

Österreichische Gesellschaft für Anästhesiologie, Reanimation und Intensivmedizin

Austrian Society of Anaesthesiology, Resuscitation and Intensive Care Medicine

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Was Austria prepared for such a pandemic wave?

Yes! We were well prepared for the first wave in spring 2020, because of:

- the **relatively high amount of ICU beds** compared to other European countries, which has often been criticised before the COVID-19 pandemic
- the relatively high amount of anaesthesiology/intensive care medicine staff compared to other European countries, which has often been criticised before the COVID-19 pandemic
- the **relatively high amount of ventilator and other ICU equipment** compared to other European countries, which has often been criticised before the COVID-19 pandemic
- a **robust health care structure plan** (Österreichischer Strukturplan Gesundheit) which outlines mandatory targets to ensure a **high level of intensive care**

Austria's most challenging problems in the COVID-19 pandemic:

- low number of ICU beds: no
- low number of ventilators and other equipment: no
- shortage of anaesthesiologists-intensivists and nurses: a relative shortage of ICU nurses

During the first wave, the above-mentioned challenges, due to unbalanced ICU inflow/outflow, were only observed locally in a few COVID-19 hot spots. This was achieved by tackling the following challenges:

- fast decision-making regarding the timing of downgrade of routine (perioperative) health care (which was done simultaneous with a lockdown ordered by the national government)
- high compliance of the general population regarding preventive measures

Since COVID-19 **prevalence is again increasing in October 2020**, and compliance in the general population seems to be decreasing, it seems like we are/will be facing the most challenging problem at the moment or near future. Since it is again all about the right ICU **inflow/outflow balance** focus must again be put on creative actions to:

- reduce the inflow COVID-19 ICU patients: potential reduction planned operations, intensified preventive measures
- increase the outflow of COVID-19 ICU patients: acquisition of more ICU beds (in suburbs or an ad hoc "container ICU") during the ongoing 2nd wave.

Fact & Figures:

Inhabitants in Austria 2020: 8.9 millions (1)



ICU beds in Austria (2018): 28.9/100,000 inhabitants (2)

Note: at the moment, approx. 2 beds per 100,000 inhabitants are occupied for the treatment of COVID-19 positive patients.

Ventilator positions in Austria 2020: 32/100,000 inhabitants equals 2,799 ventilators (3)

However, these numbers need to be interpreted with caution, since they might be based on: - the number of <u>ICU</u> positions and, depending on the type of ICU, not every ICU position requires a ventilator)

- ventilators recruitable from other positions (e.g. operating theatre or post-anaesthesia care unit)

- solely the availability of equipment without considering the availability of trained personnel to handle them. (4)

Anaesthesiologists/intensivists per 100,000 inhabitants:

in 2019: 3,123 medical doctors board-certified for "anaesthesiology and intensive care medicine" resulting in 35 anaesthesiologist/intensivist per 100,000 inhabitants. (5, 6) However, these data do not include other specialists (e.g. internists, paediatricians, neurologist) subspecialized in / working in intensive care medicine.

ICU nurses per 100,000 inhabitants: no data readily available. Note: at the moment, ICUs in Austria require 50% of nursing staff with completed certification in intensive care. (7) At the moment (November 2020), the relative shortage of ICU nurses seems to be the bottle neck in regard to increasing Covid-19 intensive care capacities in Austria.

ICU bed patient/nurse ratio:

Depending on the level of the ICU the nurse/ICU bed patient ratio in Austria is defined as (7):

Type of unit	Nurse / ICU bed patient ratio
Monitoring unit	≥1.5
Level 1	≥2
Level 2	≥2.5
Level 3	≥3

How was the Austrian Society of Anaesthesiology, Reanimation and Intensive Care Medicine (ÖGARI) involved in dealing with the pandemic wave?

