

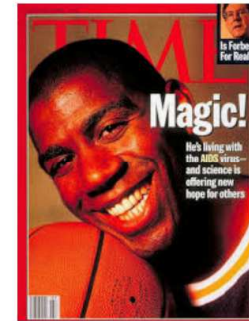
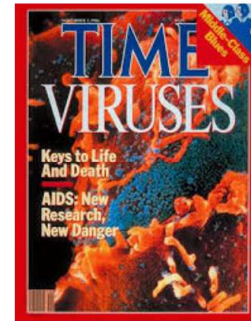
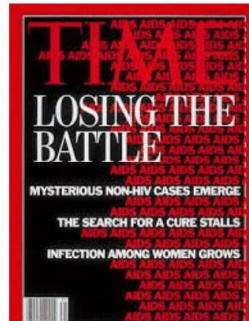
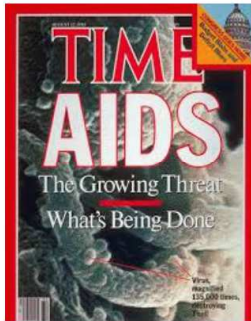
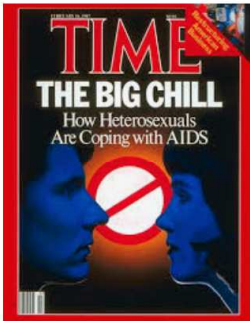


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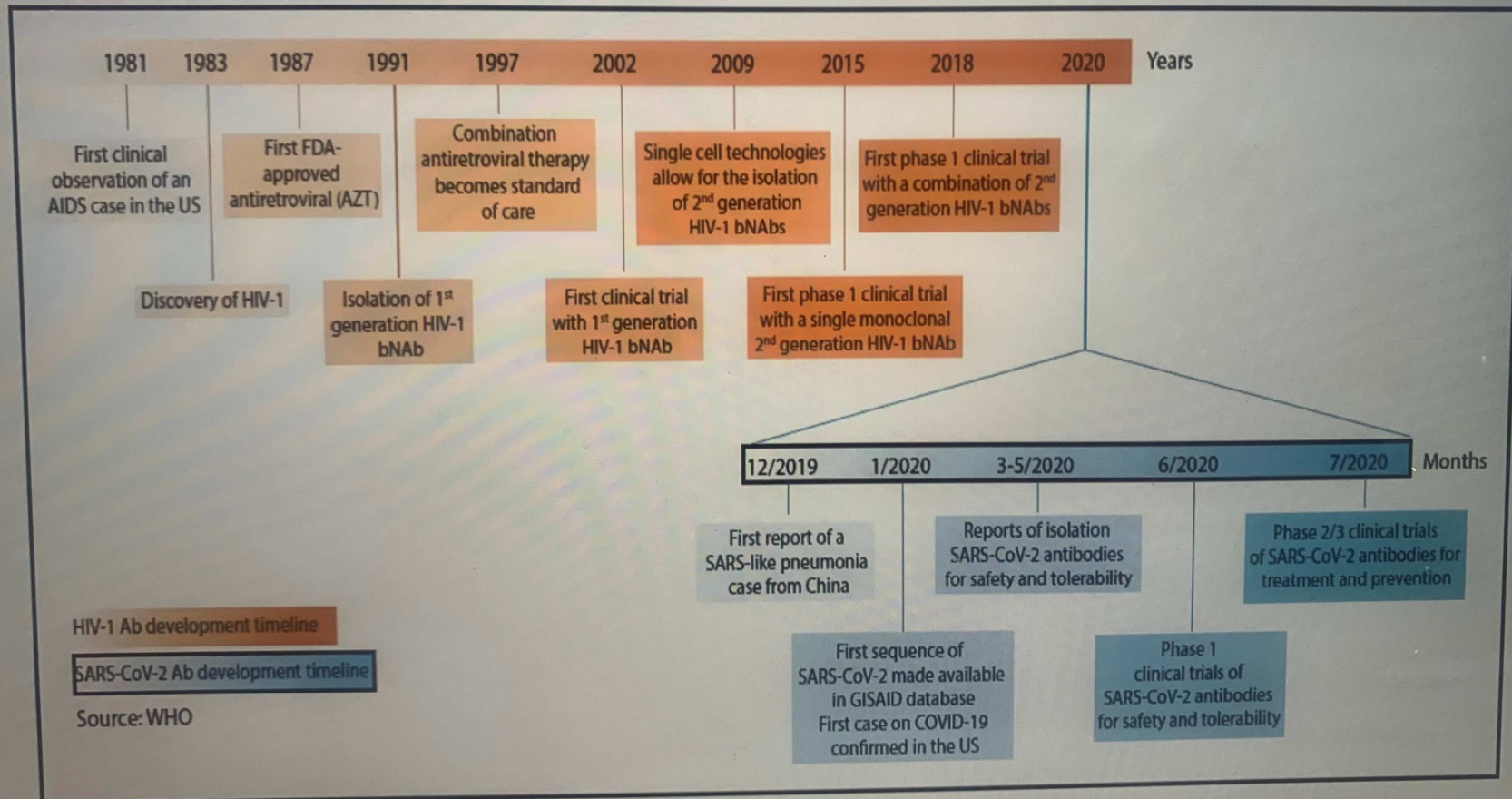
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Disclosure statement

