

COVID19

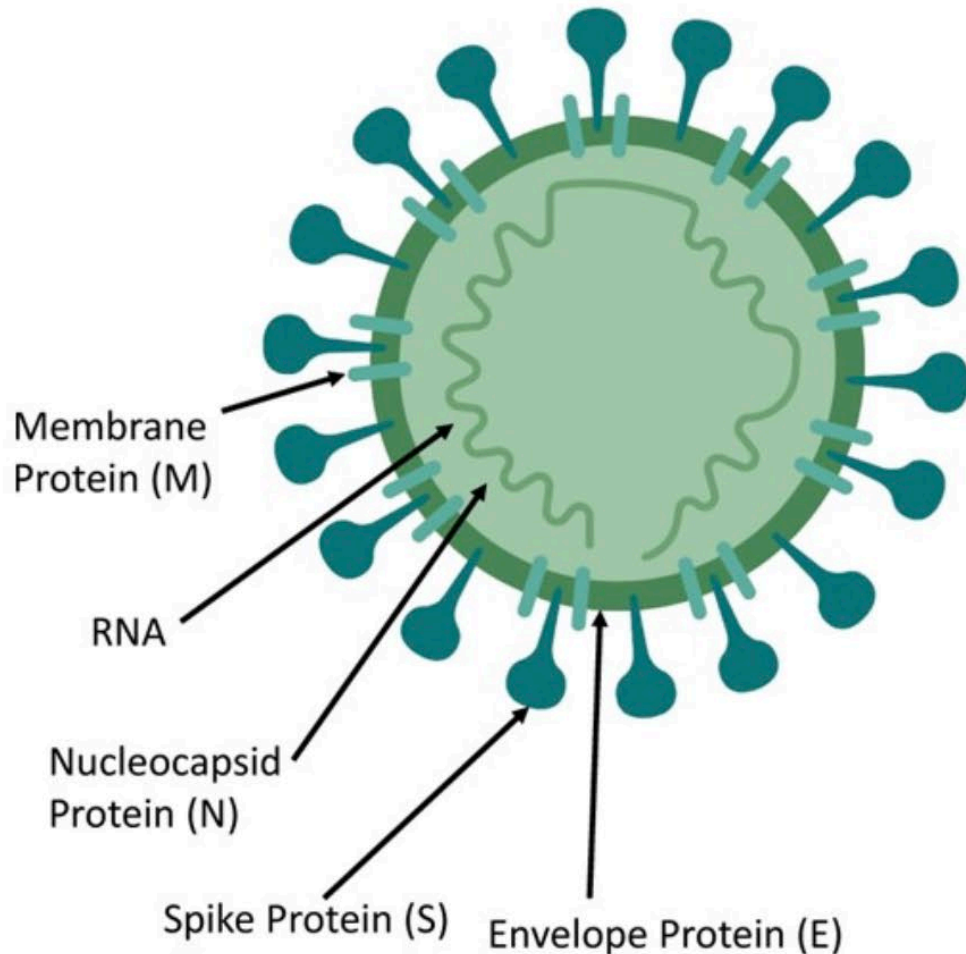
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Universität zu Köln



Disclosure

- Research support: Roche, Gilead, Mundipharma, Janssen, Celgene, Pharmacyclics, Abbvie
- Honoraria (speaker's bureau and/or advisory board): Roche, Gilead, Mundipharma, Janssen, Celgene, Pharmacyclics, Abbvie

