Ventilator associated pneumonia (VAP) diagnostic tests: a multi-criteria decision analysis to establish diagnosis priorities.

Instructions: Dear sir/madame, you are filling this form due your expertise in respiratory tract infections, namely infections VAP. This study focus on VAP diagnosis. You should rank, according each question instructions, your preferences.

You have to answer all the questions. You will need 20 minutes to fill the form.

This study is an activity of CIBERES (Centro de investigación en red de enfermedades respiratorias) and CRIPS (Clinical Research/epidemiology In Pneumonia & Sepsis). It is coordinated by Jordi Rello, MD, PhD.

If you find any problem or have any question, please contact

@gmail.com.

Your information will be treated anonymously.

* Required

Email address *

Please type your initials (for duplicates control): *

How do you spend most of your work-time? * Mark only one oval.

As clinical microbiologist

As attending physician

In your ICU, who does perform bronchoscopy for VAP diagnosis? *

Mark only one oval.

Pneumologist doing broncoschopy most of the working-week

Pneumologists with other daily activities

Intensivists

Pneumologists on weekdays and intensivists on weekends

Question: From the following criteria, please rank the following characteristics from most (8) to the least (1) important for the diagnosis of VAP. *

Mark only one oval per row.

	1		2	3	4	5	6	7	8
Risk to the patient)					\bigcirc		$) \bigcirc$
Test availability)	$\mathbf{)}$				\bigcirc		$) \bigcirc$
Time to clinical relevant result)	\square				\bigcirc		$) \bigcirc$
Impact on decision to start antibiotic therapy									
Effect on antibiotic choice)	\bigcirc				\bigcirc		$) \bigcirc$
Cost)	$\mathbf{)}$				\bigcirc		$) \bigcirc $
Need for professionals experience	e)	\bigcirc				\bigcirc		$) \bigcirc$
Impact in patient outcomes							\bigcirc		$) \bigcirc$

1.A. Choose between the next IMAGING TECHNIQUES which one is more relevant for you regarding VAP diagnosis (1 least important, 4 most important): Note if none is your best answer, rank "none" with 4. *

Mark only one oval per row.

	1	2	2 3	3 4
Chest X-ray	\square)		$) \bigcirc$
Chest CT	\square))	$\mathcal{D}\mathcal{O}$
Lung ultrassound	\square))	$\supset \bigcirc$
None	\square))	$\supset \bigcirc$

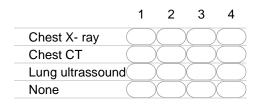
1.B. In your ICU, when a VAP is suspected in which percentage of patients you use the next IMAGING TECHNIQUES?

Check all that apply.

	-	•	0	
0				
10 %				
20 %				
30 %				
40 %				
50 %				
60 %				
70 %				
80 %				
90 %				
100 %				

Chest X-ray Chest CT Lung ultrassound None

2. In VAP patients, regarding the RISK TO THE PATIENT of the following imaging techniques please rank (1 higher risk. 4 lower risk): *



3. In VAP patients, please rank the following imaging techniques concerning TEST AVAILABILITY (1 least available, 4 most available): *

Mark only one oval per row.

	1	2	3	4
Chest X- ray			\bigcirc	\bigcirc
Chest CT		$) \bigcirc$	\bigcirc	\bigcirc
Lung ultrassound		$) \bigcirc$	\bigcirc	\bigcirc
None		$) \bigcirc$	\bigcirc	\bigcirc

4. In VAP patients, please rank the following imaging techniques according to their NEED OF PROFESSIONALS EXPERIENCE (1 most experienced, 4 least experienced): *

Mark only one oval per row.

	1	2	3	4
Chest X- ray		\bigcirc	\square	\bigcirc
Chest CT		\bigcirc	\bigcirc	\bigcirc
Lung ultrassound		\bigcirc	\bigcirc	\bigcirc
None		\bigcirc	\bigcirc	\bigcirc

5. In VAP patients, please rank the following imaging techniques according to their IMPACT ON DECISION TO START ANTIBIOTIC (1 least impact, 4 most impact): *

Mark only one oval per row.

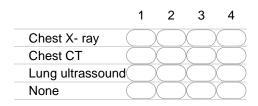
	1	2	3	4
Chest X- ray			\bigcirc	
Chest CT		(\bigcirc	
Lung ultrassound		\bigcirc	\bigcirc	
None			\bigcirc	\bigcirc

6. In VAP patients, please rank the following imaging techniques according to their POTENTIAL IMPACT ON PATIENTS OUTCOMES (1 least impact, 4 most impact): *

Mark only one oval per row.