Personal fees for consultancy and lectures from Abbvie, Bristol Myers Squibb, Gilead, Janssen, Merck, ViiV.

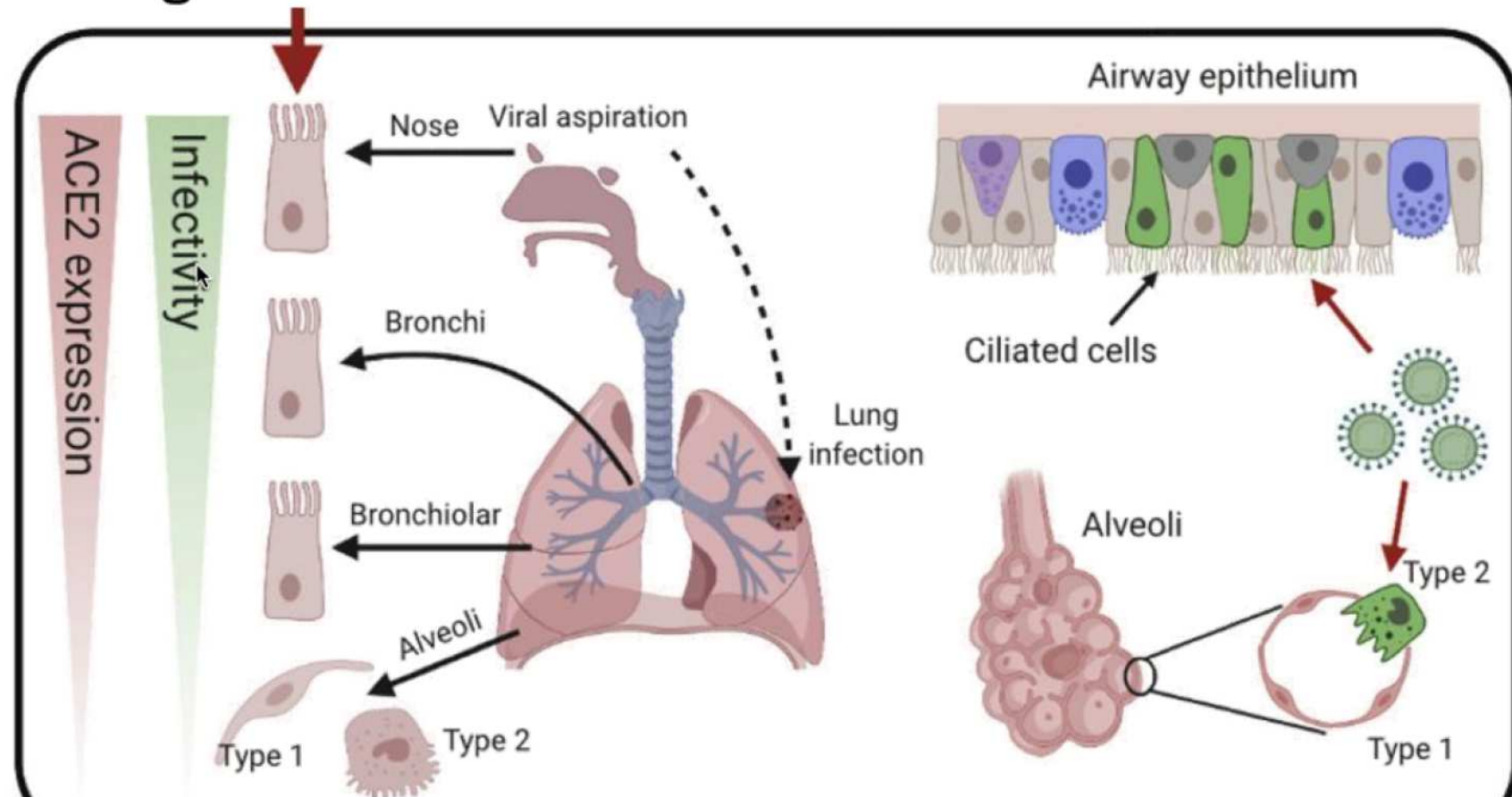


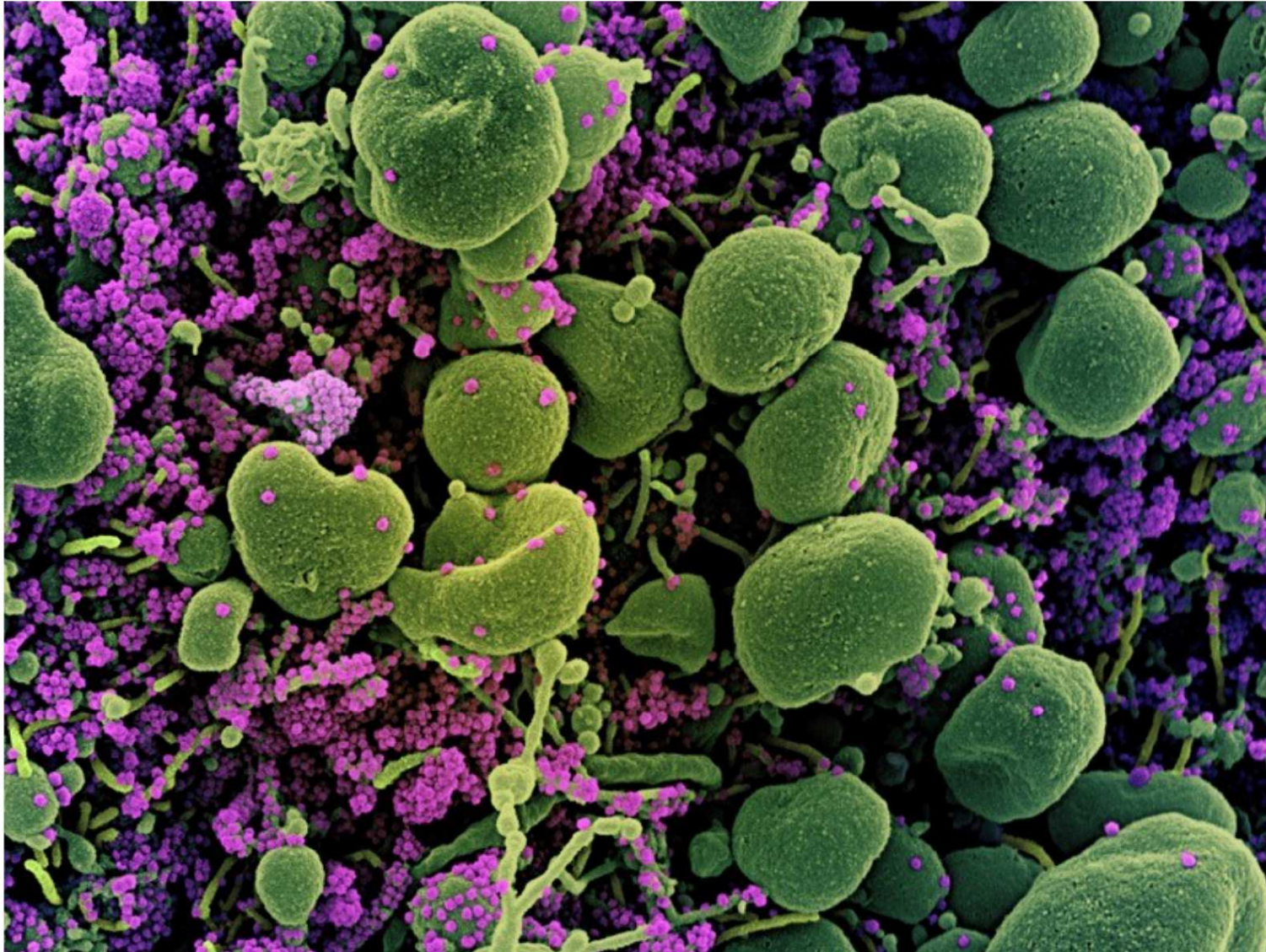
Summary of milestones from first disease clinical manifestations to antibody discovery and development for HIV-1 and SARS-CoV-2



from the proximal to distal respiratory tract

- Ciliated airway cells and AT-2 cells are primary targets for SARS-CoV-2 infection.





