

NHSN VAE calculator

日本語版 操作マニュアル

一般社団法人 日本環境感染学会 JHAIS委員会作成

Ver.1.0 2016年9月30日

下記のURLにアクセスしてください

<http://www.cdc.gov/nhsn/vae-calculator/index.html>

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Ventilator-Associated Event Calculator (Version 4.0)



Welcome to Version 4.0 of the VAE Calculator. Version 4.0 operates based upon the currently posted VAE protocol. The Calculator is a web-based tool that is designed to help you learn how the VAE surveillance definition algorithm works and assist you in making VAE determinations. Please note that the VAE Calculator does not store any data that you enter or any VAE determinations to the NHSN. You will receive no notifications or suggestions about the Calculator, please feel free to send them to the [NHSN mailbox](#).

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NHSN mailbox, nhsn@cdc.gov.

[Ventilator-Associated Event \(VAE\) Calculator v4.0](#) (must have javascript enabled)



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NHSN Ventilator-Associated Event (VAE) Calculator Ver. 4.0

Welcome to the Ventilator-Associated Event Calculator. Version 4.0 operates based upon the currently posted VAE protocol. It is strongly encouraged that you read and study the [VAE protocol](#).

- The calculator recognizes PEEP values ≤ 5 and corrects entries according to the VAE protocol prior to making a VAC determination.
- For periods of time where a patient is on APRV or a related type of mechanical ventilation for a full calendar day, a daily minimum PEEP value should not be entered into the calculator (i.e., do not enter zero)
- The calculator finds multiple VAEs per patient as long as they conform to the 14 day rule.

To get started, **enter a date below that corresponds to the first day the patient was placed on mechanical ventilation during the mechanical ventilation episode of interest.** You may type in a date or use the popup calendar when it appears. You may only enter dates within the past year. If the patient has been on mechanical ventilation for more than one year during the current mechanical ventilation episode, choose a start date that is more recent but is at least 7 days before the period of interest. [more...](#)

Mechanical Ventilation Start Date:  (mm/dd/yyyy)

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VAEのプロトコルやトレーニングツールなど、VAEに関するさまざまな資料が掲示されています。

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NHSN Ventilator-Associated Event (VAE) Calculator Ver. 4.0

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- The calculator finds multiple VAEs per patient as long as they conform to the 14 day rule.

To get started, **enter a date below that corresponds to the first day the patient was placed on mechanical ventilation during the mechanical ventilation episode of interest**. You may type in a date or use the popup calendar when it appears. You may only enter dates within the past year. If the patient has been on mechanical ventilation for more than one year during the current mechanical ventilation episode, choose a start date that is more recent but is at least 7 days before the period of interest [opens](#).

①ここをクリック

Mechanical Ventilation Start Date:  (mm/dd/yyyy)

②カレンダーが開くので、人工呼吸器装着日を選択

September 2016						
Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

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NHSN Ventilator-Associated Event (VAE) Calculator Ver. 4.0

Now enter PEEP and/or FiO_2 values and when done, click the "Calculate VAC" button. **You do not need to enter data for every day.** Concentrate on the dates where you believe a Ventilator-Associated Event may be likely. If your values meet the Ventilator-Associated Condition (VAC) definition, the event day will be identified and the VAE Window will be defined.

画面が切り替わり、人工呼吸器装着日を起点日とする強制換気日 (MV Day) リストが表示されます。

① 各日のPEEP最低値を入力

② 各日の FiO_2 最低値を入力

MV Day	Date	Min. PEEP (cmH ₂ O)	Min. FiO_2 (20 - 100)	VAE
1	9/5/2016	<input type="text"/>	<input type="text"/>	
2	9/6/2016	<input type="text"/>	<input type="text"/>	
3	9/7/2016	<input type="text"/>	<input type="text"/>	
4	9/8/2016	<input type="text"/>	<input type="text"/>	
5	9/9/2016	<input type="text"/>	<input type="text"/>	
6	9/10/2016	<input type="text"/>	<input type="text"/>	
7	9/11/2016	<input type="text"/>	<input type="text"/>	
8	9/12/2016	<input type="text"/>	<input type="text"/>	
9	9/13/2016	<input type="text"/>	<input type="text"/>	
10	9/14/2016	<input type="text"/>	<input type="text"/>	
11	9/15/2016	<input type="text"/>	<input type="text"/>	
12	9/16/2016	<input type="text"/>	<input type="text"/>	

Ventilator-Associated Event (VAE) Calculator Ver. 4.0

VAE Ventilator-Associated Condition (VAC) based on PEEP values occurred on 9/8/2016

Click on the [Go To IVAC button](#) to move to the next part of the protocol or click on the "Explain" button to see h

PEEP最低値とFiO2最低値
を入力したら
このボタンをクリック

“Explain”ボタンを押すと
どのようにVACが判断された
のか説明が表示される

Calculate VAC Start Over

MV Day	Date	Min. PEEP (cmH ₂ O)	Min. FiO ₂ (20 - 100)	VAE
1	9/5/2016	10	60	
2	9/6/2016	5	40	
3	9/7/2016	5	40	
4	9/8/2016	8	60	
5	9/9/2016	8	50	
6	9/10/2016	7	40	
7	9/11/2016	5	40	
8	9/12/2016	5	40	
9	9/13/2016			
10	9/14/2016			
11	9/15/2016			
12	9/16/2016			



画面が切り替わります

Calculate VAC Start Over Go to IVAC Explain...

