

COVID-19 – Quelles conséquences après les soins intensifs?

Jean-Daniel Chiche, MD PhD
jean-daniel.chiche@chuv.ch

unisanté

Centre universitaire de médecine générale
et santé publique • Lausanne

Jeudi d'Unisanté – 18.02.2021

**Point de situation COVID-19 :
vaccination et autres enjeux**

Dept of Intensive Care Medicine
CHUV, Lausanne. Switzerland

Tracking Home

Critical Trends ▾

Global Map

U.S. Map

Data in Motion



COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)



Global Cases

109 678 891

Cases by
Country/Region/Sovereignty

545 535 Switzerland

541 877 Bangladesh

479 071 Morocco

437 874 Austria

426 487 Serbia

419 869 Japan

391 170 Hungary

373 702 Saudi Arabia

358 583 United Arab
Emirates

355 106 Jordan

346 080 Lebanon

◀ Admin0 ▶

Last Updated at (M/D/YYYY)

2/17/2021 6:23 PM

192

countries/regions



Esri, FAO, NOAA

Cumulative Cases

Active Cases

Incidence Rate

Case-Fatality Ratio

Testing Rate

Lancet Inf Dis Article: [Here](#). Mobile Version: [Here](#). Data sources: [Full list](#). Downloadable database: [GitHub](#), [Feature Layer](#).

Lead by JHU CSSE. Technical Support: [Esri Living Atlas team](#) and [JHU APL](#). Financial Support: [JHU](#), [NSF](#), [Bloomberg Philanthropies](#) and [Stavros Niarchos Foundation](#). Resource support: [Slack](#)

Global Deaths

2 423 443

9 838 deaths
Switzerland9 703 deaths
Bulgaria8 504 deaths
Morocco8 314 deaths
Bangladesh8 290 deaths
Austria

7 617 deaths

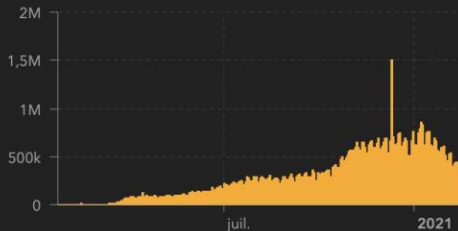
◀ Global Deaths ▶

US State Level

Deaths, Recovered

47 549 deaths, **recovered**
California US46 141 deaths, **138 975**
recovered
New York US41 386 deaths, **2 257 030**
recovered
Texas US29 154 deaths, **recovered**
Florida US23 100 deaths, **791 328**
recovered

◀ US Deaths, Rec... ▶



Daily Cases





COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)



Global Cases

545 535

Cases by
Country/Region/Sovereignty

545 535 Switzerland

541 877 Bangladesh

479 071 Morocco

437 874 Austria

426 487 Serbia

419 869 Japan

391 170 Hungary

373 702 Saudi Arabia

358 583 United Arab
Emirates

355 106 Jordan

346 080 Lebanon

◀ Admin0 ▶

Last Updated at (M/D/YYYY)

2/17/2021 6:23 PM

192

countries/regions



Esri, FAO, NOAA

Cumulative Cases

Active Cases

Incidence Rate

Case-Fatality Ratio

Testing Rate

Lancet Inf Dis Article: [Here](#). Mobile Version: [Here](#). Data sources: [Full list](#). Downloadable database: [GitHub](#), [Feature Layer](#).

Lead by JHU CSSE. Technical Support: [Esri Living Atlas team](#) and [JHU APL](#). Financial Support: [JHU](#), [NSF](#), [Bloomberg Philanthropies](#) and [Stavros Niarchos Foundation](#). Resource support: [Slack](#)

Global Recovered

317 600

317 600 recovered
Switzerland

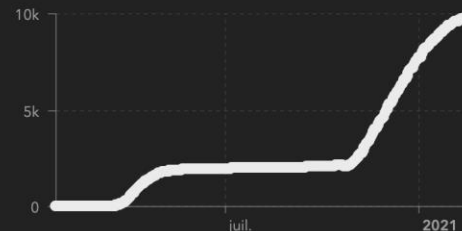
US State Level

Deaths, Recovered

47 549 deaths, recovered
California US46 141 deaths, 138 975
recovered
New York US41 386 deaths, 2 257 030
recovered
Texas US29 154 deaths, recovered
Florida US23 100 deaths, 791 328
recovered

◀ Global Recovered ▶

◀ US Deaths, Rec... ▶



◀ Cumulative Deaths ▶

The COVID-19 pandemic: consequences for nephrology

Annette Bruchfeld

The COVID-19 pandemic has had a disproportionate effect on patients at risk of kidney disease

Persistent Symptoms in Patients After Acute COVID-19

In Italy, a large proportion of patients with coronavirus disease 2019 (COVID-19) presented with symptoms (71.4% of 31 845 confirmed cases as of June 3, 2020).¹ Common symptoms include cough, fever, dyspnea, musculoskeletal symptoms (myalgia, joint pain, fatigue), gastrointestinal symptoms, and anosmia/dysgeusia.²⁻⁴ However, information is lacking on symptoms that persist after recovery. We assessed

JAMA August 11, 2020 Volume 324, Number 6 603

News & Analysis

Medical News & Perspectives

As Their Numbers Grow, COVID-19 "Long Haulers" Stump Experts

Rita Rubin, MA

JAMA October 13, 2020 Volume 324, Number 14 1381



Heart & Lung

journal homepage: www.heartandlung.com



VIEWPOINT

Long-term Health Consequences of COVID-19

Carlos del Rio, MD
Division of Infectious Diseases, Department of Internal Medicine, Emory University School of Medicine, Atlanta, Georgia

Lauren F. Collins, MD
Division of Infectious Diseases, Department of Internal Medicine, Emory University School of Medicine, Atlanta, Georgia

Preeti Malani, MD, MSJ
Division of Infectious Diseases, Department of Internal Medicine, University of Michigan, Ann Arbor, and Associate Editor, JAMA

Published Online: October 5, 2020.
doi:10.1001/jama.2020.19719

Post-Intensive care syndrome and COVID-19: crisis after a crisis?

Long-term consequences of COVID-19: research needs

Weeks and months after the onset of acute COVID-19, people continue to suffer. Paul Garner, a professor of epidemiology at Liverpool School of Tropical Medicine,

UK, wrote on the 95th day after the onset of symptoms that "I am unable to be out of bed for more than three hours at a stretch, my arms and legs are permanently



Published Online
September 1, 2020
[https://doi.org/10.1016/S1473-3099\(20\)30701-5](https://doi.org/10.1016/S1473-3099(20)30701-5)

www.thelancet.com/infection Vol 20 October 2020

Aging Clinical and Experimental Research (2020) 32:1613–1620
<https://doi.org/10.1007/s40520-020-01616-x>

POINT OF VIEW

Post-COVID-19 global health strategies: the need for an interdisciplinary approach

Gemelli Against COVID-19 Post-Acute Care Study Group¹

Patient perspectives

COVID-19 survivor experiencing long-term symptoms

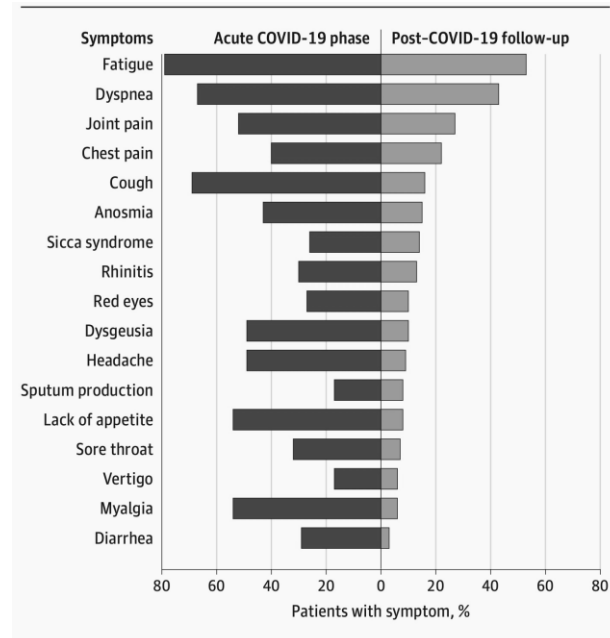


Lancet Respir Med 2021



Nature | Vol 585 | 17 September 2020 | 339

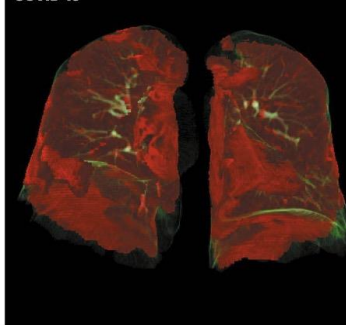
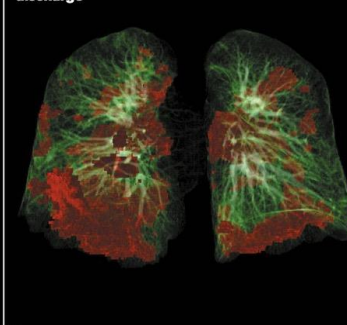
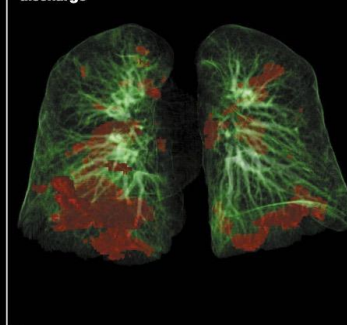
A person who has recovered from COVID-19 takes part in a rehabilitation programme in Genoa, Italy.