Particles (purple; artificially coloured) of SARS-CoV-2 cover the surface of a human cell. Credit: NIAID/NIH/SPL

Ist

Table. Summary of SARS-CoV-2 Testing Studies

Cohort	Tested, n	SARS-CoV-2 Positive, n (%)	Positive but Asymptomatic, n (%)	Notes*
Iceland residents (6)	13 080	100 (0.8)	43 (43.0)	R
Vo', Italy, residents (7)	5155	102 (2.0)	43 (42.2)	R, L
<i>Diamond Princess</i> cruise ship passengers and crew (8)	3711	712 (19.2)	331 (46.5)	–
Boston homeless shelter occupants (9)	408	147 (36.0)	129 (87.8)	–
New York City obstetric patients (11)	214	33 (15.4)	29 (87.9)	L
U.S.S. <i>Theodore Roosevelt</i> aircraft carrier crew (12)	4954	856 (17.3)	~500 (58.4)	E
Japanese citizens evacuated from Wuhan, China (2)	565	13 (2.3)	4 (30.8)	L
Greek citizens evacuated from the United Kingdom, Spain, and Turkey (14)†	783	40 (5.1)	35 (87.5)	L
<i>Charles de Gaulle</i> aircraft carrier crew (13)	1760	1046 (59.4)	~500 (47.8)	E
Los Angeles homeless shelter occupants (10)	178	43 (24.2)	27 (62.8)	–
King County, Washington, nursing facility residents (15)	76	48 (63.2)	3 (6.3)	L
Arkansas, North Carolina, Ohio, and Virginia inmates (16)	4693	3277 (69.8)	3146 (96.0)	–
New Jersey university and hospital employees (17)	829	41 (4.9)	27 (65.9)	–
Indiana residents (18)	4611	78 (1.7)	35 (44.8)	R
Argentine cruise ship passengers and crew (19)	217	128 (59.0)	104 (81.3)	–
San Francisco residents (29)	4160	74 (1.8)	39 (52.7)	–

E = estimated from incomplete source data; L = longitudinal data collected; R = representative sample.

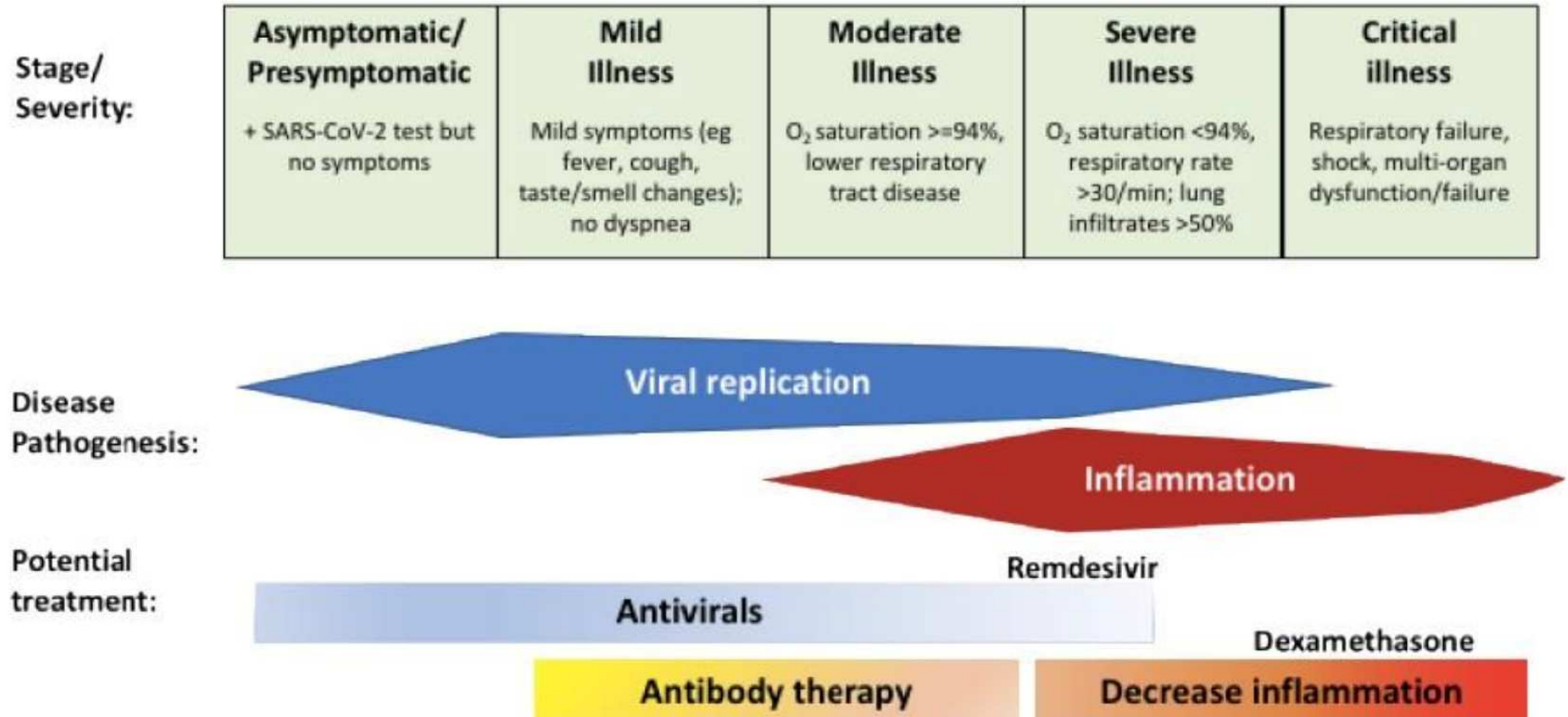
* A dash indicates that the study did not have a representative sample, collected no longitudinal data, and did not require estimation of missing data.