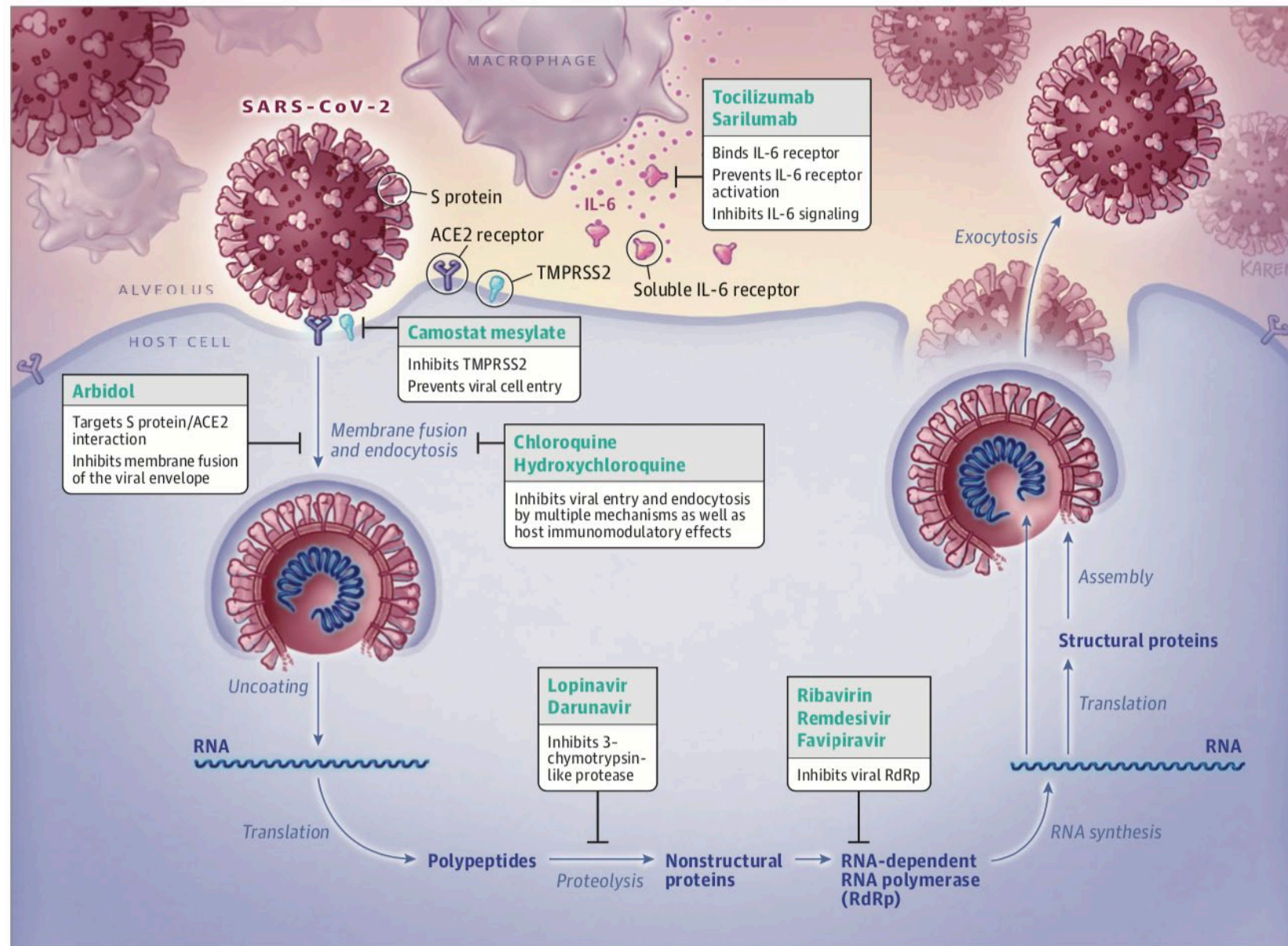
Coronavirus



Structural Protein	Functional Protein
Nucleocapsid Protein (N)	<ul style="list-style-type: none">Bound to RNA genome to make up nucleocapsid
Spike Protein (S)	<ul style="list-style-type: none">Critical for binding of host cell receptors to facilitate entry of host cell
Envelope Protein (E)	<ul style="list-style-type: none">Interacts with M to form viral envelop
Membrane Protein (M)	<ul style="list-style-type: none">Central organizer of CoV assemblyDetermines shape of viral envelop

NOTE: Some CoV's do not need to have the full ensemble of structural proteins to make virions, highlighting that certain proteins may be dispensable or compensated by the function of non-structural proteins.