JAMA August 11, 2020 Volume 324, Number 6

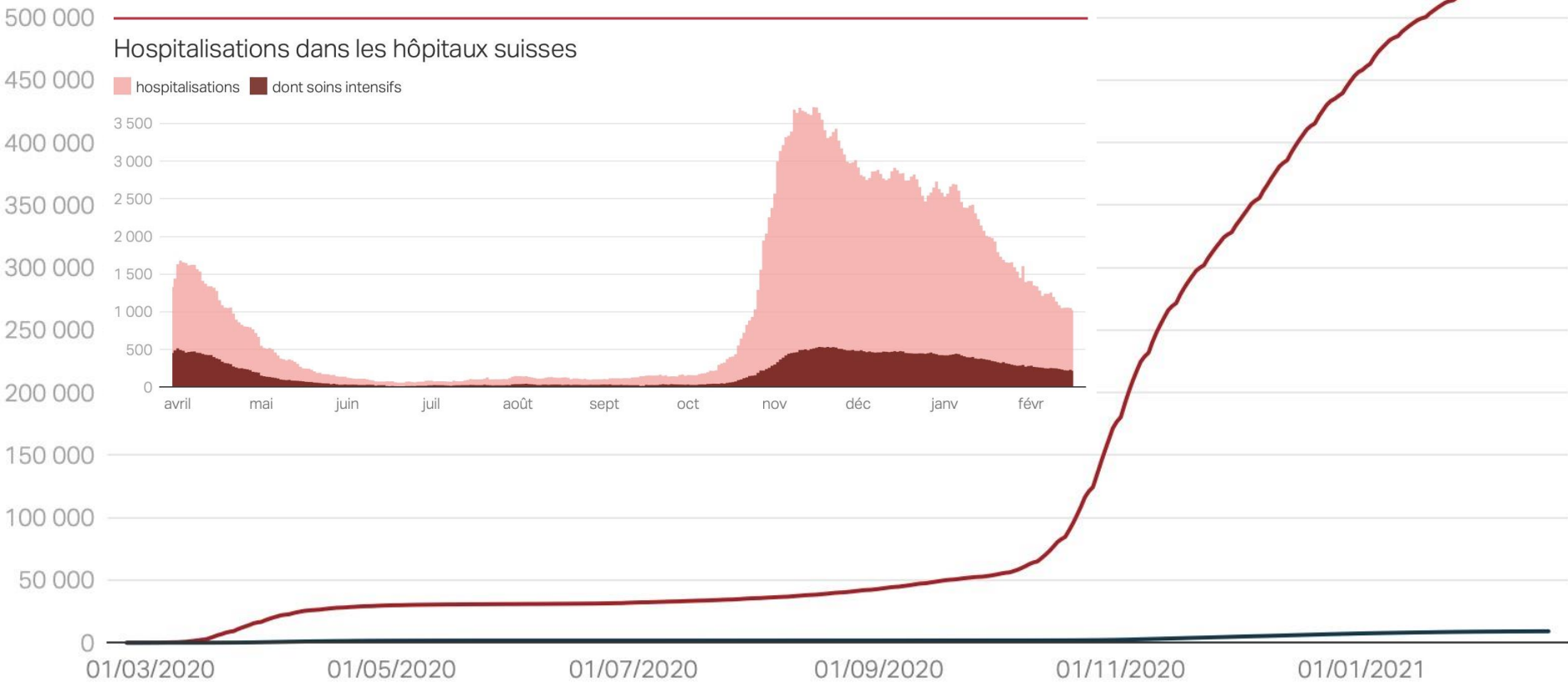
COVID-19'S LASTING MISERY

Months after infection with SARS-CoV-2, some people are still battling fatigue, lung damage and an array of other symptoms. **By Michael Marshall**

Onset of
COVID-196 weeks after
discharge12 weeks after
discharge

Coronavirus: évolution en Suisse

— Décès — Cas



6-month consequences of COVID-19 in patients discharged from hospital: a cohort study

Lancet 2021; 397: 220–32

Chaolin Huang*, Lixue Huang*, Yeming Wang*, Xia Li*, Lili Ren*, Xiaoying Gu*, Liang Kang*, Li Guo*, Min Liu*, Xing Zhou, Jianfeng Luo, Zhenghui Huang, Shengjin Tu, Yue Zhao, Li Chen, Decui Xu, Yanping Li, Caihong Li, Lu Peng, Yong Li, Wuxiang Xie, Dan Cui, Lianhan Shang, Guohui Fan, Jiuyang Xu, Geng Wang, Ying Wang, Jingchuan Zhong, Chen Wang, Jianwei Wang†, Dingyu Zhang†, Bin Cao†

	Total (n=1733)	Scale 3: not requiring supplemental oxygen (n=439)	Scale 4: requiring supplemental oxygen (n=1172)	Scale 5–6: requiring HFNC, NIV, or IMV (n=122)
Age, years	57·0 (47·0–65·0)	57·0 (46·0–65·0)	57·0 (48·0–65·0)	56·0 (48·0–65·0)
Comorbidities				
Hypertension	505 (29%)	129 (29%)	331 (28%)	45 (37%)
Diabetes	207 (12%)	60 (14%)	132 (11%)	15 (12%)
Cardiovascular diseases	128/1732 (7%)	41/438 (9%)	72 (6%)	15 (12%)
Length of hospital stay, days	14·0 (10·0–19·0)	11·0 (8·0–16·0)	14·0 (10·0–18·0)	35·0 (22·0–51·0)
ICU admission	76 (4%)	0	32 (3%)	44 (36%)
Length of ICU stay, days	14·0 (6·5–25·5)	NA	7·0 (2·5–18·0)	20·0 (10·0–41·5)
Highest seven-category scale during hospital stay				
3: admitted to hospital, not requiring supplemental oxygen	439 (25%)	439 (100%)	NA	NA
4: admitted to hospital, requiring supplemental oxygen	1172 (68%)	NA	1172 (100%)	NA
5: admitted to hospital, requiring HFNC or non-IMV or both	112 (6%)	NA	NA	112 (92%)
6: admitted to hospital, requiring ECMO or IMV, or both	10 (1%)	NA	NA	10 (8%)
Treatment received during hospital stay				
Corticosteroids	398 (23%)	38 (9%)	275 (23%)	85 (70%)
Antivirals	943 (54%)	222 (51%)	648 (55%)	73 (60%)

6-month consequences of COVID-19 in patients discharged from hospital: a cohort study

Lancet 2021; 397: 220–32

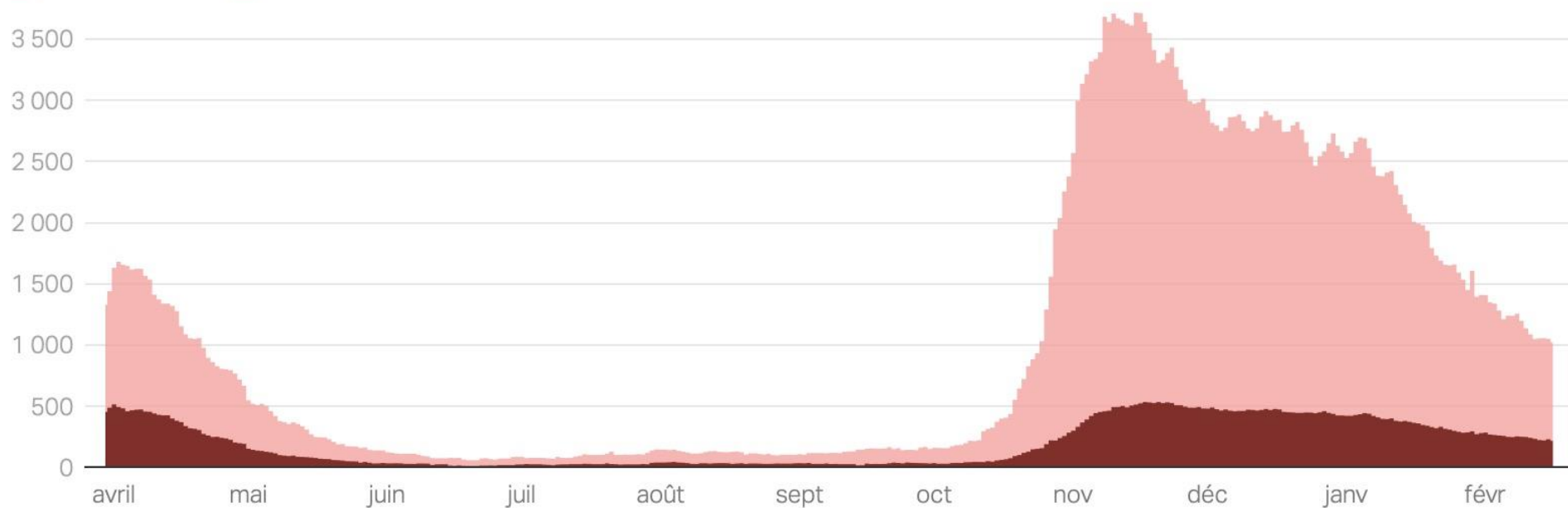
Chaolin Huang, Lixue Huang*, Yeming Wang*, Xia Li*, Lili Ren*, Xiaoying Gu*, Liang Kang*, Li Guo*, Min Liu*, Xing Zhou, Jianfeng Luo, Zhenghui Huang, Shengjin Tu, Yue Zhao, Li Chen, Decui Xu, Yanping Li, Caihong Li, Lu Peng, Yong Li, Wuxiang Xie, Dan Cui, Lianhan Shang, Guohui Fan, Jiuyang Xu, Geng Wang, Ying Wang, Jingchuan Zhong, Chen Wang, Jianwei Wang†, Dingyu Zhang†, Bin Cao†*