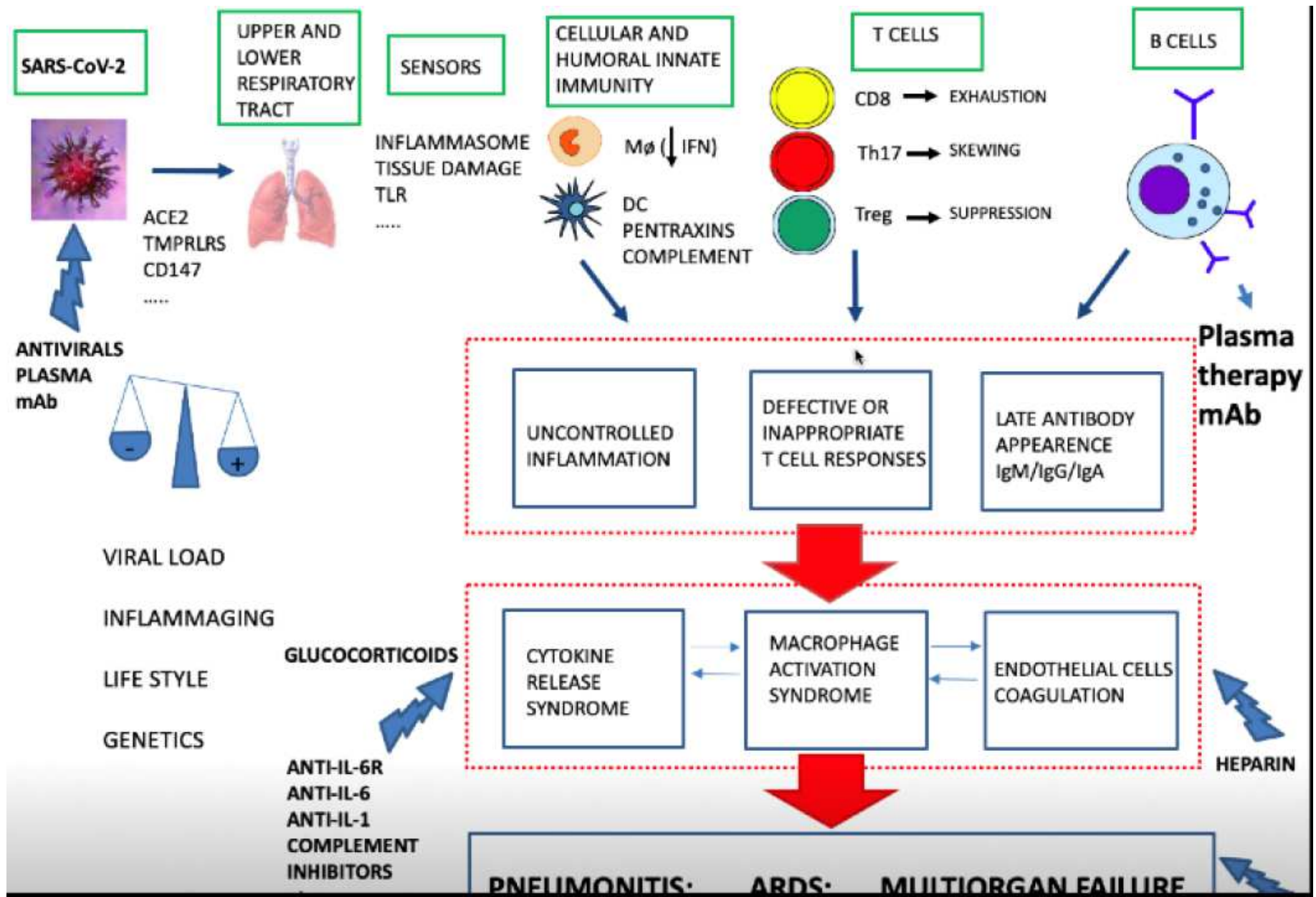
† Clarified via e-mail communication with coauthor.