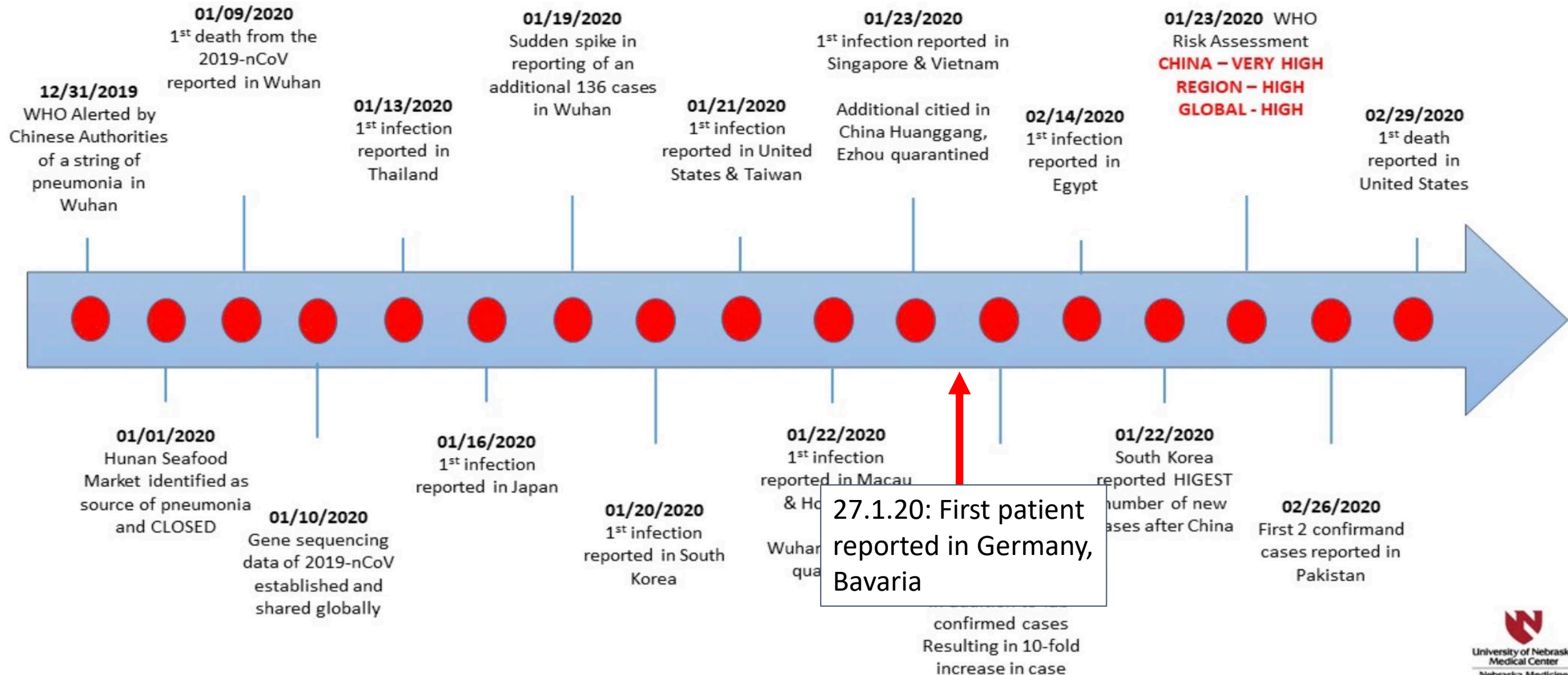
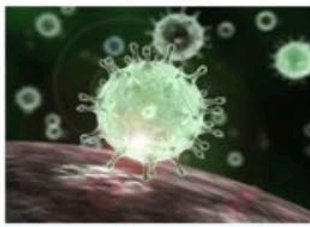
Figure. Simplified Representation of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Viral Lifecycle and Potential Drug Targets



Schematic represents virus-induced host immune system response and viral processing within target cells. Proposed targets of select repurposed and investigational products are noted. ACE2, angiotensin-converting enzyme 2; S protein, spike protein; and TMPRSS2, type 2 transmembrane serine protease.