- **Fatigue or muscle weakness (63%)**
- **Sleep difficulties (26%)**
- **Anxiety / depression (23%)**
- **24% have severely impaired 6-min walking tests**
- **Diffusion impairment in 22-56% of patients**
- **Median CT-scanner scores between 3-5**
- **Increased risks in the most severe patients**

FORMES GRAVES DE COVID-19

Hospitalisations dans les hôpitaux suisses

■ hospitalisations ■ dont soins intensifs



Subphenotyping Acute Respiratory Distress Syndrome in Patients with COVID-19: Consequences for Ventilator Management

Lieuwe DJ Bos, Frederique Paulus, Alexander P.J. Vlaar, Ludo F.M. Beenen, and Marcus J. Schultz

+ Author Information

<https://doi.org/10.1513/AnnalsATS.202004-376RL>

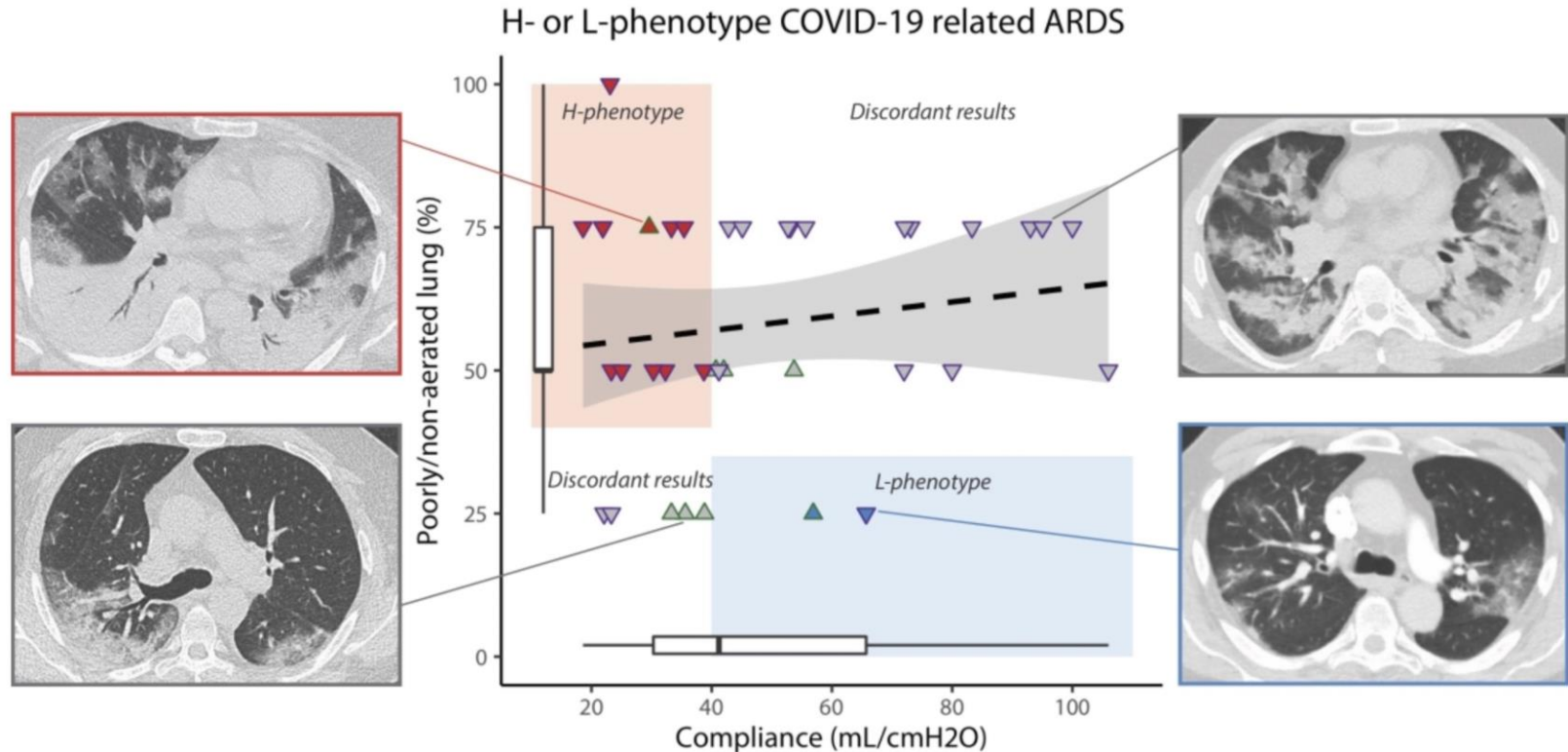
PubMed: 32396457

Received: April 26, 2020

Accepted: May 12, 2020

Published Online: May 12, 2020

ARDS





COVID-19, Sepsis, and Cytokine Storms

MAY 20, 2020

The COVID-19 pandemic has brought new vocabulary to many people. Some of these words and phrases can be confusing without proper explanations. For example, many medically oriented news stories mention the term “cytokine storms”. What is a cytokine storm and why do some writers use the term in relation to COVID-19? And how is this connected to sepsis?

To understand what a cytokine storm is, we need to start at the beginning. How can an infection get out of control?

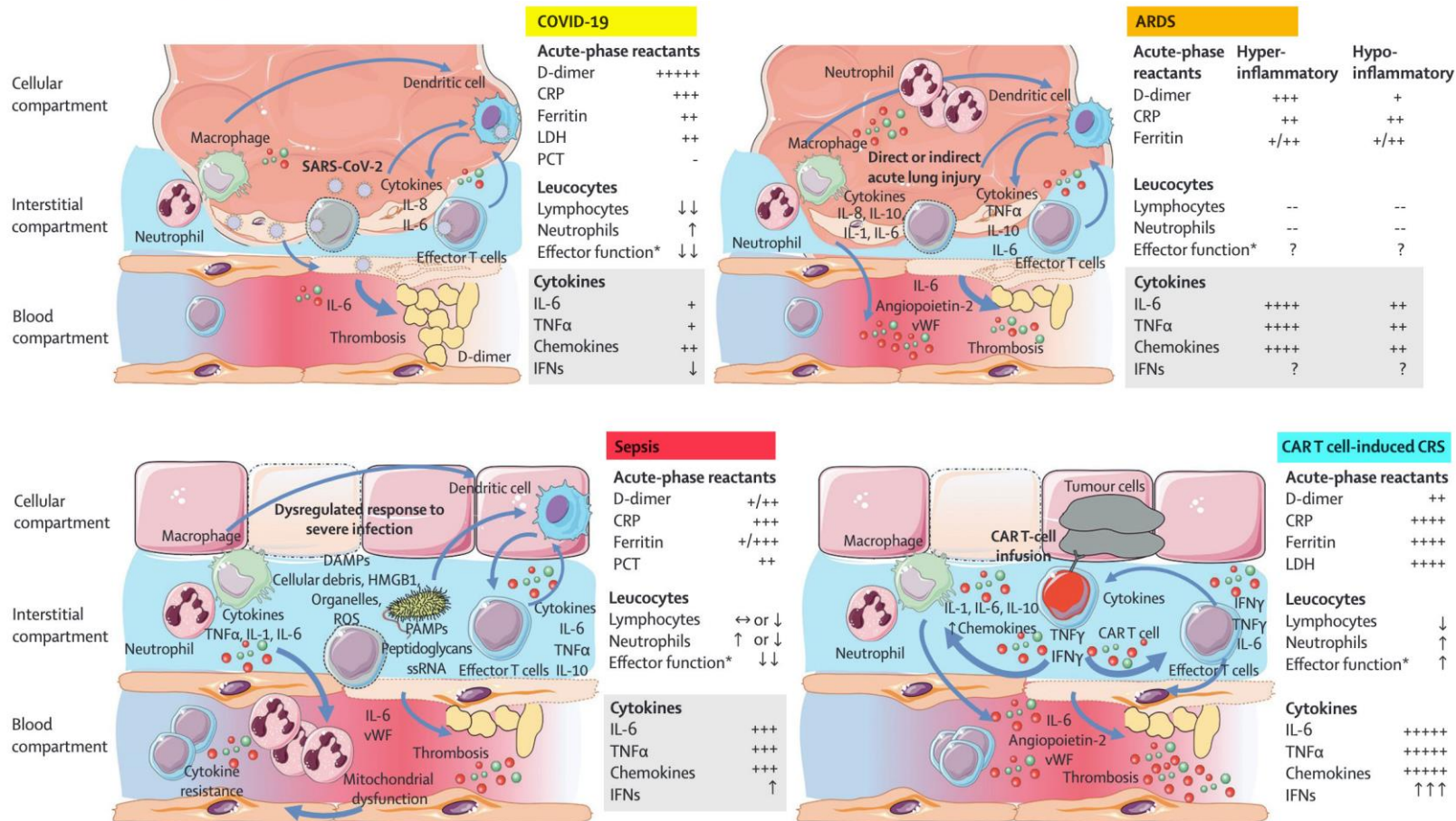
Fighting the infection

When you're exposed to a **bacterial**, **viral**, **fungal**, or **parasitic** germ (called an antigen), your body's immune system jumps into action to protect you from harm. The number of white blood cells circulating in your blood increases when your immune system detects the infection. The white blood cells either kill the invading antigens or keep them from replicating (copying and growing). If you get certain types of infections like chicken pox, these white blood cells can also make antibodies so your body remembers the invaders.