	1	2	3	4
Chest X- ray		$) \bigcirc$	\bigcirc	\bigcirc
Chest CT		$) \bigcirc$	\bigcirc	\bigcirc
Lung ultrassound		$) \bigcirc$	\bigcirc	\bigcirc
None		$) \bigcirc$	\bigcirc	\bigcirc

7. In VAP patients, please rank the following imaging techniques according to their COST (1 most expensive, 4 chepeast): *



8.A. Choose between the next MICROBIOLOGICAL TESTS which one is more relevant for you regarding VAP diagnosis (1 least important, 6 most important): Note if none is your best answer, rank "none" with 6. *

Mark only one oval per row.

	1	2	2 :	3	4	5	6
Blood Cultures)				
Endotracheal aspirate culture)	\bigcirc	\sum		\sum	
Mini-bronchoalveolar lavage culture (Combicath ®)							
Bronchoalveolar lavage culture)))			
Telescopic catheter)))		$\mathbf{)}$	
Transbronchial biopsy)	\bigcirc			\sum	

8.B. In your ICU, when a VAP is suspected in which percentage of patients you use the next MICROBIOLOGICAL TESTS $? \end{tabular}$

Check all that apply.

	Blood Cultures	Endotracheal aspirate culture	Mini- bronchoalveolar lavage culture (Combicath ®)	Bronchoalveolar lavage culture	Telescopic catheter	Transbronchial biopsy
0						
10 %						
20 %						
30 %						
40 %						
50 %						
60 %						
70 %						
80 %						
90 %						
100 %						

9. Between the next microbiological tests rank which one has more RISK FOR PATIENTS in VAP diagnosis (1 higher risk. 6 lower risk): *

		1	2	3	4	56	6
Blood Cultures				\square	\square		\bigcirc
Endotracheal aspirate culture		\sum		\square	\square		\supset
Mini-bronchoalveolar lavage culture (Combicath ®)	\subset						\supset
Bronchoalveolar lavage culture		\sum		\square	\square		\supset
Telescopic catheter		\sum		\square	\square		\supset
Transbronchial biopsy	()(\bigcirc

10. Which one of the following microbiological tests rank is more AVAILABLE in VAP diagnosis in your ICU (1 least available, 6 most available): *

Mark only one oval per row.

	1	l	2	3	4	5	6
Blood Cultures	\square		\bigcirc	$\mathbf{)}$	\sum		
Endotracheal aspirate culture)(
Mini-bronchoalveolar lavage culture (Combicath ®)	\square						
Bronchoalveolar lavage culture	\square))				
Telescopic catheter	\square	\supset	\bigcirc				
Transbronchial biopsy)				

11. Regarding the following microbiological tests rank which one has more IMPACT ON DECISION TO START ANTIBIOTIC THERAPY in VAP (1 least impact, 6 most impact): *

Mark only one oval per row.

		1	2	3	4	5	6
Blood Cultures			\bigcirc	\bigcirc	\square	\bigcirc	\bigcirc
Endotracheal aspirate culture				\bigcirc	\square		\bigcirc
Mini-bronchoalveolar lavage culture (Combicath ®)	$\left(\right)$			\bigcirc			\bigcirc
Bronchoalveolar lavage culture			\bigcirc	\bigcirc	\square	\bigcirc	\bigcirc
Telescopic catheter				\bigcirc	\square		\bigcirc
Transbronchial biopsy				\bigcirc	\square		\bigcirc

12. In VAP patients, please rank the following microbiological tests according to their POTENTIAL IMPACT ON PATIENTS OUTCOMES (1 least impact, 6 most impact) * *Mark only one oval per row.*

		1	2	3	4	5 6	
Blood Cultures				\bigcirc	\square	\bigcirc	$\overline{)}$
Endotracheal aspirate culture				\bigcirc	\square	\square)
Mini-bronchoalveolar lavage culture (Combicath ®)	$\left(\right)$			\bigcirc)
Bronchoalveolar lavage culture				\bigcirc	\square	\square)
Telescopic catheter				\bigcirc	\square	\supset	Ĵ
Transbronchial biopsy				\bigcirc	\bigcirc)

13. In VAP patients, please rank the following microbiological tests according to their NEED OF PROFESSIONALS EXPERIENCE (1 most experienced, 8 least experienced): *

	1	2	2	3	4	5	6
Blood Cultures)	\bigcirc	\bigcirc			
Endotracheal aspirate culture))(
Mini-bronchoalveolar lavage culture (Combicath ®)	\square						
Bronchoalveolar lavage culture)))(
Telescopic catheter))(
Transbronchial biopsy)()()(

14. In VAP patients, please rank the following microbiological tests according to their COST (1 most expensive, 6 chepeast) *

Mark only one oval per row.

