung tissue

（8）Other

22. Number of side reactions during fiberoptic bronchoscopy:

（1）Bleeding

（2）Bronchospasm

（3）laryngospasm

（4）Hypoxia or decreased O2 saturation

（5）Reactions to drugs

（6）Arrhythmia

（7）Pneumothorax or submediastinal emphysema

（8）Death
（9）Other

23. Number of side reactions after fiberoptic bronchoscopy:
（1）Bronchospasm
（2）Laryngeal edema
（3）Obvious cough
（4）Fever
（5）Hoarseness
（6）Death
（7）Othe

Table S2: cities included in analysis

Province	City
Neimenggu	
1	Huhehaote
Gansu	
2	Lanzhou
Ningxia	
3	Yinchuan
35	Yinchuan
Yunnan	
4	Puer
6	Kunming
12	Kaiyuan
37	Kaiyuan
Guizhou	
5	Guiyang
9	Zunyi
Guangxi	
13	Nanning
14	Wuzhou
15	Qinzhou
16	Nanning
17	Guigang
18	Liuzhou
19	Nanning
20	nanning
21	Guilin
22	Guilin
24	Liuzhou
25	Nanning
39	Nanning
40	Nanning
Liaoning	
43	Dalian
Qinghai	
23	Xining
Shanxi	
7	Yanan
8	Ankang
10	Yulin
11	Hanzhong
27	Xian
28	Xian
41	Xianyang

Sichuan	
29	Chengdu
30	Ganzizhou
33	Chengdu
34	Deyang
42	Panzhihua
44	Zigong
45	Mianyang
46	Chengdu
47	Yaan
Xinjiang	
26	Kashi
38	Kashi
Chongqing	
31	Wanzhou
32	Fuling
36	Chongqing

Table S3: characteristics of bronchoscopy

Bronchoscopy	Flexible bronchoscopies	Not available 0(0%)	Available 47(100%)
		Number	
		Median 158	Range (2-3593)
	Rigid bronchoscopies	Not available 45(95.7%)	Available 2(4.3%)
		Number	
		Median 0	Range (0-300)
	Number of flexible bronchoscopies	<100 100~1000 >1000	20(42.6%) 19(40.4%) 8(17.0%)
	Brand of flexible bronchoscopies	Olympus FUJINON PENTAX China-made	44(93.6%) 2(4.2%) 2(4.2%) 7(14.9%)
Site of flexible bronchoscopy	Endoscopy Suite	not available 18(38.3%)	available 29(61.7%)
	Ward	not available 31(66.0%)	available 16(34.0%)
	ICU	not available 16(34.0%)	available 31(66.0%)
	Operating room	not available 41(87.2%)	available 6(12.8%)
	Bronchoscopy Room	not available 45(95.7%)	available 2(4.3%)
	Other sites	not available 44(93.6%)	available 3(6.4%)
Age of children having received flexible bronchoscopy	Maximum age	Median 14	Range (1.8-18)
	Minimum age	Median 0.07	Range (0-8)

Table S4: different items of flexible bronchoscopy in centers

Traditional bronchoscopic intervention	Bronchoalveolar lavage	Not available	Available
		1(2.1%)	46(97.9%)
		Number	
		<100	22(47.8%)
		100~1000	19(41.3%)
		>1000	5(10.9%)
	Transbronchial injection	Not available	Available
		3(6.4%)	44(93.6%)
		Number	
		<100	26(59.1%)
		100~1000	14(31.8%)
		>1000	4(9.1%)
	Bronchoscopic brush	Not available	Available
		21(44.7%)	26(55.3%)
		Number	
		<100	19(73.0%)
		100~1000	7(27.0%)
		>1000	0(0%)
	Bronchoscopic forceps	Not available	Available
		15(32.0%)	32(68.0%)
		Number	
		<10	10(31.2%)
		10~50	12(37.5%)
		>50	10(31.2%)
Advanced bronchoscopic intervention	Balloon dilatation	Not available	Available
		37(78.7%)	10(21.3%)
		Number	
		<10	5(50.0%)
		10~50	4(40.0%)
		>50	1(10.0%)
	Thermal ablation	Not available	Available
		39(82.0%)	8(17.0%)
		Number	
		<10	2(25.0%)
		10~50	5(62.5%)
		>50	1(12.5%)
	Cryoablation	Not available	Available
		36(76.6%)	11(23.4%)
		Number	
		<10	5(45.4%)
		10~50	3(27.3%)