Cytokine elevation in severe and critical COVID-19: a rapid systematic review, meta-analysis, and comparison with other inflammatory syndromes

Lancet Respir Med 2020; 8: 1233-44

Daniel E Leisman*, Lukas Ronner*, Rachel Pinotti, Matthew D Taylor, Pratik Sinha, Carolyn S Calfee, Alexandre V Hiramaya, Fiore Mastroianni, Cameron J Turtle, Michael O Harhay, Matthieu Legrand, Clifford S Deutschman





One-Year Outcomes in Survivors of the Acute Respiratory Distress Syndrome

Margaret S. Herridge, M.D., M.P.H., Angela M. Cheung, M.D., Ph.D., Catherine M. Tansey, M.Sc.,
Andrea Matte-Martyn, B.Sc., Natalia Diaz-Granados, B.Sc., Fatma Al-Saidi, M.D., Andrew B. Cooper, M.D.,
Cameron B. Guest, M.D., C. David Mazer, M.D., Sangeeta Mehta, M.D., Thomas E. Stewart, M.D., Aiala Barr, Ph.D.,
Deborah Cook, M.D., and Arthur S. Slutsky, M.D., for the Canadian Critical Care Trials Group

Après 1 an, à peine 50 % des patients ont repris le travail

Outcome	3 Months	6 Months	12 Months
Distance walked in 6 min			
No. evaluated	80*	78†	81‡
Median — m	281	396	422
Interquartile range — m	55–454	244–500	277–510
Percentage of predicted value§	49	64	66
Returned to work — no./total no. (%)¶	13/83 (16)	26/82 (32)	40/82 (49)
Returned to original work — no./total no. (%)	10/13 (77)	23/26 (88)	31/40 (78)

Intensive Care Unit–acquired Weakness

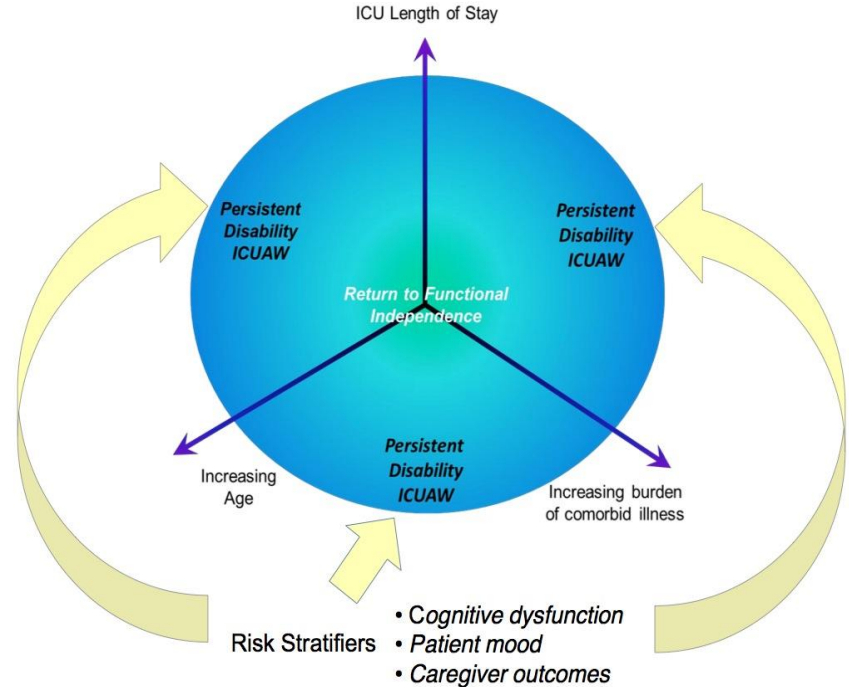
Clinical Phenotypes and Molecular Mechanisms

Jane Batt^{1,2}, Claudia C. dos Santos^{1,2}, Jill I. Cameron³, and Margaret S. Herridge⁴

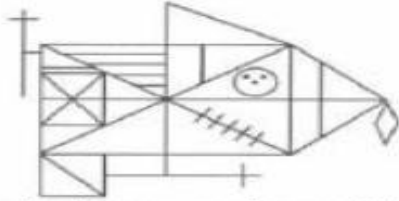
- Neuromuscular dysfunction (neuropathy, myopathy)
- Heterotopic ossification
- Frozen joints
- Compression neuropathies

ICU-acquired weakness

- Abnormalities in memory, attention, concentration and executive function
- Depression
- Post-traumatic stress disorder
- Anxiety



Stress post-traumatique après les soins intensifs?



asked to copy above picture, results below:

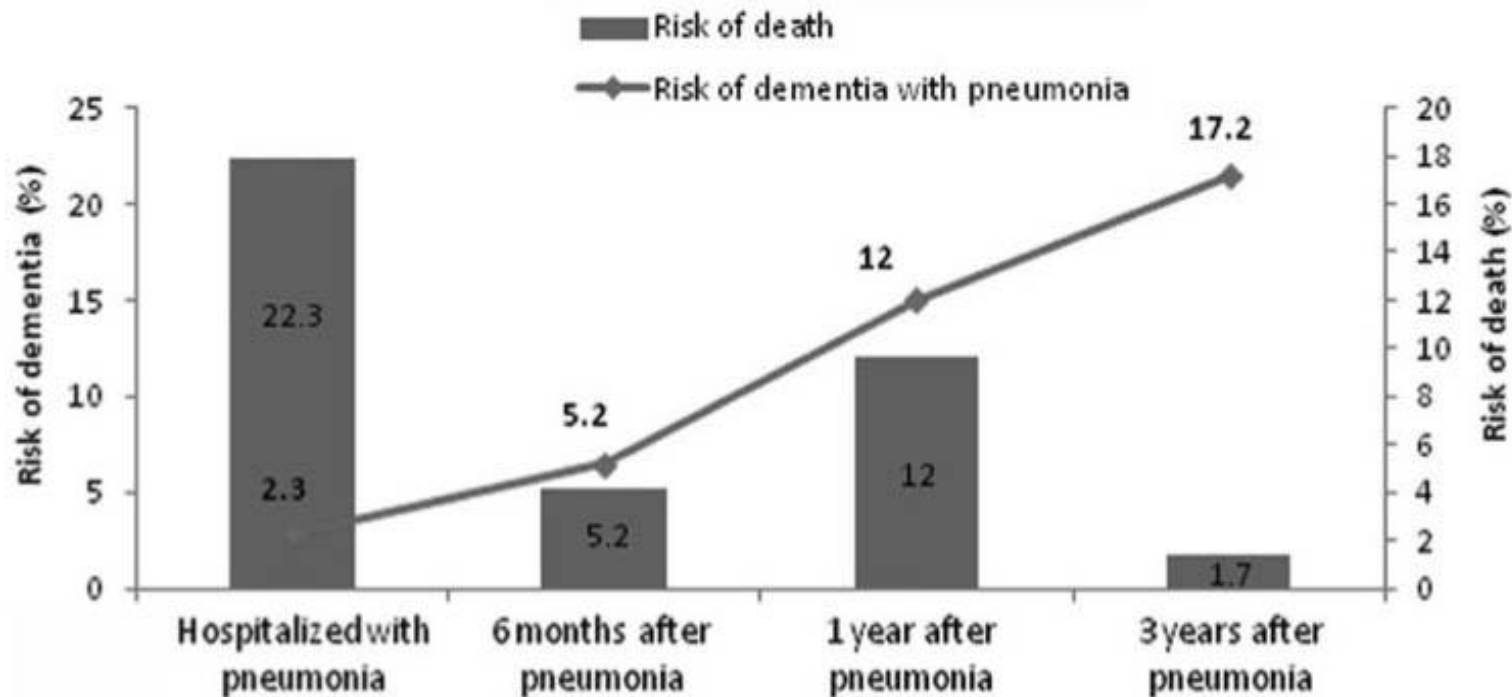
5 X



Reference: Jackson, J.C., Hart, R.P., Gordon, S.M., Shintani, A., Truman, B., May, L. et al. Six-month neuropsychological outcome of medical intensive care unit patients. *Crit Care Med* 2003; 31:1226-1234