Sanders et al., JAMA online April 13, 2020

COVID-19 Outbreak: Key Events



27.1.20: First patient reported in Germany, Bavaria

confirmed cases Resulting in 10-fold increase in case

Coronavirus-Fälle weltweit

STAND: 25.04.2020, 19 Uhr

2.822.430

bestätigt

809.923*

wieder gesund

199.874

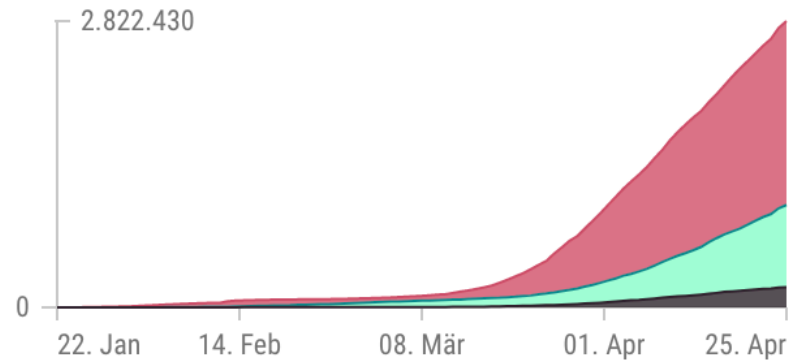
Todesfälle

*inkl. offizielle Schätzungen

Gesamt-Fallzahlen



Neuinfektionen



Region

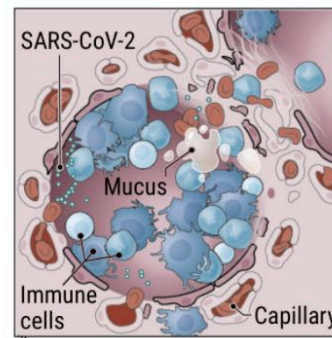
USA	917.398	99.154	52.004	
Spanien	223.759	95.708	22.902	
Italien	195.351	63.120	26.384	
Deutschland	155.418	109.800	5.805	
Großbritannien	148.377	-	20.319	
Frankreich	122.577	43.493	22.245	
Türkei	107.773	25.582	2.706	
Iran	89.328	68.193	5.650	

<https://interaktiv.morgenpost.de/corona-virus-karte-infektionen-deutschland-weltweit/>

How does coronavirus kill? Clinicians trace a ferocious rampage through the body, from brain to toes

By Meredith Wadman, Jennifer Couzin-Frankel, Jocelyn Kaiser, Catherine Maticic | Apr. 17, 2020, 6:45 PM

Science's COVID-19 reporting is supported by the Pulitzer Center.



1 Lungs

A cross section shows immune cells crowding an inflamed alveolus, whose walls break down during attack by the virus, diminishing oxygen uptake. Patients cough, fevers rise, and it takes more and more effort to breathe.