- Involvement in **data recruitment and analysis for national registries** to obtain a valid picture of the current state of the pandemic in Austria with focus on intensive care patients
- Influencing national and regional political decisions and patient/population safety measurements as well as planning for future (de-)escalation through establishment of task forces, publication of guidelines, and up-to-date opinion statements (also through the pre-established cooperation with the Austrian Society of Internal and General Intensive Care Medicine & Emergency Medicine): www.oegari.at/aktuelles.php
- Strong involvement in **local and national media** (newspapers, television, online). News were updated through the pre-established **society blog** (www.anaesthesie.news).
- **Real-world stories** with photos and video interviews were published via the society blog and social media (<u>https://www.facebook.com/anaesthesie.news</u>) → see below!

COVID-19 patients treated in ICU in Austria

Based on a recent analysis of a cohort of 715 patients from admitted from March until beginning of September (3). See translated data tables below.

Mortality: 28% in the whole cohort (5% in ≤50 years old, 40% in ≥65 years old) with a trend towards decreased mortality in pandemic phase III (starting from 16 April 2020) compared to pandemic phase I and II (until 15 April 2020) potentially reflecting improving treatment

Average ICU length of stay: 13.8 days (survivors: 14.7 days, non-survivors: 11.4 days)

Age distribution: 60% of the patients were ≥65 years old, 13.6% were ≤50 years old

ICU admission rates: 0.8% of persons tested positive for SARS-CoV-2 required ICU admission and treatment at the end of October (second wave). In contrast, up to 15 April (epidemic phases I and II), 2.4% of COVID-19 patients required ICU admission and treatment. Methods of treatment: supportive treatment based on symptoms (including prone positioning, (non)-invasive mechanical ventilation, extracorporeal life support) with focus on prevention of thromboembolic complications and treatment with corticosteroids

ICU cases stratified by age, gender and epidemic phase

		Epidemic phase I-II (until 15 April 2020)				Epidemic phase III (from 16 April 2020)				Epidemic phase I-III			
Age	Gender	Total	Survived	Died	%died	Total	Survived	Died	%died	Total	Survived	Died	%died
0–49	Female (F)	18	15	3	17%	14	13	1	7%	32	28	4	13%
50-64	F	36	34	2	6%	10	9	1	10%	46	43	3	7%
65+	F	115	69	46	40%	36	23	13	36%	151	92	59	39%
Total	F	169	118	51	30%	60	45	15	25%	229	163	66	29%
0-49	Male (M)	42	42	0	0%	21	20	1	5%	63	62	1	2%
50-64	М	113	96	17	15%	32	28	4	13%	145	124	21	14%
65+	М	230	134	96	42%	48	33	15	31%	278	167	111	40%
Total	M	385	272	113	29%	101	81	20	20%	486	353	133	27%
0–49	M+F	60	57	3	5%	35	33	2	6%	95	90	5	5%
50-64	M+F	149	130	19	13%	42	37	5	12%	191	167	24	13%
65+	M+F	345	203	142	41%	84	56	28	33%	429	259	170	40%
Total	M+F	554	390	164	30%	161	126	35	22%	715	516	199	28%

ICU length of sta	y (days) stratified b	y age,	gender	and e	pidemic	phase
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		Epidemic	phase I-II (until	15 April 2020)	Epidemi	c phase III (from	16 April 2020)	Epidemic phase I-III		
Age	Gender	Total	Survived	Died	Total	Survived	Died	Total	Survived	Died
0–49	Female (F)	11,2	12,1	6,7	4,4	4,2	7,0	8,2	8,4	6,8
50-64	F	18,1	17,3	31,5	8,3	6,7	23,0	16,0	15,1	28,7
65+	F	12,1	14,3	8,8	9,1	8,1	10,9	11,4	12,7	9,2
Total	F	13,3	14,9	9,5	7,9	6,7	11,5	11,8	12,6	10,0
0–49	Male (M)	11,8	11,8	-	7,4	7,4	8,0	10,3	10,4	8,0
50-64	М	18,2	18,7	15,8	11,3	10,3	19,0	16,7	16,8	16,4
65+	М	15,6	18,8	11,3	9,4	8,4	11,6	14,6	16,7	11,3
Total	М	16,0	17,7	11,9	9,6	8,8	12,9	14,7	15,6	12,1
0–49	M+F	11,6	11,9	6,7	6,2	6,1	7,5	9,6	9,8	7,0
50-64	M+F	18,2	18,3	17,4	10,6	9,4	19,8	16,5	16,3	17,9
65+	M+F	14,5	17,3	10,4	9,3	8,3	11,3	13,4	15,3	10,6
Total	M+F	15.2	16.8	11.2	9.0	8.0	12.3	13.8	14.7	11.4