In a COVID-19 outbreak on a cruise ship where nearly all passengers and staff were screened for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), approximately 19 percent of the population on board tested positive; 58 percent of the 712 confirmed COVID-19 cases were asymptomatic at the time of diagnosis. In studies of subsets of those asymptomatic individuals, who were hospitalized and monitored, approximately 77 to 89 percent remained asymptomatic over time (1-2)

1. Japanese National Institute of Infectious Diseases. Field Briefing: Diamond Princess COVID-19 Cases, 20 Feb Update. <https://www.niid.go.jp/niid/en/2019-ncov-e/9417-covid-dp-fe-02.html> (Accessed on March 01, 2020).
2. Lancet Infect Dis. 2020 Sep;20(9):1043-1050. doi: 10.1016/S1473-3099(20)30482-5. Epub 2020 Jun 12.

Multidimensional Challenge of Treating COVID-19





Sintomi esordio	✓	Fattori di Rischio – COVID severo	✓
Febbre		Malattie Cardiovascolari (no ipertensione isolata)	
Tosse (secca)		<u>Diabete (non controllato, A1c >7.5%)</u>	
Dolori muscolari diffusi		BPCO <u>inclusa asma</u>	
Mal di Testa		Alterazioni ematologiche (es. anemia <u>falciforme</u>)	
Mal di Gola		Alterazioni neurologiche	
Rinorrea		Trapiantati organi solidi o in terapie immunosoppressive/biologici	
Congiuntivite		<u>Chemio/immuno</u> terapie per neoplasia	
Difficoltà respiratorie		Trapianto di midollo da < 1 anno	
Vomito		Trattamento <u>Graft versus host</u>	
<u>Diarre</u>		HIV infezione con CD4 < 200 <u>cell</u>	
Perdita/riduzione olfatto			
Perdita/riduzione gusto			
		Fattori di Rischio – Tromboembolici (principali)	
		BMI > 30	
		Anamnesi TVP	
		Neoplasie	
		<u>Trombofilia</u>	

Research

Features of 20 133 UK patients in hospital with covid-19 using the ISARIC WHO Clinical Characterisation Protocol: prospective observational cohort study

BMJ 2020 ; 369 doi: <https://doi.org/10.1136/bmj.m1985> (Published 22 May 2020)

Cite this as: BMJ 2020;369:m1985

A study among 20 133 hospitalised patients from acute care hospitals in England, Wales and Scotland identified clustering of symptoms with three common clusters:

1. one respiratory symptom cluster with cough, sputum, shortness of breath, and fever;
2. a musculoskeletal symptom cluster with myalgia, joint pain, headache, and fatigue;
3. a cluster of enteric symptoms with abdominal pain, vomiting, and diarrhoea