MV Day	Date	Min. PEEP (cmH ₂ O)	Min. FiO ₂ (20 - 100)	VAE
1	9/5/2016	10	60	
2	9/6/2016	5	40	
† 3	9/7/2016	5	40	
† 4	9/8/2016	8	60	† VAC
† 5	9/9/2016	8	50	
† 6	9/10/2016	7	40	
7	9/11/2016	5	40	
8	9/12/2016	5	40	
9	9/13/2016			
10	9/14/2016			
11	9/15/2016			
12	9/16/2016			

ウィンドウ期間が
オレンジ色に
“VAC”に該当する
イベントがあれば
黄色く表示される

さらにIVACの判定に進む場合は
このボタンをクリック

Intelligent Ventilator-Associated Event (VAE) Calculator Ver. 4.0

When a VAC determination has been made, enter yes (check) or no (leave box unchecked) if the patient has had a temperature > 38° C or < 36° C or a WBC ≥ 12,000 cells/mm³ or ≤ 4,000 cells/mm³ within the VAE Window Period. Choose a drug from the drop down list and **check all the corresponding days shown on the screen** that the agent was administered. If more than one drug was given over the course of treatment, click on the "Add..." button in the drug column header and do the same. Once all data have been entered, **click the "Calculate IVAC" button.**

Calculate VAC Start Over Go to IVAC Explain...

MV Day	Date	Min. PEEP (cmH ₂ O)	Min. FiO ₂ (20 - 100)	VAE
1	9/5/2016	10	60	
2	9/6/2016	5	40	
† 3	9/7/2016	5	40	
† 4	9/8/2016	8	60	‡ VAC
† 5	9/9/2016	8	50	
† 6	9/10/2016	7	40	
7	9/11/2016	5	40	
8	9/12/2016	5	40	
9	9/13/2016			
10	9/14/2016			
11	9/15/2016			
12	9/16/2016			



画面が切り替わります

Start Over Calculate IVAC Explain...

MV Day	Date	Hide... Min. PEEP (cmH ₂ O)	Hide... Min. FiO ₂ (20 - 100)	VAE	T < 36° or T > 38°	WBC ≤ 4,000 or WBC ≥ 12,000 cells/mm ³	Choose a Drug:	QAD
1	9/5/2016	10	60					
2	9/6/2016	5	40					
† 3	9/7/2016	5	40		<input type="checkbox"/>	<input type="checkbox"/>		
† 4	9/8/2016	8	60	‡ VAC	<input type="checkbox"/>	<input type="checkbox"/>		
† 5	9/9/2016	8	50		<input type="checkbox"/>	<input type="checkbox"/>		
† 6	9/10/2016	7	40		<input type="checkbox"/>	<input type="checkbox"/>		
7	9/11/2016	5	40					
8	9/12/2016	5	40					
9	9/13/2016							
10	9/14/2016							

Legend: † - VAE Window ‡ - VAE Date †† - Qualifying Antimicrobial Day (QAD)

“Explain”ボタンを押すと
どのようにVACが判断された
のか説明が表示される

Explain...

③リストに表示される期間中
に使用された抗菌薬を選択

①ウインドウ期間中に、36度
未満の低体温か38度を超え
る発熱が観察された日に
チェックを入れる

④上記で選択した抗菌薬について
投与した日にチェックを入れる

②ウインドウ期間中に、4000
以下もしくは12000以上の白
血球数の検体が採取された
日にチェックを入れる

MV Day	Date	Hide... PEEP	Min.	Hide... FiO ₂	Min.	VAE	T<36° or T>38°	WBC ≤ 4,000 or WBC ≥ 12,000 cells/mm ³	Choose a Drug:
1	9/5/								
2	9/6/2016	5		40					
† 3	9/7/2016	5		40		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
† 4	9/8/2016	8		60		‡ VAC <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	IMIPENEM/CILASTATIN
† 5	9/9/2016	8		50		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
† 6	9/10/2016					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
7	9/11/2016							<input checked="" type="checkbox"/>	
8	9/12/2016							<input checked="" type="checkbox"/>	
9	9/13/2016							<input checked="" type="checkbox"/>	
10	9/14/2016							<input type="checkbox"/>	

Legend: † - VAE Window ‡ - VAE Date †† - Qualifying Antimicrobial Day (QAD)

Start Over Calculate IVAC Explain...

