PATIENT SAFETY COMPONENT

DIFFERENCES BETWEEN TOTAL VAE AND IVAC+ EVENTS FOR ANALYSIS

NHSN METHODS AND ANALYTICS TEAM

MAY 2021

LEARNING OBJECTIVES

We will define and demonstrate the differences between **Total Ventilator Associated Events (Total VAE)** and **Infection-related Ventilator- Associated Complication (IVAC+)** events. By the end of this lesson, you will be able to:

- Distinguish **Total VAE** from **IVAC+** events
- Navigate the NHSN application to run and analyze reports for **Total VAE** and **IVAC+** events
- Interpret **Total VAE** from **IVAC+** events Line Lists and SIR reports

IDENTIFICATION OF TOTAL VAE AND IVAC+ EVENTS

- The VAE algorithm is progressive in terms of criteria to be met, where in Ventilator-Associated Condition **(VAC)** criteria must be met before an event can meet Infection-related Ventilator-Associated complication **(IVAC)** and **IVAC** criteria must be met before identifying a Possible Ventilator-Associated Pneumonia (**PVAP)** event.

- **"Total VAE"** includes events identified as **VAC, IVAC** and **PVAP**

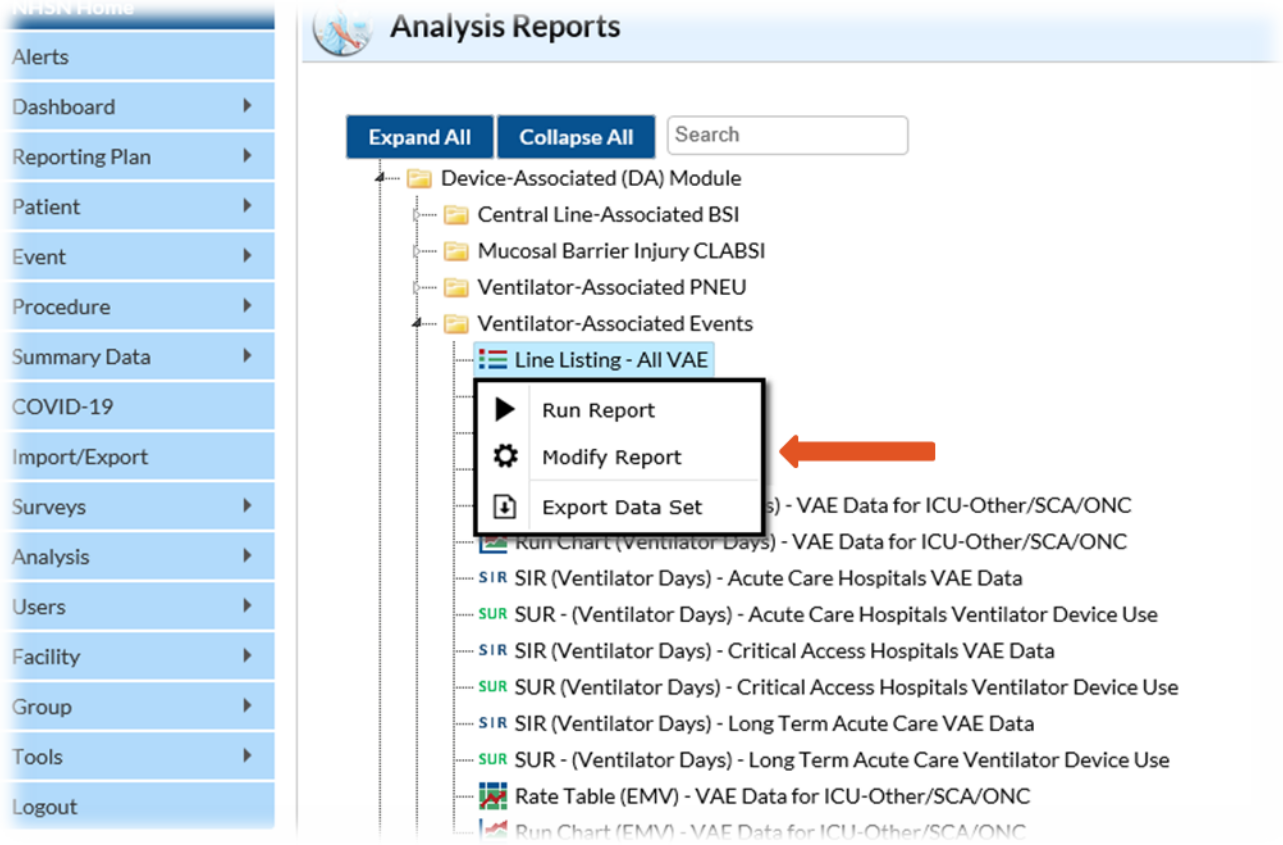
- **"IVAC Plus"** includes events identified as **IVAC and PVAP**

MEASURES FOR TOTAL VAE AND IVAC+ EVENTS

- **Total VAE** Rates or SIR (representing all events that met at least the VAC definition) would be suitable for,
  - Benchmarking, inter-facility comparisons, pay-for-performance, public reporting.