Infection Hospitalization Increases Risk of Dementia in the Elderly

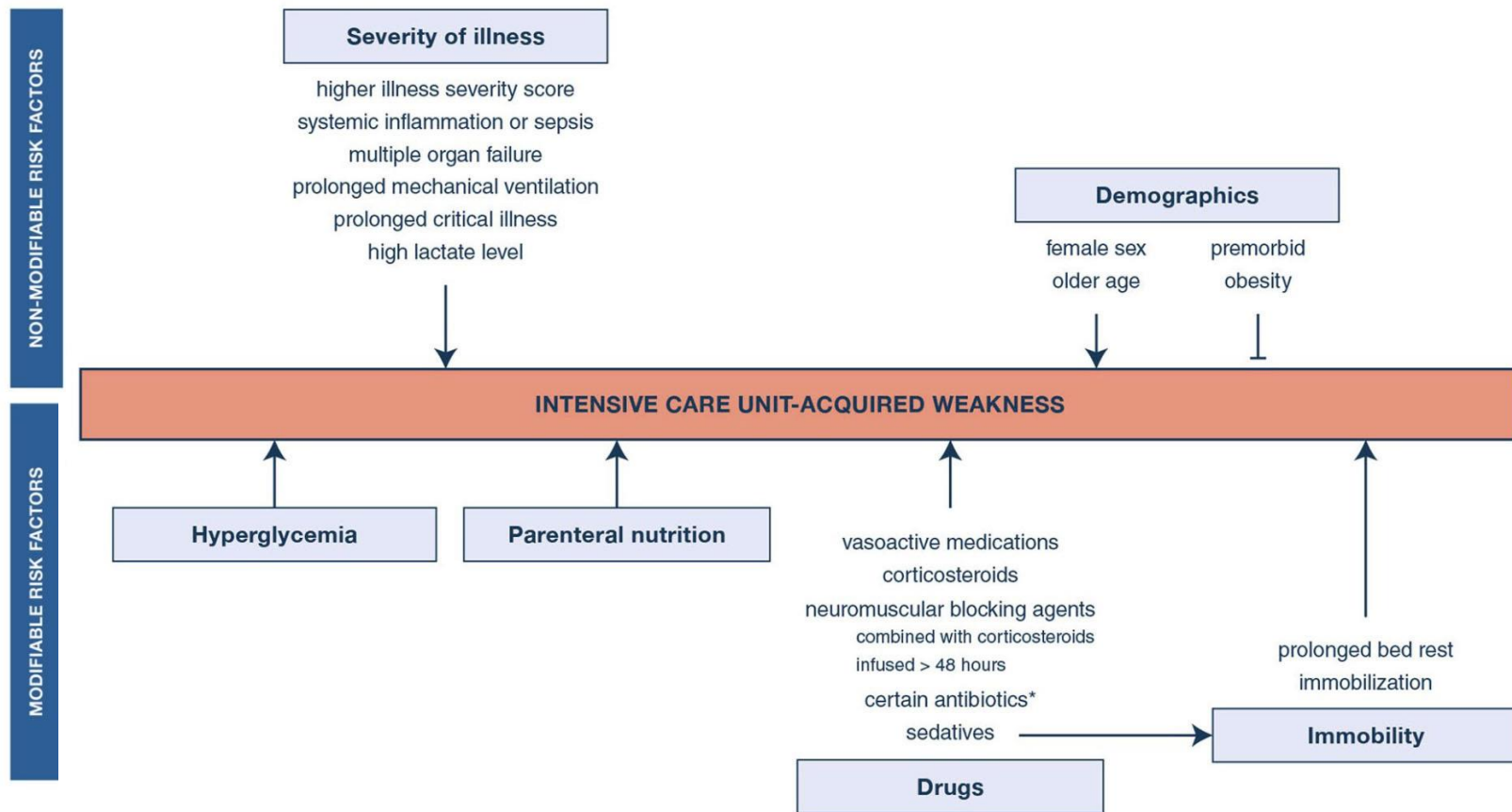
Judith A. Tate, PhD¹, Beth E. Snitz, PhD², Karina A. Alvarez, MA³, Richard L. Nahin, PhD⁴,
Lisa A. Weissfeld, PhD^{3,5}, Oscar Lopez, MD², Derek C. Angus, MD^{5,6}, Faraaz Shah, MD⁷,
Diane G. Ives, MPH⁸, Annette L. Fitzpatrick, PhD⁹, Jeffrey D. Williamson, MD¹⁰,
Alice M. Arnold, PhD¹¹, Steven T. DeKosky, MD¹²; Sachin Yende, MD^{5,6}, for the GEM Study Investigators