		1	2	3	4	ļ	5	6
Blood Cultures))		
Endotracheal aspirate culture		$\mathbf{)}$))		
Mini-bronchoalveolar lavage culture (Combicath ®)	\bigcirc							
Bronchoalveolar lavage culture)		())	\sum	\bigcirc
Telescopic catheter		$\mathbf{)}$))	\sum	
Transbronchial biopsy		\mathcal{I})			

15.A. Regarding the following BIOMARKERS which one is more relevant for you in VAP diagnosis (1 least important, 7 most important). Note: if none is your preferred answer, rank "none" with 7. *

Mark only one oval per row.

	1		2	3		4	5	6	7
None))				\bigcirc
White blood cell count))			\square	\Box
Interleukin 6))				\bigcirc
Interleukin 10))			\square	\Box
Pro-adrenomedullin)()	\square		\square	\bigcirc
C-reactive protein))			\square	\square
Procalcitonin))			\square	\bigcirc

15.B. In your ICU, when a VAP is suspected in which percentage of patients you use the next BIOMARKERS?

Check all that apply.

	None	White blood cell count	Interleukin 6	Interleukin 10	Pro- adrenomedullin	C-reactive protein	Procalcitonin
0							
10 %							
20 %							
30 %							
40 %							
50 %							
60 %							
70 %							
80 %							
90 %							
100 %							

16. In VAP patients, please rank the following biomarkers concerning TEST AVAILABILITY in your ICU (1 least available, 7 most available): *

Mark only one oval per row.

	1		2	3	4	4	5	6	7
White blood cell count	t))		\sum		
Interleukin 6	\square	$\mathbf{)}$)	$\mathbf{)}$			
Interleukin 10	\square	$\mathbf{)}$)	$\mathbf{)}$			
Pro-adrenomedullin	\square	$\mathbf{)}$)	\sum	\sum		
C-reactive protein	\square	$\mathbf{)}$)	\sum	\sum		\square
Procalcitonin	\bigcirc))	\mathbf{X}			
None	\bigcirc))		\sum	\square	

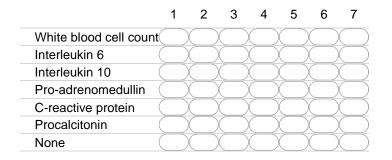
17. In VAP patients, please rank the following biomarkers according to their IMPACT ON DECISION TO START ANTIBIOTIC AND ITS CHOICE (1 least impact, 7 most impact): *

Mark only one oval per row.

	1	2	3	4	5	6 7
White blood cell count	\bigcirc	\bigcirc	\Box)))
Interleukin 6	\bigcirc	\bigcirc	\Box	\Box	\Box	$\supset \bigcirc$
Interleukin 10	\bigcirc	\bigcirc	\square			$\supset \bigcirc$
Pro-adrenomedullin	\bigcirc	\bigcirc	\square	\square	\square	$\supset \bigcirc$
C-reactive protein	\bigcirc	\bigcirc	\square	\square	\square	$\supset \bigcirc$
Procalcitonin	\bigcirc	\bigcirc	\Box		\square	\bigcirc
None	\bigcirc	\bigcirc	\square	\square	\square	\bigcirc

18. In VAP patients, please rank the following biomarkers according to their COST (1 most expensive, 7 chepeast): *

Mark only one oval per row.



19. In VAP patients, please rank the following biomarkers according to their POTENTIAL IMPACT ON PATIENTS OUTCOMES (1 least impact, 6 most impact) *

	1		2		3	4	5		6	7
White blood cell count))		
Interleukin 6		$\mathbf{)}$			\sum)		\bigcirc
Interleukin 10		$\mathbf{)}$		(\sum)		
Pro-adrenomedullin)((\sum)(
C-reactive protein)(()(
Procalcitonin)(()		
None)(()		

20.A. Regarding the following DIAGNOSTIC TECHNIQUES which one is more relevant for you in VAP diagnosis (1 least important, 8 most important). Note: if none is your preferred answer, rank "none" with 8.*

Mark only one oval per row.