- **IVAC+** Rates or SIR (representing all events that met at least the IVAC definition) would be suitable for,
  - Intra-facility comparisons, internal use.

LINE LISTING – ALL VAE, AN ANALYSIS REPORT IN THE NHSN APPLICATION



LINE LIST OF TOTAL VAE EVENTS

National Healthcare Safety Network

Line Listing for All Ventilator-Associated Events

As of: January 29, 2021 at 9:13 PM

Date Range: VA_EVENTS evntDateYQ After and Including 2018Q1

orgID	patID	dob	gender	admitDate	eventID	eventDate	eventType	spcEvent	location
10018	1098777	02/13/2012	M	04/29/2019	89453	05/06/2019	VAE	IVAC	5G
10018	123	01/01/1980	F	02/01/2018	68385	02/05/2018	VAE	PVAP	5G
10018	1234	10/01/1992	F	02/01/2018	68383	02/04/2018	VAE	PVAP	5G
10018	1CG	02/01/1960	F	02/01/2018	68947	02/05/2018	VAE	PVAP	5G
10018	101	05/14/1991	M	10/01/2020	99089	10/04/2020	VAE	PVAP	ICU
10018	2	01/01/1987	F	01/12/2020	99067	10/11/2020	VAE	PVAP	ICU
10018	654321	10/01/1992	M	07/15/2018	77743	07/20/2018	VAE	VAC	ICU-A
10018	1006_563	06/09/1969	M	09/20/2019	88672	09/26/2019	VAE	VAC	MCC