2 Liver

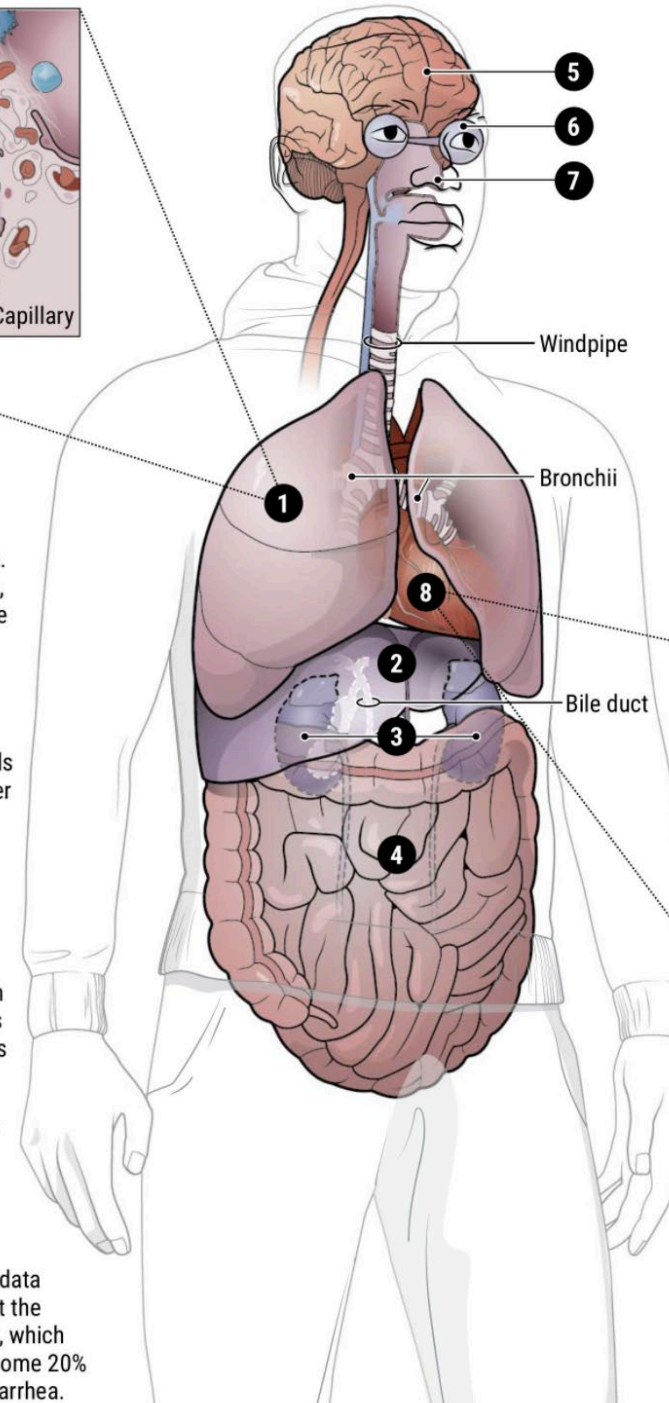
Up to half of hospitalized patients have enzyme levels that signal a struggling liver. An immune system in overdrive and drugs given to fight the virus may be causing the damage.

3 Kidneys

Kidney damage is common in severe cases and makes death more likely. The virus may attack the kidneys directly, or kidney failure may be part of whole-body events like plummeting blood pressure.

4 Intestines

Patient reports and biopsy data suggest the virus can infect the lower gastrointestinal tract, which is rich in ACE2 receptors. Some 20% or more of patients have diarrhea.



5 Brain

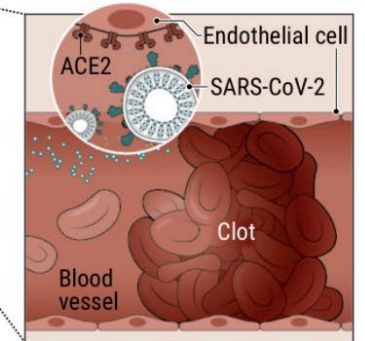
Some COVID-19 patients have strokes, seizures, mental confusion, and brain inflammation. Doctors are trying to understand which are directly caused by the virus.

6 Eyes

Conjunctivitis, inflammation of the membrane that lines the front of the eye and inner eyelid, is more common in the sickest patients.

7 Nose

Some patients lose their sense of smell. Scientists speculate that the virus may move up the nose's nerve endings and damage cells.