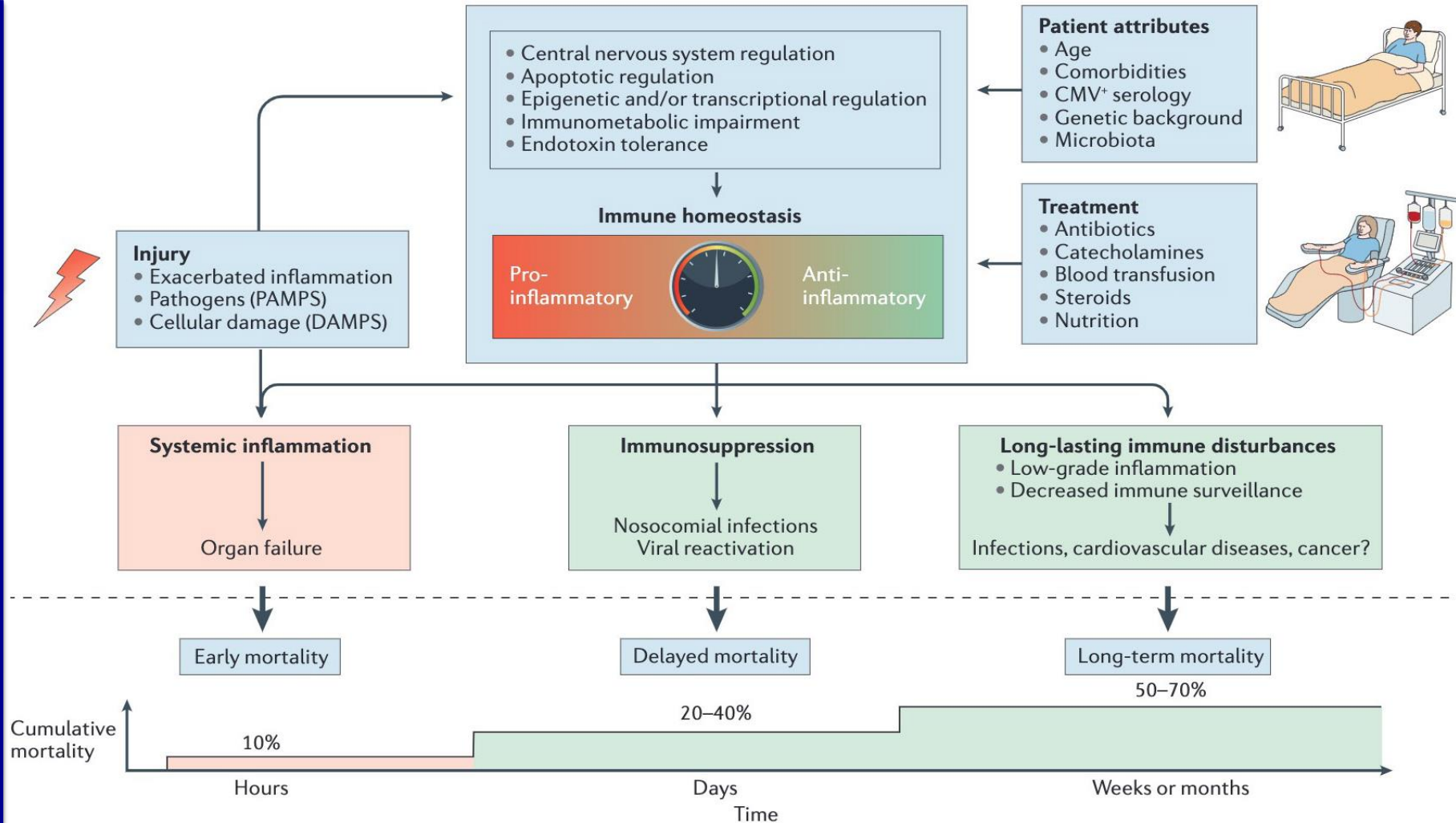




ICU-acquired weakness

Ilse Vanhorebeek¹ , Nicola Latronico^{2,3} and Greet Van den Berghe^{1*}



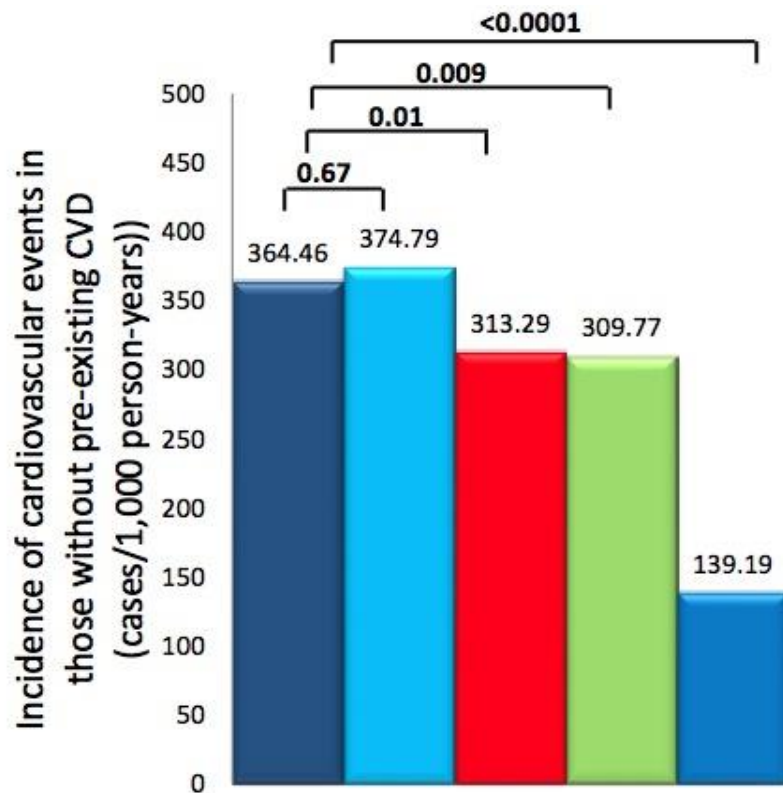


Risk of Cardiovascular Events in Survivors of Severe Sepsis

Sachin Yende^{1,2}, Walter Linde-Zwirble³, Florian Mayr⁴, Lisa A. Weissfeld⁵, Steven Reis⁶, and Derek C. Angus^{1,2}



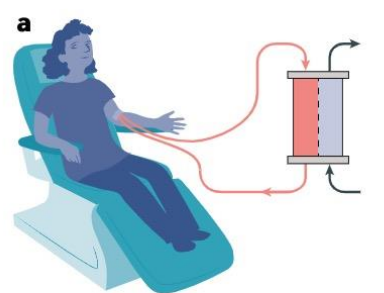
-  Matched population controls
-  Hospitalized controls
-  Hospitalized with infection
-  ICU controls
-  Severe sepsis patients requiring ICU



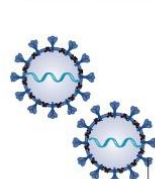
The COVID-19 pandemic: consequences for nephrology

Annette Bruchfeld

“Whether COVID-19 will escalate the long-term risk of CKD... requires further investigation”



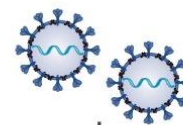
Dialysis and/or transplantation



SARS-CoV-2

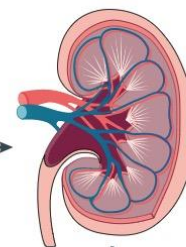
↑ SARS-CoV-2 seroprevalence (3.5–27.2% in patients on dialysis)
↑ Mortality risk (~20% in patients on dialysis and kidney transplant recipients)

b

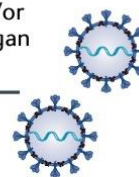


Sepsis, inflammation, pneumonia, endothelial damage, hypercoagulability, myocardial dysfunction, drug nephrotoxicity and dehydration

Hypoxia

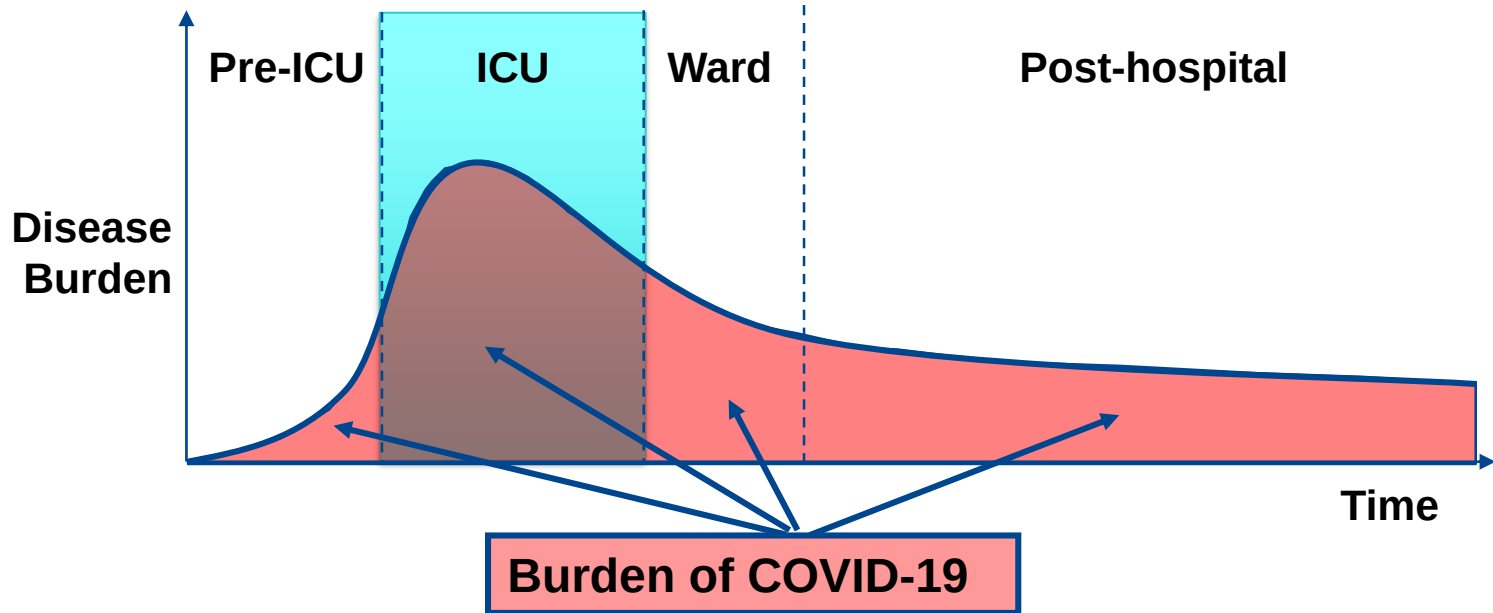


Direct and/or indirect organ damage



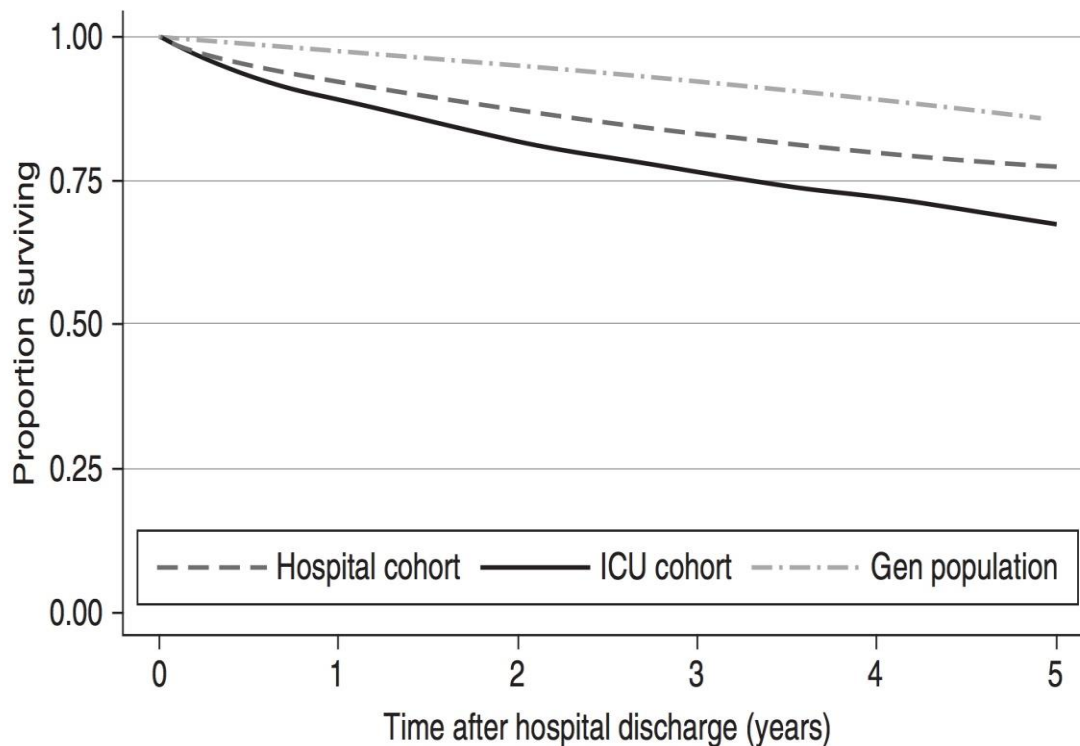
↑ Risk of AKI (30–50%)
↑ Mortality risk in ICU with AKI (40–60%)