Total VAE Infection Count: 8

LINE LIST OF IVAC+ EVENTS

National Healthcare Safety Network

Line Listing for All Ventilator-Associated Events

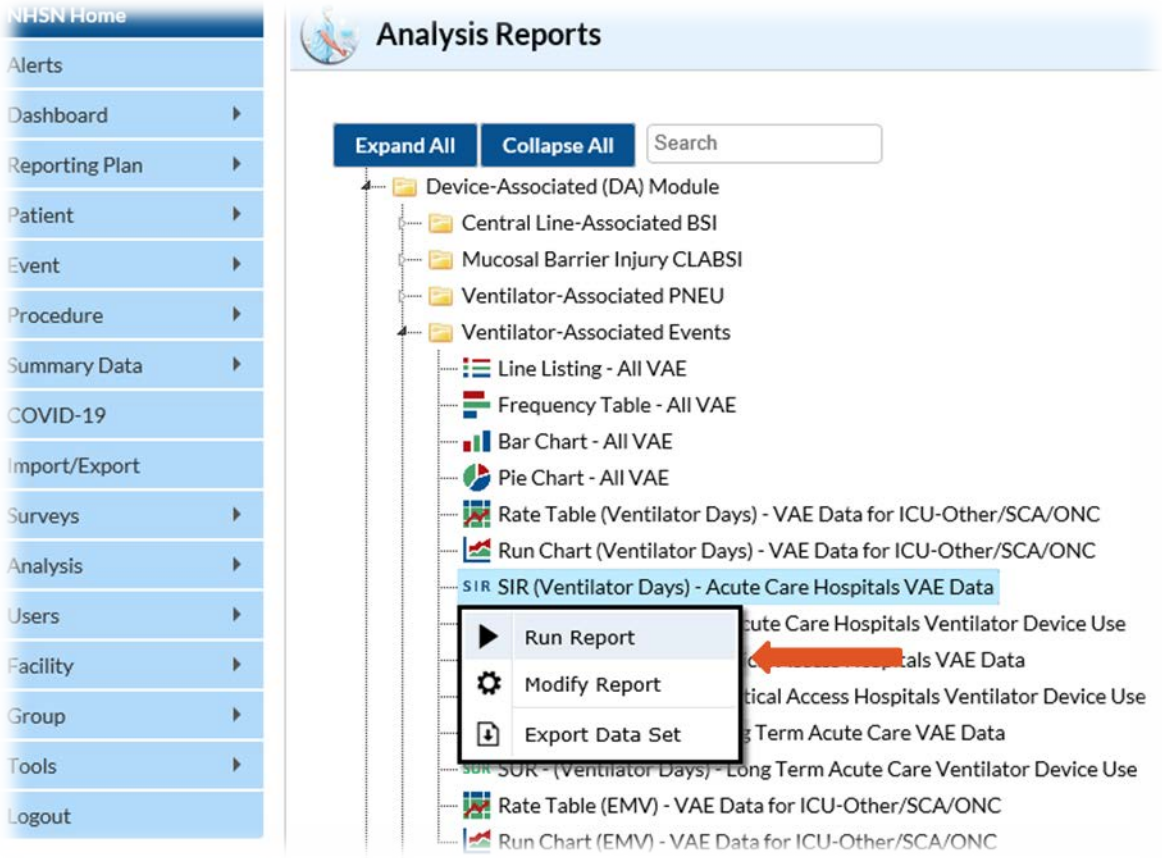
As of: January 29, 2021 at 9:13 PM

Date Range: VA_EVENTS evntDateYQ After and Including 2018Q1

orgID	patID	dob	gender	admitDate	eventID	eventDate	eventType	spcEvent	location
10018	1098777	02/13/2012	M	04/29/2019	89453	05/06/2019	VAE	IVAC	5G
10018	123	01/01/1980	F	02/01/2018	68385	02/05/2018	VAE	PVAP	5G
10018	1234	10/01/1992	F	02/01/2018	68383	02/04/2018	VAE	PVAP	5G
10018	1CG	02/01/1960	F	02/01/2018	68947	02/05/2018	VAE	PVAP	5G
10018	101	05/14/1991	M	10/01/2020	99089	10/04/2020	VAE	PVAP	ICU
10018	2	01/01/1987	F	01/12/2020	99067	10/11/2020	VAE	PVAP	ICU
10018	654321	10/01/1992	M	07/15/2018	77743	07/20/2018	VAE	VAC	ICU-A
10018	1006_563	06/09/1969	M	09/20/2019	88672	09/26/2019	VAE	VAC	MCC

IVAC+ Infection Count: 6

ANALYSIS REPORTS FOR VAE IN THE NHSN APPLICATION



TOTAL VAE AND IVAC+ SIR TABLES IN ANALYSIS REPORTS FOR ACUTE CARE HOSPITALS

There are **4 types of SIR tables** each for **Total VAE** and **IVAC+ events separated by MedType** in NHSN analysis reports.

1. By OrgID
2. By OrgID/LocationType
3. By OrgID/CDC Location Code
4. By OrgID/Location

TOTAL VAE AND IVAC+ SIR TABLES IN ANALYSIS REPORTS FOR ACUTE CARE HOSPITALS

MedType describes the Medical School Affiliation Status of an NHSN Teaching Facility. **MedTypes** can be one of the following,

1. **Major:** Facility that trains medical students, nursing students and/or post-graduate students
2. **Graduate:** Facility that trains only post-graduate medical residents/fellows
3. **Undergraduate:** Facility that trains current (undergraduate) medical students and/or nursing students

TOTAL VAE SIR AND IVAC+ SIR TABLES BY ORGID FOR MEDTYPE = G

National Healthcare Safety Network

SIR for Ventilator-Associated Event Data for Acute Care Hospitals (2015 Baseline) - By OrgID

As of: February 2, 2021 at 3:21 PM

Date Range: All BS2_VAE_RATESICU_SCA

vaeCategory=Total VAE orgid=10018 medType=G

orgid	ccn	summaryYH	infCount	numPred	numventdays	SIR	SIR_pval	SIR95CI	SIR_pctl	vaeCategory
10018	12345	2017H1	2	2.920	363	0.685	0.6529	0.115, 2.263	45	Total VAE
10018	12345	2017H2	3	0.039	5	.	.		.	Total VAE
10018	66666	2019H1	1	0.179	46	.	.		.	Total VAE
10018	66666	2019H2	1	0.525	117	.	.		.	Total VAE
10018	66666	2020H1	0	0.071	25	.	.		.	Total VAE
10018	66666	2020H2	0	0.021	7	.	.		.	Total VAE

National Healthcare Safety Network

SIR for Ventilator-Associated Event Data for Acute Care Hospitals (2015 Baseline) - By OrgID

As of: February 2, 2021 at 3:21 PM

Date Range: All BS2_VAE_RATESICU_SCA

vaeCategory=IVAC Plus orgid=10018 medType=G

orgid	ccn	summaryYH	infCount	numPred	numventdays	SIR	SIR_pval	SIR95CI	SIR_pctl	vaeCategory
10018	12345	2017H1	0	1.211	363	0.000	0.2978	, 2.473	20	IVAC Plus
10018	12345	2017H2	3	0.014	5	.	.		.	IVAC Plus
10018	66666	2019H1	1	0.077	46	.	.		.	IVAC Plus
10018	66666	2019H2	0	0.197	117	.	.		.	IVAC Plus
10018	66666	2020H1	0	0.042	25	.	.		.	IVAC Plus
10018	66666	2020H2	0	0.012	7	.	.		.	IVAC Plus

SUMMARY

1. To distinguish between **Total VAE** and **IVAC+** events

2. To navigate NHSN to analyze reports (examples: line lists, SIR tables) for **Total VAE** and **IVAC+** events

3. To interpret the analysis reports of **Total VAE** and **IVAC+** events

ADDITIONAL RESOURCES

- **SIR Guide**
  - https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf
- **Ventilator-Associated Event (VAE) and Pediatric VAE Analysis – March 2021 Training links**,
  - YouTube link 2021 NHSN Training: Ventilator-Associated Event (VAE) and Pediatric VAE Analysis – YouTube
  - Slide set link Ventilator-Associated Event (VAE) and PedVAE Analysis (cdc.gov)

FOR ANY QUESTIONS OR CONCERNS, PLEASE CONTACT THE NHSN HELPDESK AT NHSN@CDC.GOV

For more information please contact Centers for Disease Control and Prevention
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