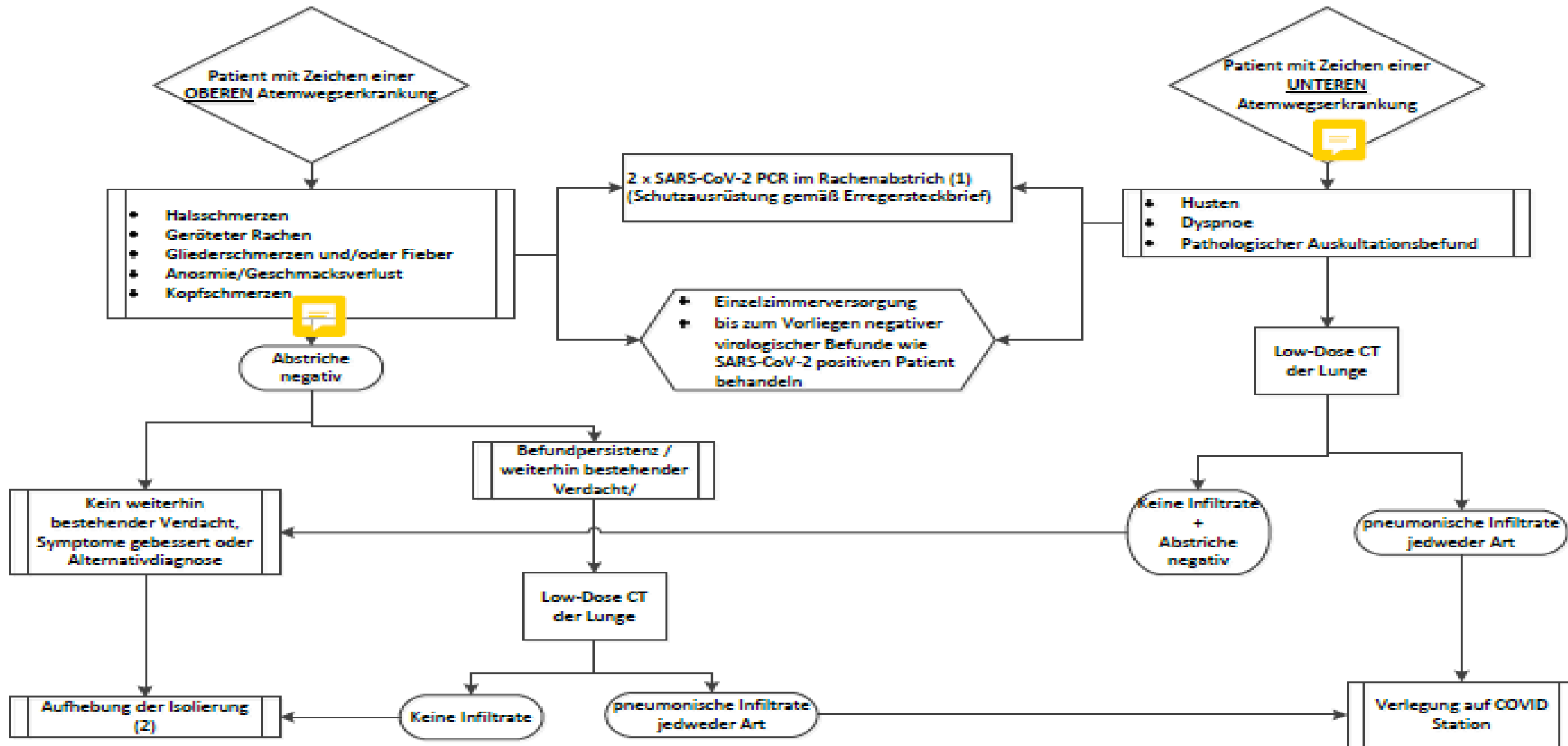


8 Heart and blood vessels

The virus (green) enters cells, likely including those lining blood vessels, by binding to ACE2 receptors on the cell surface. Infection can also promote blood clots, heart attacks, and cardiac inflammation.