Number of Covid-19 positive patients treated on ICUs in Austria over time (8) Update: 9 November 2020

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Society profile The ÖGARI (Austrian Society for Anaesthesiology, Resuscitation and Intensive Care Medicine) is the national society to promote anaesthesiology, foster science and optimize patient care in this field. The name "ÖGARI" and the associated logo are trademarks of the society. ÖGARI covers the entire field of expertise in anaesthesiology with the following 5 pillars: clinical anaesthesiology, intensive care, emergency medicine, pain medicine and palliative medicine.











Impressions from the first wave of COVID-19 in March and April

Prédéric Tomböl





Impressions from the first wave of COVID-19 in March and April





Anaesthesie.News Über Aktuelles Menschen Rund um den Beruf Junge Anästhesie Für Sie gelesen Veranstaltungen

⊘ Schlagwort: COVID-19



19. September 2020 ÖGARI zur aktuellen Pandemie-Situation: Ernst der Lage nicht unterschätzen – Intensivkapazitäten "keineswegs im sicheren Hafen"



ÖGARI Redaktionsteam – 31. August 2020 DFP-Webinar am 9. September: "Things we learned about COVID-19"



Prim. Univ. Prof. Dr. Walter Hasibeder – 5. Juni 2020 COVID–19: Literatur–Update



ÖGARI Redaktionsteam – 30. Mai 2020 Mutationsdynamik von SARS-CoV-2 in Österreich beschrieben



ÖGARI Redaktionsteam – 23. Mai 2020

Obduktionen: COVID-19 verursacht Thrombosen im Lungenkreislauf und schädigt auch andere Organe



Prim. Univ. Prof. Dr. Walter Hasibeder – 16. Mai 2020 COVID–19: Literatur–Update



Prim. Univ. Prof. Dr. Walter Hasibeder – 3. Mai 2020 COVID–19–Update: Aktuelle Literatur



ÖGARI Redaktionsteam – 2. Mai 2020 MedUni Wien testet Wirkstoff zur Behandlung von COVID-19



Prim. Univ. Prof. Dr. Walter Hasibeder – 23. April 2020 COVID-19-Update: Neue Publikationen







Impressions from the OEGARI blog anaesthesie.news using the keyword "COVID-19".

References

1. Bevölkerung: Statistik Austria; 2020 [Available from:

https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/bevoelkerung/index. html.

2. Intensive care beds capacity: Organisation for Economic Co-operation and Development; 2020 [Available from: https://www.oecd.org/coronavirus/en/datainsights/intensive-care-beds-capacity.

Bachner F, Rainer, L., Zuba M. Fact sheet - Intensivpflege und Covid. 2020. 3.

Infanger L. Österreich und das Datendilemma [User report]. Der Standard2020 4. [updated 03.04.2020. Available from:

https://www.derstandard.at/story/2000116490922/oesterreich-und-das-datendilemma.

5. Ärztekammer Ö. Ärztestatistik für Österreich. Österreichische Ärztekammer; 2019.

6. Berufsausübende Fachärzte und Fachärztinnen 2019 nach Fachrichtungen und Bundesländern: Statistik Austria; 2020 [Available from:

http://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/gesundheit/gesundhei tsversorgung/personal im gesundheitswesen/022352.html.

LKF-Modell 2020 für den stationären Bereich. Wien: Bundesministerium für Soziales, 7. Gesundheit, Pflege und Konsumentenschutz; 2020.

AGES Dashboard COVID19: AGES - Österreichische Agentur für Gesundheit und 8. Ernährungssicherheit; 2020 [Available from: https://covid19-

dashboard.ages.at/dashboard Hosp.html.