Long-term consequences of COVID-19



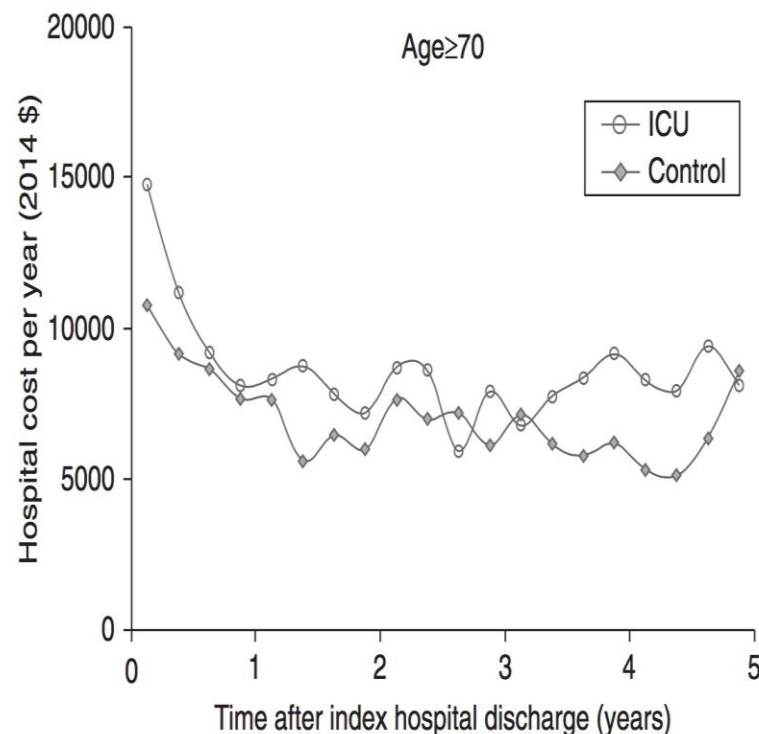
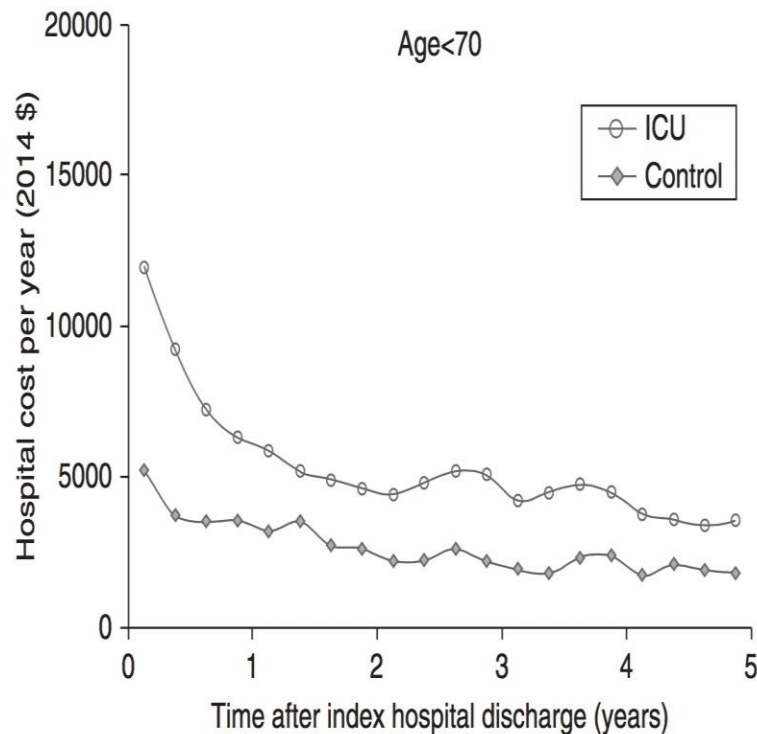
Five-Year Mortality and Hospital Costs Associated with Surviving Intensive Care

Nazir I. Lone^{1,2}, Michael A. Gillies², Catriona Haddow³, Richard Dobbie³, Kathryn M. Rowan⁴, Sarah H. Wild¹, Gordon D. Murray¹, and Timothy S. Walsh²



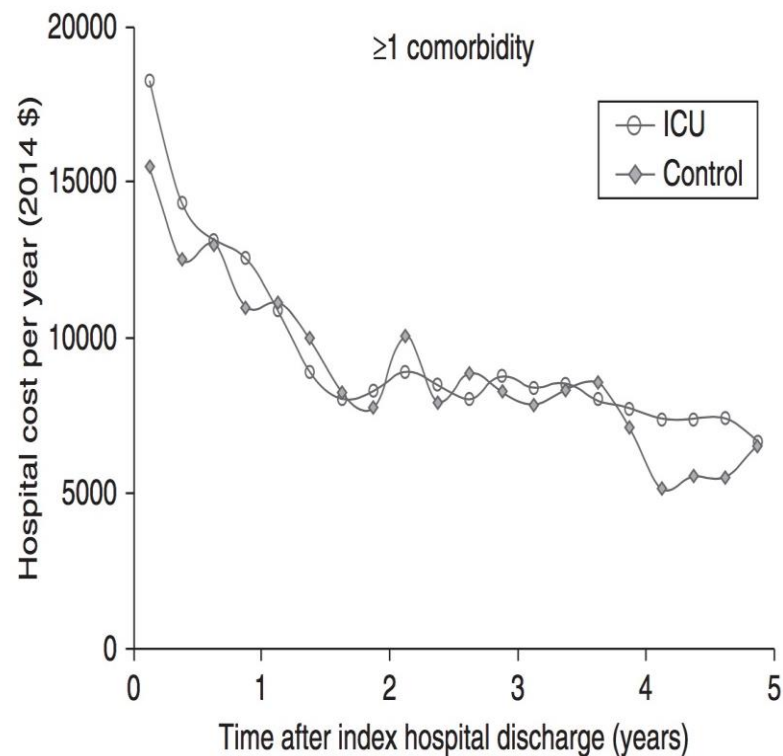
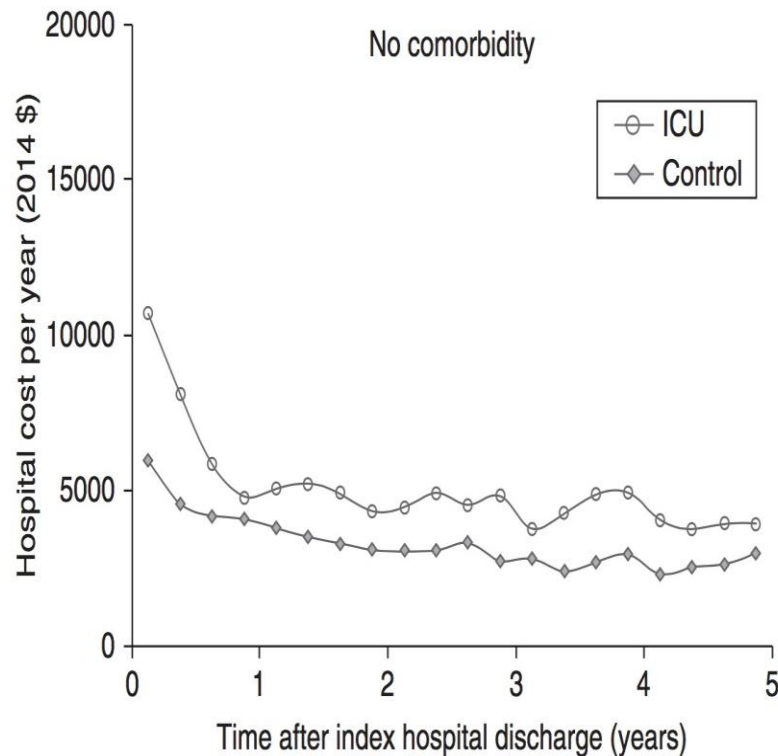
Five-Year Mortality and Hospital Costs Associated with Surviving Intensive Care

Nazir I. Lone^{1,2}, Michael A. Gillies², Catriona Haddow³, Richard Dobbie³, Kathryn M. Rowan⁴, Sarah H. Wild¹, Gordon D. Murray¹, and Timothy S. Walsh²



Five-Year Mortality and Hospital Costs Associated with Surviving Intensive Care

Nazir I. Lone^{1,2}, Michael A. Gillies², Catriona Haddow³, Richard Dobbie³, Kathryn M. Rowan⁴, Sarah H. Wild¹, Gordon D. Murray¹, and Timothy S. Walsh²