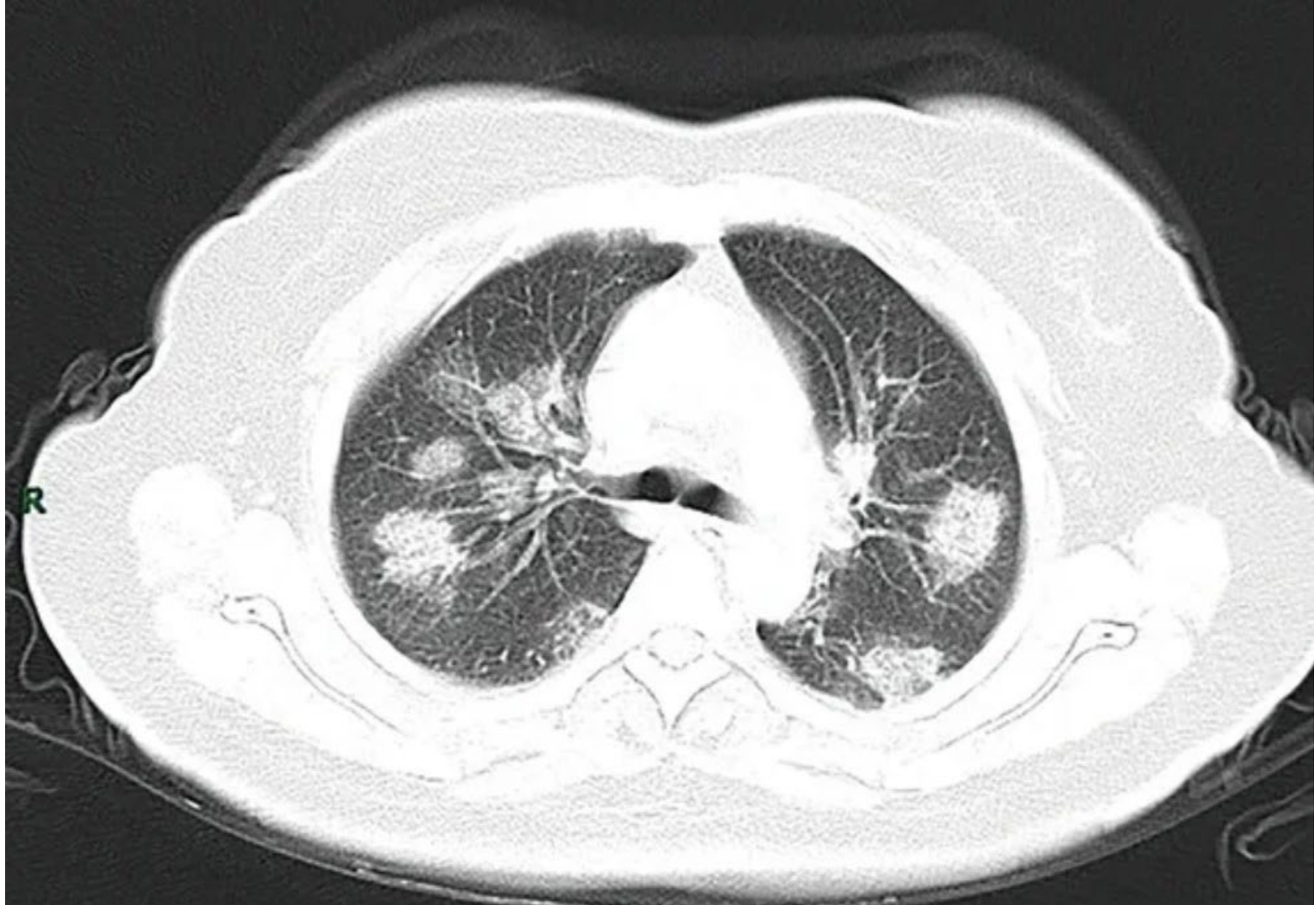
Ausschlussdiagnostik COVID-19 / Abklärung Verdachtsfälle (stationäre Patienten)

(J. Rybníček, N. Jung, H. Grill, J. Zweigler, A. Meißner – 09.04.2020)



(1) Auf die korrekte Durchführung des Rachenabstrichs ist zu achten. Bogenförmiges Abstreichen im HINTEREN Halsbereich. Die 2 separaten Abstriche können innerhalb von 24h abgenommen werden. Bei dem 1. der beiden Abstriche sollte das komplette respiratorische Panel (inkl. SARS-CoV-2) untersucht werden

(2) Sofern keine anderen Isolationspflichtigen Erreger vorliegen



Krebs und COVID-19

Table 1. Relative risk of intubation or death in patients with or without cancer stratified by age groups

Age	Intubation (event / total)			Death (event / total)		
	With cancer	Without cancer	Relative risk (95 % CI)	With cancer	Without cancer	Relative risk (95 % CI)
All	37 / 334	314 / 5,354	1.89 (1.37 – 2.61)	37 / 334	518 / 5,354	1.15 (0.84 – 1.57)
≤ 50	2 / 53	52 / 2,035	1.48 (0.37 – 5.90)	3 / 53	23 / 2,035	5.01 (1.55 – 16.2)
51 - 65	8 / 84	113 / 1,557	1.31 (0.66 – 2.60)	4 / 84	117 / 1,557	0.63 (0.24 – 1.68)
66 - 80	22 / 143	104 / 1,191	1.76 (1.15 – 2.70)	15 / 143	173 / 1,191	0.72 (0.44 – 1.19)
≥ 81	5 / 54	45 / 571	1.17 (0.49 – 2.83)	15 / 54	168 / 571	0.94 (0.60 – 1.48)