MV Day	Date	Hide... Min. PEEP (cmH ₂ O)	Hide... Min. FiO ₂ (20 - 100)	VAE	T < 36° or WBC ≤ 4,000 or WBC ≥ 12,000 cells/mm ³	QAD
1	9/5/2016					
2	9/6/2016					
† 3	9/7/2016	5	40		<input checked="" type="checkbox"/>	
† 4	9/8/2016	8	60	± VAC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
† 5	9/9/2016	8	50		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
† 6	9/10/2016	7	40		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	9/11/2016	5	40			<input checked="" type="checkbox"/>
8	9/12/2016	5	40			<input checked="" type="checkbox"/>
9	9/13/2016					<input checked="" type="checkbox"/>
10	9/14/2016					<input type="checkbox"/>

Legend: † - VAE Window ± - VAE Date †† - Qualifying Antimicrobial Day (QAD)

必要事項の入力がすべて完了したら
このボタンをクリック

NHSN Ventilator-Associated Event (VAE) Calculator Ver. 4.0

An IVAC was found for this patient. Click on the "Calculate IVAC" button to go to the next part of the definition or click on the "Explain..." button for an explanation of how this determination was made.

Start Over Calculate IVAC Explain... Go to PVAP

MV Day	Date	Hide... Min. PEEP (cmH ₂ O)	Hide... Min. FiO ₂ (20 - 100)	VAE	T < 36° or T > 38°	WBC ≤ 4,000 or WBC ≥ 12,000 cells/mm ³	Choose a Drug: IMIPENEM/CILASTATIN	QAD
1	9/5/2016	10	60					
2	9/6/2016	5	40					
† 3	9/7/2016	5	40		<input checked="" type="checkbox"/>	<input type="checkbox"/>		
† 4	9/8/2016	8	60	± IVAC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		†† yes
† 5	9/9/2016	8	50		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		†† yes
† 6	9/10/2016	7	40		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		†† yes
7	9/11/2016	5	40			<input checked="" type="checkbox"/>		†† yes
8								†† yes
9								†† yes
10								

Legend: † - VAE Window ± - VAE Date †† - Qualifying Antimicrobial Day (QAD)

イベントが"IVAC"に該当していれば
表示が"IVAC"に切り替わる

NHSN Ventilator-Associated Event (VAE)

An IVAC was found for this patient. Click on the "Go To PVAP" button.

さらに"PVAP"の診断に進む場合は
このボタンをクリック

Start Over Calculate IVAC Explain... Go to PVAP

MV Day	Date	Hide...	Min.	Hide...	Min.	VAE	T<36° or T>38°	WBC ≤ 4,000 or WBC ≥ 12,000 cells/mm ³	Add... Remove... Choose a Drug: IMIPENEM/CILASTATIN	QAD
		PEEP (cmH ₂ O)		FiO ₂ (20 - 100)						
1	9/5/2016	10		60					<input type="checkbox"/>	
2	9/6/2016	5		40					<input type="checkbox"/>	
† 3	9/7/2016	5		40			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
† 4	9/8/2016	8		60		‡ IVAC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	†† yes
† 5	9/9/2016	8		50			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	†† yes
† 6	9/10/2016	7		40			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	†† yes
7	9/11/2016	5		40					<input checked="" type="checkbox"/>	†† yes
8	9/12/2016	5		40					<input checked="" type="checkbox"/>	†† yes
9	9/13/2016								<input checked="" type="checkbox"/>	†† yes
10	9/14/2016								<input type="checkbox"/>	

Legend: † - VAE Window ‡ - VAE Date †† - Qualifying Antimicrobial Day (QAD)

以下のようなウィンドウが開くので、該当する定義にチェックを入れて下部の”Calculate PVAP”ボタンをクリック

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NHSN Ventilator-Associated Event (VAE)

Now that an IVAC determination has been made, click the “Calculate PVAP” button.

MV Day	Date	Hide . . .	Min. PEEP (cmH ₂ O)
1	9/5/2016		10
2	9/6/2016		5
† 3	9/7/2016		5
† 4	9/8/2016		8
† 5	9/9/2016		8
† 6	9/10/2016		7
7	9/11/2016		5
8	9/12/2016		5
9	9/13/2016		
10	9/14/2016		

Legend

PVAP Determination

For the IVAC on **9/8/2016**, did the patient have documentation of any of the following findings during the VAE Window: **9/7/2016 to 9/10/2016**.

