

The European SARI Vaccine Effectiveness Network (Euro-SAVE): Enhancing existing SARI platforms to estimate Covid and influenza VE

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Outline

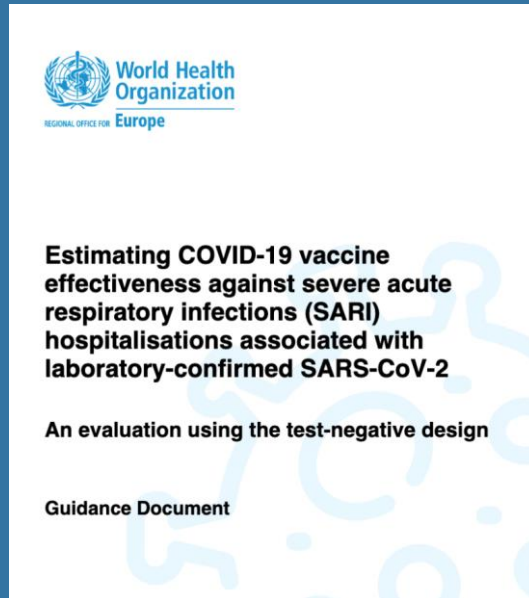
- Background
- Results
- Challenges
- Conclusions/Future directions

Background

- After the influenza A(H1N1)pdm09 pandemic in 2009, most WHO/Europe Member States established sentinel surveillance systems for severe acute respiratory infections (SARI) focused on influenza
- In these SARI systems, case-based data on all or a subset of patients is systematically collected

Background

- In early 2021 WHO/Europe published a guidance document intended to help member states enhance existing SARI surveillance systems so that they could be used to estimate COVID-19 and influenza VE
- Test-negative case-control design



Background – Euro-SAVE

- In early 2022, we supported the establishment of a network of countries that monitor COVID-19 and influenza VE through existing SARI networks – **Euro-SAVE** (The European SARI Vaccine Effectiveness Network)
 - WHO SARI case definition
 - collect core data on enrolled patients
 - testing for COVID-19 and influenza by RT-PCR
 - genomic sequencing for influenza and SARS-CoV-2 in-country or at regional COVID-19 reference laboratories
 - country-level VE analyses and network-wide pooled analysis

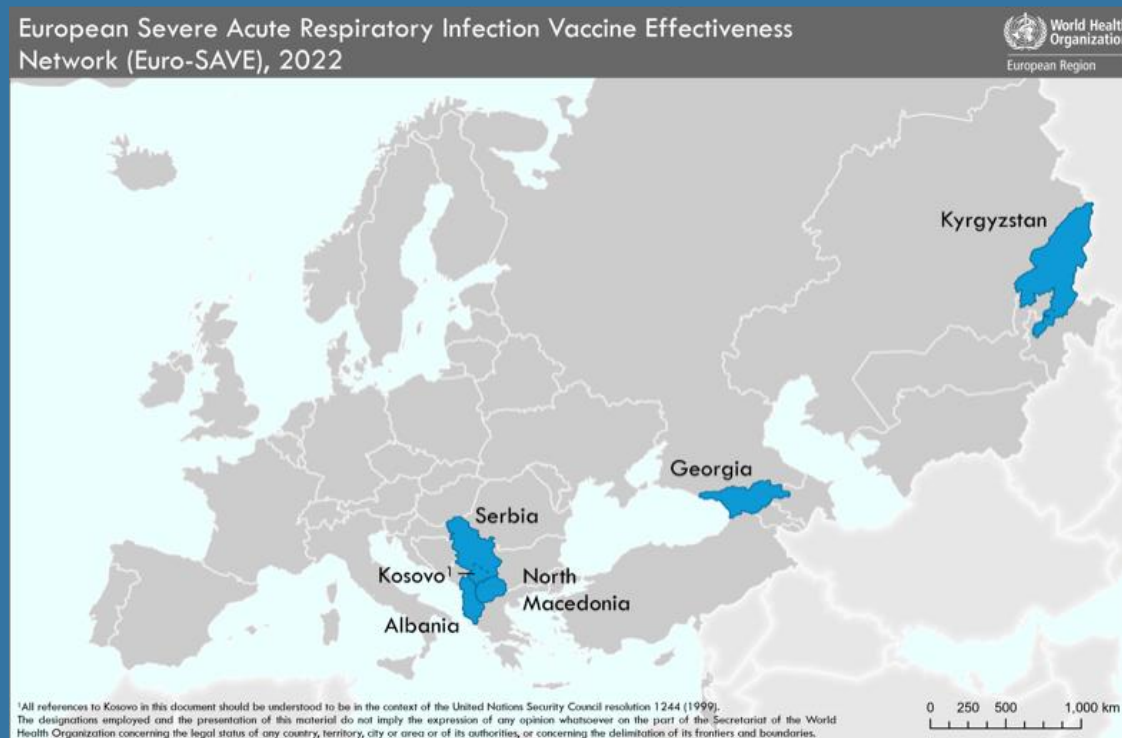
Objectives

- Primary objective: Estimate Covid-19 VE (CVE) and influenza VE (IVE) vs. laboratory-confirmed hospitalizations for SARI in groups targeted for vaccination
- Secondary objectives - Estimate CVE and IVE by:
 - Vaccine product
 - Age group, sex, risk group
 - Number of doses
 - Time since vaccination
 - Specific SARS-CoV-2 variants of concern and influenza clades
 - More severe outcomes (ICU admission, mortality)