		>50	3(27.3%)
	Stent placement	Not available 47(100%)	Available 0(0%)
	TBLB	Not available 46(97.9%)	Available 1(2.1%)
	Other therapies	Not available 46(97.9%)	Available 1(2.1%)

TBLB: transbronchiallung biopsy

Table S5: the examination for children and their sample

Preoperative examination	Blood routine	Not available 0(0%)	Available 47(100%)
	Coagulation function	Not available 1(2.1%)	Available 46(97.9%)
	Hepatic and renal function	Not available 10(21.3%)	Available 37(78.7%)
	Hepatitis virus/syphilis/HIV antibody	Not available 0(0%)	Available 47(100%)
	Chest radiological examination	Not available 1(2.1%)	Available 46(97.9%)
	Echocardiography	Not available 38(80.9%)	Available 9(19.1%)
	Electrocardiogram	Not available 1(2.1%)	Available 46(97.9%)
	Pulmonary function	Not available 28(59.6%)	Available 19(40.4%)
BALF examination	Routine examination of BALF	Not available 9(19.1%)	Available 38(80.9%)
	Culture	Not available 2(4.3%)	Available 45(95.7%)
	Detection of pathogenic antigen	Not available 18(38.3%)	Available 29(61.7%)
	Detection of pathogen by PCR	Not available 19(40.4%)	Available 28(59.6%)
Tissue examination	Bronchial mucosa	not available 21(44.7%)	available 26(55.3%)
	Lung tissue	not available 46(97.9%)	available 1(2.1%)

BALF: bronchoalveolar lavage fluid, PCR: polymerase chain reaction

Table S6: first aid equipment and anesthesia in flexible bronchoscopy

First aid equipment	Oxygen	Not available 0(0%)	Available 47(100%)
	Ambu	Not available 0(0%)	Available 47(100%)
	Suction apparatus	Not available 1(2.1%)	Available 46(97.9%)
	Tracheal cannula	Not available 1(2.1%)	Available 46(97.9%)
	Electrocardiogram monitor	Not available 0(0%)	Available 47(100%)
	Defibrillator	Not available 13(27.7%)	Available 34(72.3%)
	Anesthesia machine	Not available 28(59.6%)	Available 19(40.4%)
	Ventilator	Not available 12(25.5%)	Available 35(74.5%)
	Other equipment	Not available 42(89.4%)	Available 5(10.6%)
Anesthesia methods	Local anesthesia combined with conscious sedation	Not available 17(36.2%)	Available 30(63.8%)
	Intravenous anesthesia	Not available 21(44.7%)	Available 26(55.3%)
	General anesthesia with laryngeal mask ventilation	Not available 26(55.3%)	Available 21(44.7%)
	General Anesthesia with Tracheal Intubation	Not available 27(57.4%)	Available 20(42.6%)
	General anesthesia with high frequency ventilation	Not available 46(97.9%)	Available 1(2.1%)
	Other Anesthesia	Not available 46(97.9%)	Available 1(2.1%)
Anesthesia medicine	Midazolam	Not available 2(4.2%)	Available 45(95.8%)
	Lidocaine	Not available 11(22.9%)	Available 37(77.1%)
	Diazepam	Not available 46(97.9%)	Available 1(2.1%)
	Propofol	Not available	Available

		32(68.1%)	15(31.9%)
	Fentanyl	Not available 26(55.3%)	Available 21(44.7%)
	Ketamine	Not available 44(93.6%)	Available 3(6.4%)
	Other medicine	Not available 40(85.1%)	Available 7(14.9%)

Intravenous anesthetics are drugs (such as propofol and fentanyl) that are injected intravenously into the body and act as general anesthesia, and patients will lose consciousness. Conscious sedation are drugs (such as midazolam) that are injected intravenously into the body, and patients still have consciousness.