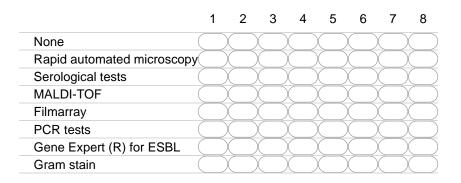
	1		2	3	4	5	6	7	8
None)							\square
Rapid automated microscopy)	\sum				\sum		\square
Serological tests)							\square
MALDI-TOF)(\sum		\bigcirc	\sum	\bigcirc		\square
Respiratory specimens filmarray)							\square
Serum and respiratory samples PCR tests									
Gene Expert (R)	()			\bigcirc
Gram stain	\square)					\sum		\Box

20.B. In your ICU, when a VAP is suspected in which percentage of patients you use the next DIAGNOSTIC TECHNIQUES?

Check all that apply.

	None	Rapid automated microscopy	Serological tests	MALDI- TOF	Filmarray	PCR tests	Gene Expert (R) for ESBL	Gram stain
0								
10 %								
20 %								
30 %								
40 %								
50 %								
60 %								
70 %								
80 %								
90 %								
100 %								

21. In VAP patients, please rank the following diagnostic techniques concerning TEST AVAILABILITY (1 least available, 8 most available): *



22. In VAP patients, please rank the following diagnostic techniques concerning TIME TO CLINICAL RELEVANT RESULT (1 least available, 8 most available): *

Mark only one oval per row.

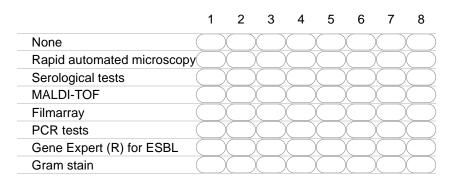
	1	2	3	4	5	6	7	8
None	\bigcirc	\bigcirc	\square	\bigcirc	\bigcirc	\bigcirc	\square	\bigcirc
Rapid automated microscop	y)	\bigcirc	\square	\square	\bigcirc	\bigcirc	\square	$) \bigcirc$
Serological tests	\bigcirc	\bigcirc	\square	\bigcirc	\bigcirc	\bigcirc	\square	$) \bigcirc$
MALDI-TOF	\bigcirc	\bigcirc	\square	\square	\bigcirc	\bigcirc	\square	$) \bigcirc$
Filmarray	\bigcirc	\bigcirc	\square	\square	\bigcirc	\bigcirc	\square	$) \bigcirc$
PCR tests	\bigcirc	\bigcirc	\square	\square	\bigcirc	\bigcirc	\square	$) \bigcirc$
Gene Expert (R) for ESBL	\bigcirc	\bigcirc	\square	\square	\bigcirc	\bigcirc	\square	$) \bigcirc$
Gram stain	\bigcirc	\bigcirc	\square	\square	\bigcirc	\bigcirc	\square	$) \bigcirc$

23. In VAP patients, please rank the following diagnostic techniques according to their POTENTIAL IMPACT ON PATIENTS OUTCOMES (1 least impact, 8 most impact)): *

Mark only one oval per row.

	1	2	3	4	5	6	7	8
None	\bigcirc	\bigcirc						
Rapid automated microscop	y ()	\bigcirc			\sum			
Serological tests	\bigcirc	\bigcirc		\bigcirc	\square			
MALDI-TOF	\bigcirc	\bigcirc		\bigcirc	\square			
Filmarray	\bigcirc	\bigcirc						
PCR tests	\bigcirc	\bigcirc						
Gene Expert (R) for ESBL	\bigcirc	\bigcirc)				
Gram stain	\bigcirc	\bigcirc		\bigcirc				

24. In VAP patients, please rank the following diagnostic techniques according to their COST (1 most expensive, 8 least expensive) *



25. In VAP patients, please rank the following diagnostic techniques according to their NEED OF PROFESSIONALS EXPERIENCE (1 most experienced, 8 least experienced): *

	1	2	3	4	5	6	78
None	\bigcirc	\bigcirc	\square	\square	\square		\bigcirc
Rapid automated microscop	y)	\bigcirc	\square	\square			$\supset \bigcirc$
Serological tests	\bigcirc	\bigcirc	\square	\square			$\supset \bigcirc$
MALDI-TOF	\bigcirc	\bigcirc	\square	\square			$\bigcirc\bigcirc$
Filmarray	\bigcirc	\bigcirc	\Box	\square	\sum		$\supset \bigcirc$
PCR tests	\bigcirc	\bigcirc	\square	\square			\bigcirc
Gene Expert (R) for ESBL	\bigcirc	\bigcirc	\square	\square		\sum	$\supset \bigcirc$
Gram stain	\bigcirc	\bigcirc		\square			$) \bigcirc$