Euro-SAVE – current situation

- To date, six countries and areas, including Albania, Georgia, Kyrgyzstan, North Macedonia and Serbia, as well as Kosovo*, participate in the network
- Patient recruitment for SARI VE component began in the first country in November 2021

*All references to Kosovo should be understood to be in the context of the United Nations Security Council resolution 1244 1999



Results (Sept. 2022)

Table. Demographic Characteristics and Vaccination Status of SARI patients, Euro-SAVE network, December 3, 2021-September 1, 2022 (N=884)

	Overall (N=884)		Cases (SARS-CoV-2-positive) (N=126)		Controls (SARS-CoV-2-negative) (N=758)	
	No.	%	No.	%	No.	%
Age groups						
20-59	380	43.0	44	34.9	336	44.3
60-79	392	44.3	65	51.6	327	43.1
80+	112	12.7	17	13.5	95	12.5
Sex						
Male	438	49.5	72	57.1	366	48.3
Female	446	50.5	54	42.9	392	51.7
Chronic conditions						
Yes	511	57.8	68	54.0	443	58.4
No	373	42.2	58	46.0	315	41.6
Any vaccination						
Yes	345	39.0	63	50.0	282	37.2
No	539	61.0	63	50.0	476	62.8
Number of vaccines						
Partial primary series	35	4.0	6	4.8	29	3.8
Complete primary series	257	29.1	50	39.7	207	27.3
Primary series + 1st booster	53	6.0	7	5.6	46	6.1
Primary series + 1st and 2nd booster	0	0.0	0	0.0	0	0.0
Vaccine product: first dose						
Comirnaty	149	43.3	33	52.4	116	41.3
Vaxzevria	19	5.5	13	20.6	6	2.1
Spikevax	1	0.3	0	0.0	1	0.4
Sputnik V	20	5.8	2	3.2	18	6.4
Janssen	2	0.6	0	0.0	2	0.7
Coronavac	22	6.4	1	1.6	21	7.5
Sinopharm BIBP	128	37.2	14	22.2	114	40.6
Other/unknown	3	0.9	0	0.0	3	1.1
Vaccine product: second dose						
Comirnaty	139	45.3	30	52.6	109	43.6
Vaxzevria	17	5.5	11	19.3	6	2.4
Spikevax	1	0.3	0	0.0	1	0.4
Sputnik V	18	5.9	2	3.5	16	6.4
Curevac	20	6.5	1	1.8	19	7.6
Sinopharm BIBP	111	36.2	13	22.8	98	39.2
Other/unknown	1	0.3	0	0.0	1	0.4
Vaccine product: first booster dose						
Comirnaty	37	68.5	6	85.7	31	66.0
Vaxzevria	1	1.9	0	0.0	1	2.1
Spikevax	1	1.9	0	0.0	1	2.1
Sputnik V	2	3.7	0	0.0	2	4.3
Curevac	1	1.9	0	0.0	1	2.1
Sinopharm BIBP	8	14.8	1	14.3	7	14.9
Other/unknown	4	7.4	0	0.0	4	8.5
Received influenza vaccine in 2021-2022 influenza season	32	3.6	4	3.2	28	3.7
Influenza-positive	30	3.4	2	1.6	28	3.7

Euro-SAVE – Challenges and Solutions

- Recruitment
 - Designated COVID-19 referral hospitals in some countries
 - Some are not part of original SARI surveillance system
 - All cases vs. all controls
 - Designated COVID-19 hospitals can change over time
 - operationally challenging to switch hospitals mid-study

Euro-SAVE – Challenges and Solutions

- Different data management systems
 - REDCap data management platform (3)
 - Kobo Toolbox (1)
 - Electronic Database Management System (1)
 - Internally developed national data management system (1)
 - different structures, variable names, coding
- Recode country dataset into common format for pooled analysis

Euro-SAVE – Challenges and Solutions

- Heterogeneity of sites: strength *and* limitation for pooled analysis
 - Different kinds of vaccines (7 vaccine products in use)
 - Variant circulation can differ
- Challenge attaining power and combining diverse data
 - With increased recruitment, VE vs. more outcomes possible

Euro-SAVE– conclusions/future directions

- Existing SARI sentinel surveillance systems in WHO/Europe region provide excellent foundation for VE studies vs. severe disease
- First analysis with data from all six sites anticipated October 2022
- Aim to generate monthly VE estimates
 - Covid-19
 - Influenza (?less frequent)
- Add countries to Euro-SAVE network
 - Improved capacity to evaluate VE against different outcomes

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