Question Yes

Criterion 1. Positive culture of one of the following (without requirement for purulent respiratory secretions):

- Endotracheal aspirate $\geq 10^5$ cfu/ml*
- Bronchoalveolar lavage $\geq 10^4$ cfu/ml*
- Lung tissue $\geq 10^4$ cfu/ml*
- Protected specimen brush $\geq 10^3$ cfu/ml*

*or corresponding semi-quantitative result

Criterion 2. Positive culture of one of the following (qualitative or quantitative/semi-quantitative culture without sufficient growth to meet Criterion 1).

- Sputum
- Endotracheal aspirate
- Bronchoalveolar lavage
- Lung tissue
- Protected specimen brush

AND

Evidence of purulent respiratory secretions (defined as secretions from lungs, bronchi or trachea that contain ≥ 25 neutrophils and ≤ 10 squamous epithelial cells).

Criterion 3. One of the following positive tests (as outlined in the protocol):

- Pleural fluid culture
- Lung histopathology
- Diagnostic test for *Legionella* species
- Diagnostic test for influenza virus, respiratory syncytial virus, adenovirus, parainfluenza virus, rhinovirus, human metapneumovirus or coronavirus.

Calculate PVAP

the VAE Window (shaded area). Then click on the “C

①該当する項目に
チェックを入れる

Add . . . QAD
Remove . . .
Choose a Drug:
PENEM/ CILASTATIN

† yes
† yes
† yes
† yes
† yes

(QAD)

以下のようなウィンドウが開くので、該当する定義にチェックを入れて下部の”Calculate PVAP”ボタンをクリック

NHSN Ventilator-Associated Event (VAE) the VAE Window: **9/7/2016 to 9/10/2016.**

Now that an IVAC determination has been made, click the “Calculate PVAP” button.

the VAE Window (shaded area). Then click on the “Calculate PVAP” button.

MV Day	Date	Hide... Min. PEEP (cmH ₂ O)	Question	Yes	QAD
1	9/5/2016	10	Criterion 1. Positive culture of one of the following (without requirement for purulent respiratory secretions):	<input checked="" type="checkbox"/>	
2	9/6/2016	5	<ul style="list-style-type: none"> • Endotracheal aspirate $\geq 10^5$ cfu/ml* • Bronchoalveolar lavage $\geq 10^4$ cfu/ml* • Lung tissue $\geq 10^4$ cfu/ml* • Protected specimen brush $\geq 10^3$ cfu/ml* 	<input checked="" type="checkbox"/>	
† 3	9/7/2016	5	*or corresponding semi-quantitative result	<input type="checkbox"/>	
† 4	9/8/2016	8	Criterion 2. Positive culture of one of the following (qualitative or quantitative/semi-quantitative culture without sufficient growth to meet Criterion 1).	<input type="checkbox"/>	† yes
† 5	9/9/2016	8	<ul style="list-style-type: none"> • Sputum • Endotracheal aspirate • Bronchoalveolar lavage • Lung tissue • Protected specimen brush 	<input type="checkbox"/>	† yes
† 6	9/10/2016	7	AND Evidence of purulent respiratory secretions (defined as secretions from lungs, bronchi or trachea that contain ≥ 25 neutrophils and ≤ 10 squamous epithelial cells).	<input type="checkbox"/>	† yes

Choose a Drug: PENEM/CILASTATIN

Calculate PVAP

上記の定義を確認し、該当箇所にチェックを入れたらこのボタンをクリック

NHSN Ventilator-Associated Event (VAE) Calculator Ver. 4.0

The event on 9/8/2016 conforms to a Possible Ventilator-Associated Pneumonia (PVAP) definition. For a discussion of why, click on the Explain button.

Start Over Explain... Go to PVAP

MV Day	Date	Hide... PEEP (cmH ₂ O)	Min.	Hide... FiO ₂ (20 - 100)	Min.	VAE	T<36° or T>38°	WBC ≤ 4,000 or WBC ≥ 12,000 cells/mm ³	Choose a Drug: IMIPENEM/CILASTATIN	QAD
1	9/5/2016	10		60					<input type="checkbox"/>	
2	9/6/2016	5		40					<input type="checkbox"/>	
† 3	9/7/2016	5		40			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
† 4	9/8/2016	8		60		‡ PVAP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	†† yes
† 5	9/9/2016	8		50			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	†† yes
† 6	9/10/2016	7		40			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	†† yes
7	9/11/2016	5							<input type="checkbox"/>	†† yes
8	9/12/2016	5							<input type="checkbox"/>	†† yes
9	9/13/2016								<input checked="" type="checkbox"/>	†† yes
10	9/14/2016								<input type="checkbox"/>	

イベントが"PVAC"に該当していれば
表示が"IVAC"から"PVAC"に切り替わる

Legend: † - VAE Window ‡ - VAE Date †† - Qualifying Antimicrobial Day (QAD)

Print Close