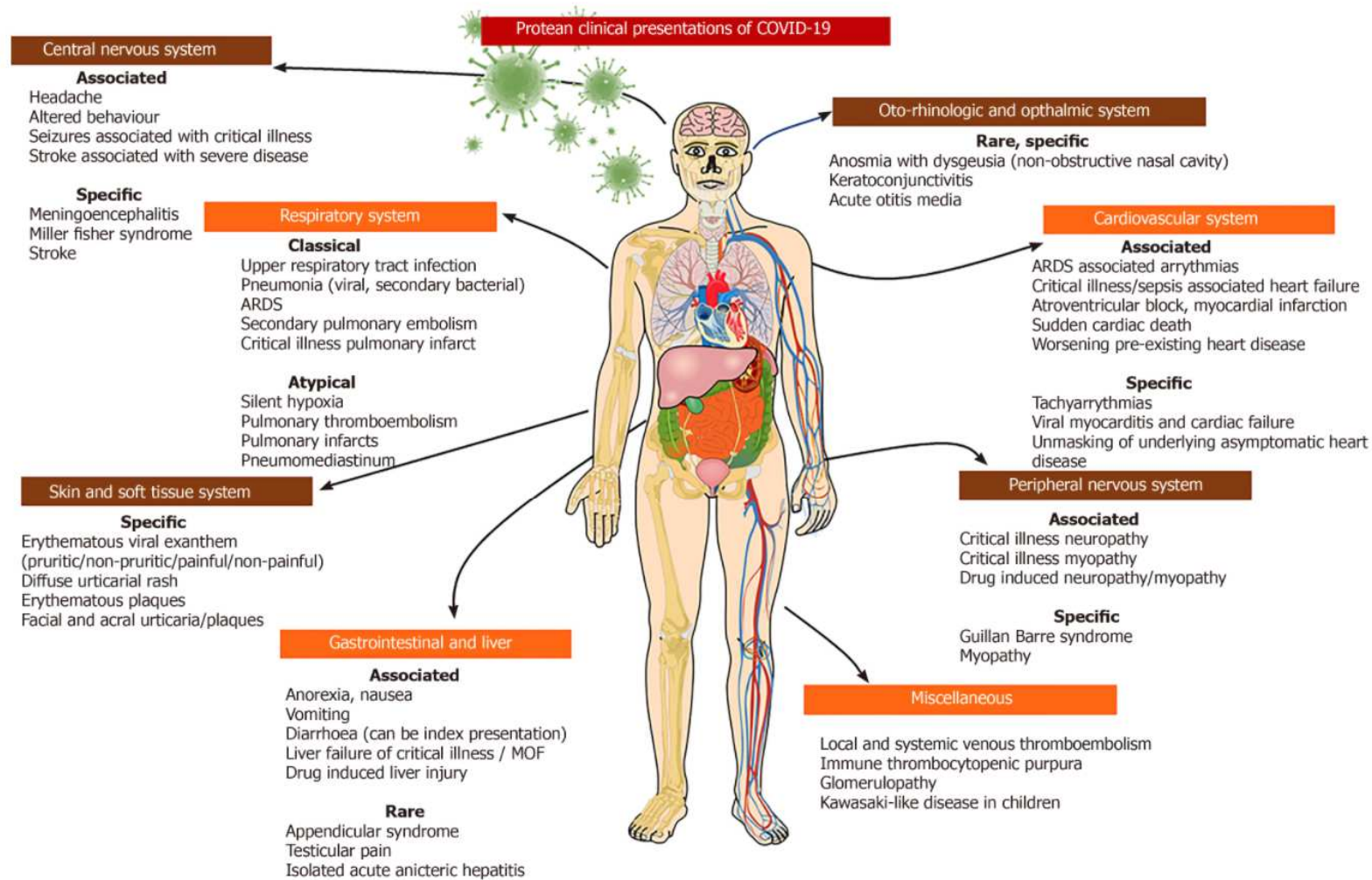


Figure 2 Summary of different clinical presentations and organ system involvement of coronavirus 2019 disease. Overall, multisystem involvement is due to the severity of the disease,

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> [J Infect Dis.](#) 2021 Jan 3;jiaa804. doi: 10.1093/infdis/jiaa804. Online ahead of print.