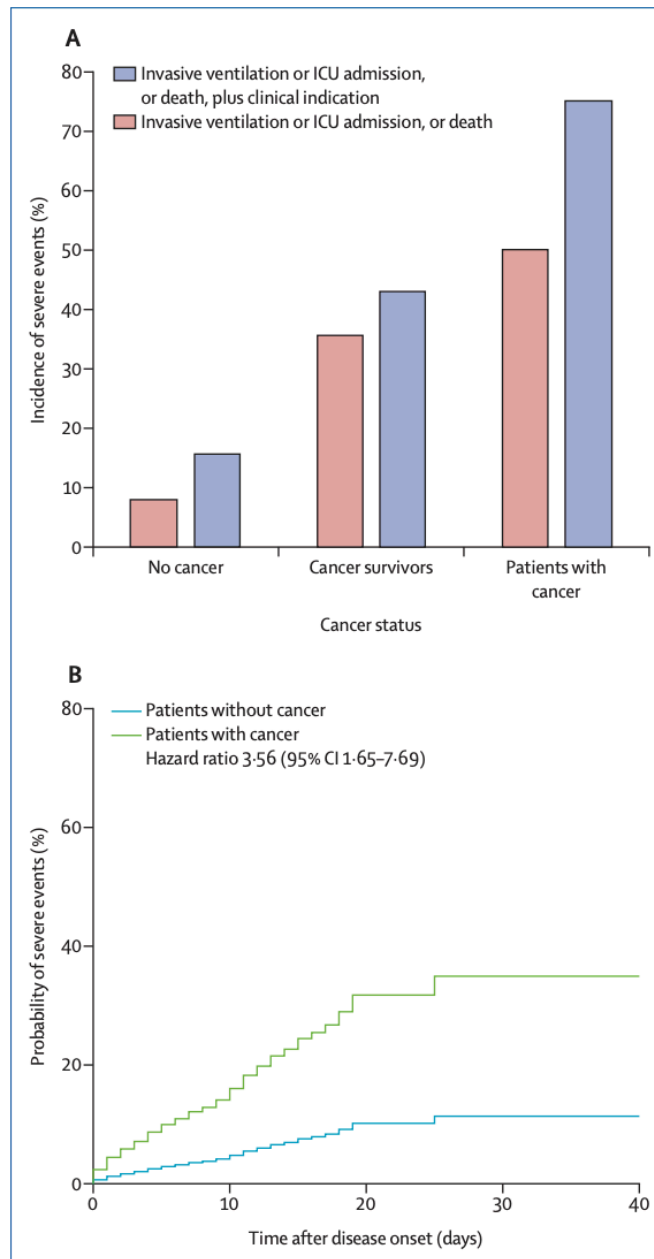


Figure: Severe events in patients without cancer, cancer survivors, and patients with cancer (A) and risks of developing severe events for patients with cancer and patients without cancer (B)
ICU=intensive care unit.

N = 18 patients
with cancer out of
a total N 1572
COVID19 patients.

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Jianfu Li, Ke Xu, Caichen Li, Qing Ai, Weixiang Lu, Hengrui
Liang, Shiyue Li, *Jianxing He‡
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Konzepte der Klinik I für Innere Medizin an der Uniklinik Köln

- Alle Patienten mit COVID-19-Erkrankung oder –Verdacht werden kohortiert behandelt in eigener Station oder in Quartänebetten.
- Alle Patienten werden vor Beginn einer stationären Krebstherapie getestet auf SARS-CoV2 (PCR).
- Bei Patienten mit nachgewiesener SARS-CoV2-Infektion wird die Krebs-Behandlung verschoben, wenn dies klinisch vertretbar ist.
- Generell wurden adjuvante Tumorthapien oder elektive Tumoroperationen derzeit aufgeschoben. Nach Abklingen der ersten Infektionswelle wird diese Haltung derzeit wieder gelockert.
- SARS-CoV2-Testung vor elektiver OP.