Association between upper respiratory tract viral load, comorbidities, disease severity and outcome of patients with SARS-CoV-2 infection

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[Kassiani Mellou](#)³, [Nikolaos Spanakis](#)⁴, [Athanasios Kossyvakis](#)⁵, [Georgia Gioula](#)⁶,
[Maria Exindari](#)⁶, [Elisavet Froukala](#)⁴, [Beatriz Martinez-Gonzalez](#)⁵,
[Georgios Panayiotakopoulos](#)⁷, [Anna Papa](#)⁶, [Andreas Mentis](#)⁵, [Athanasios Tsakris](#)⁴

Table 1. Characteristics of patients with SARS-CoV-2 infection by URT viral load

Characteristic	URT viral load status			p-value
	High	Moderate	Low	
	n = 309 (%)	n=316 (%)	n=497 (%)	
Mean age±SD (years) (n=1,082)	50±22	48±21	43 ±21	0.001
Age group (years)				
<18 (n=82)	24 (7.9)	22 (7.2)	36 (7.6)	0.107
18-64 (n=767)	202 (66.9)	224 (73.2)	356 (75.1)	
≥65 (n=233)	76 (25.2)	60 (19.6)	82 (17.3)	
Male gender (n=1,122)	156 (50.5)	189 (59.8)	274 (55.1)	0.064
Comorbidities (n=1,122)	124 (40.1)	104 (32.9)	108 (32.1)	<0.001
Mean number of comorbidities±SD (n=1,222)	0.62 + 0.89	0.47 + 0.79	0.32 + 0.67	<0.001

Table 3. SARS-CoV-2-associated morbidity and outcome by URT viral load

Morbidity	URT viral load status			p-value	
	High (n=309)	Moderate (n=316)	Low (n=497)		
Asymptomatic infection (n=274)	42 (13.6%)	71 (22.5%)	161 (32.4%)	<0.001	
COVID-19 (n=848)	267 (86.4%)		245 (77.5%)	<0.001	
Hospitalization (n=518)	153 (49.5%)	155 (49.1%)	210 (42.3%)	0.064	
Complications (n=231)	88 (28.5%)	69 (21.8%)	74 (14.9%)	0.084	
Admission to ICU (n=99)	37 (12.0%)		27 (8.5%)	35 (7.0%)	
0.055					
Mean ICU LOS ± SD (days)	6.76 ± 12.99	5.13 ± 13.64	3.21 ± 8.30	0.011*	
Intubation (n=93)	35 (11.3%)		26 (8.2%)	32 (6.40%)	0.050
Mean intubation duration ± SD (days)	7.53 ± 13.23	5.79 ± 12.54	3.29 ± 8.24	0.006*	
Death (n=89)	35 (11.3%)	23 (7.3%)	31 (6.2%)	0.030	

Article Contents

Abstract

Supplementary data

Comments (0)

ACCEPTED MANUSCRIPT

Reinfection with SARS-CoV-2: Implications for Vaccines FREE

Jeffrey I Cohen ✉, Peter D Burbelo

Clinical Infectious Diseases, ciaa1866, <https://doi.org/10.1093/cid/ciaa1866>

Published: 18 December 2020 **Article history ▼**

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Abstract

Infection with SARS-CoV-2 has become pandemic and the duration of protective immunity to the virus is unknown. Cases of persons reinfected with the virus are being reported with increasing frequency. At present it is unclear



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Table 2. Cases of reinfection with SARS-CoV-2 with different virus strains or clades based on sequence analysis^a

<u>Patient</u>	<u>Age, Sex</u>	<u>Location</u>	IC	First	Second	<u>Interval</u>	Antibody	Antibody	<u>Virus</u>
				<u>infection</u>	<u>infection</u>		present	at onset	
				at 1 st	of 2 nd				<u>Sequence</u>
1	33M	Hong Kong	no	Hospitalized	Asymptomatic*	142 days	yes	no	different
clade									
2	25M	Nevada	no	Sx, outpatient	Hospitalized	48 days	NR	NR	5
mutations									
pneumonia									
3	51F	Belgium	no	Sx, outpatient	Sx, milder	3 months	NR	NR	11
mutations									
4	60'sM	WA state	no	Hospitalized	Hospitalized	140 days	NR	NR	10
mutations									
pneumonia sx milder									
5	25M	India	no	Asymptomatic	Asymptomatic	3.5 months	NR	NR	9

Table 3. Implications of reinfection with SARS-CoV-2

1. Precautions- masks, distancing are still important after recovery from SARS-CoV-2 in the absence of a potent vaccine or antiviral
2. Previously infected persons may need vaccination
3. Herd immunity from infection is unlikely to be sufficient to eliminate the virus if reinfection is common
4. Second infection is likely, but not necessarily, to be milder
5. Vaccination may not provide lifelong immunity; booster doses may be needed
6. Annual quadrivalent flu vaccine may include SARS-CoV-2 vaccine as a component