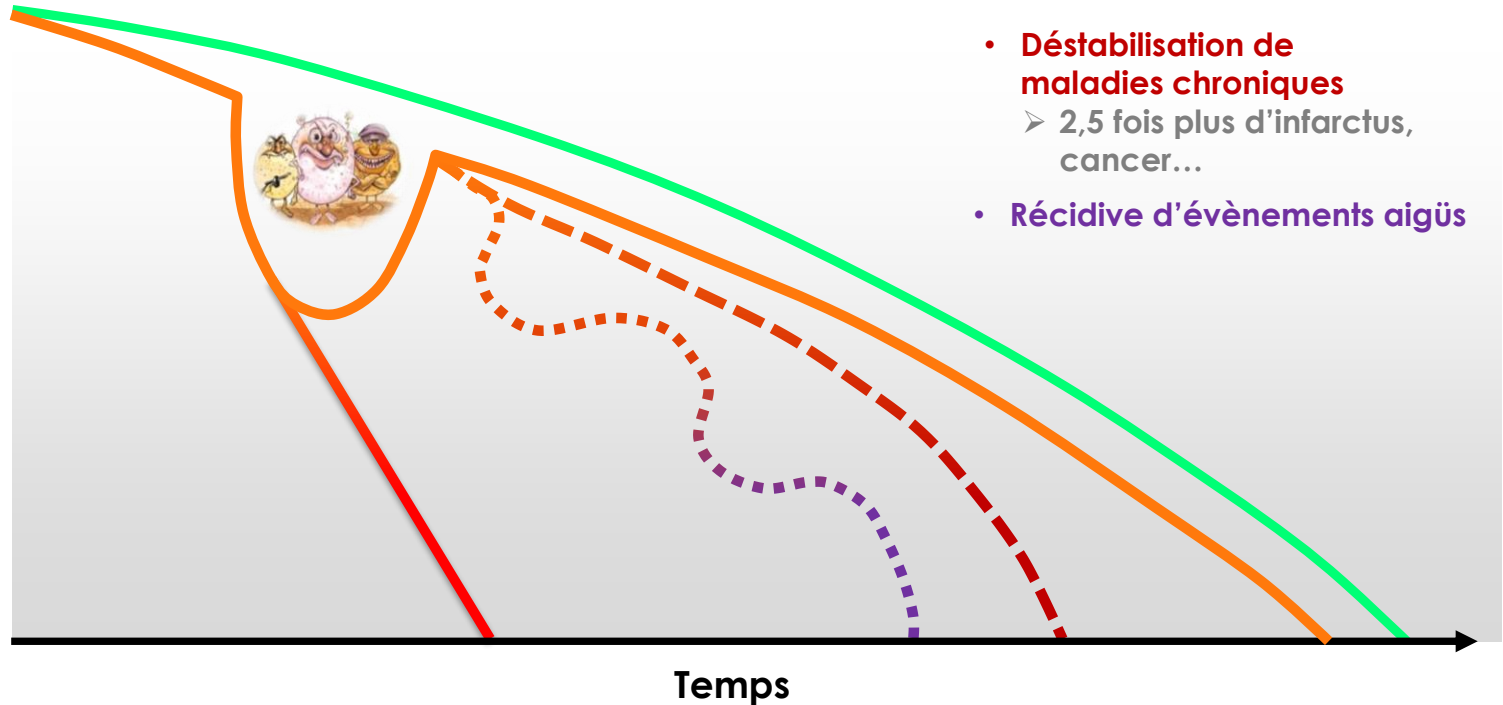


Quelle trajectoire de vie après la réanimation?

HEALTHY
AND
HAPPY :)

Altération
de l'état
de santé

GAME OVER
Thank you for playing



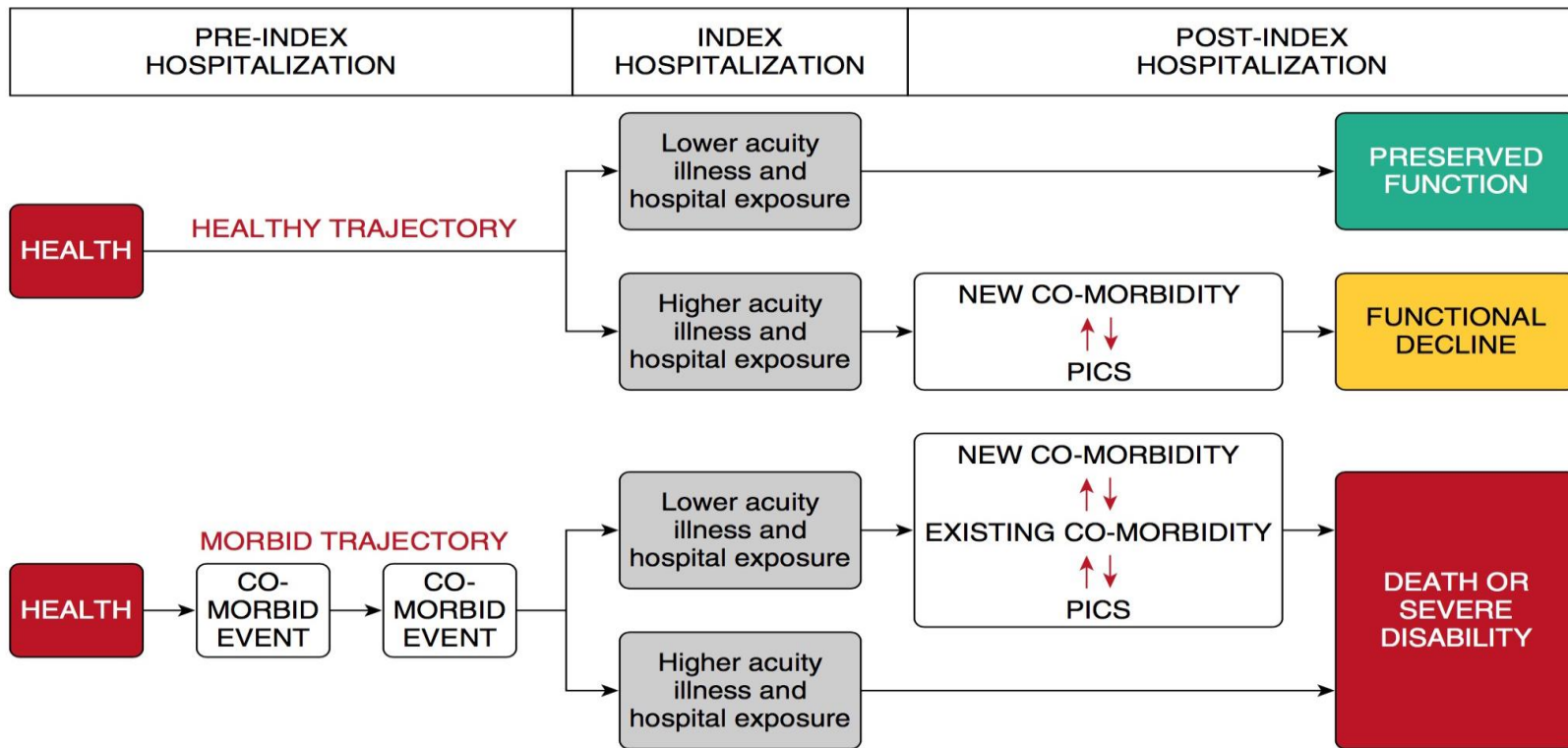
- **Déstabilisation de maladies chroniques**
 - 2,5 fois plus d'infarctus, cancer...
- **Récidive d'évènements aigus**

Long-Term Outcomes after Critical Illness

The Best Predictor of the Future Is the Past

Brian H. Cuthbertson, M.B. Ch.B., M.D.

Hannah Wunsch, M.D., M.Sc.



PLANÈTE • CORONAVIRUS ET PANDÉMIE DE COVID-19

Partage



« On commence à douter de soi-même » : après plusieurs semaines de Covid-19, des malades épuisés par des symptômes qui durent



Fatigue extrême, douleurs articulaires, gêne respiratoire... Des dizaines de jours après l'apparition de la maladie, de nombreux convalescents continuent d'en ressentir les effets. Et se sentent parfois délaissés par le corps médical.

[Consulter le journal](#)

Le Monde

[Se connecter](#)[S'abonner](#)

ACTUALITÉS ▾

ÉCONOMIE ▾

VIDÉOS ▾

OPINIONS ▾

CULTURE ▾

M LE MAG ▾

SERVICES ▾



PLANÈTE • CORONAVIRUS ET PANDÉMIE DE COVID-19

Partage



Les députés plaident pour un renforcement du dispositif face aux formes longues du Covid-19



Une résolution, demandant notamment au gouvernement l'élaboration d'un « parcours de soins adapté », a été adoptée mercredi à l'unanimité par l'Assemblée nationale.

About Us

[Governance](#)[The Board](#)[Honorary President](#)[Secretariat](#)[Youth Group](#)[Finance & Transparency](#)[Vacancies and Calls for Tender](#)[EPF Privacy Policy](#)[What is a patient organisation?](#)[A History of EPF](#)[Share this page](#)

About Us



The European Patients' Forum (EPF) is an umbrella organisation that works with patients' groups in public health and health advocacy across Europe. Our members represent specific chronic disease groups at EU level or are national coalitions of patients.

Our **Vision** is that **all patients with chronic conditions in Europe have access to high-quality, patient-centred health and related care.**

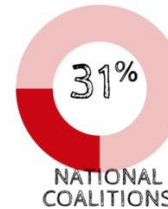
EPF members are pan-European patients' organisations and national platforms of patient organisations.

[Who We Are](#)[What We Do](#)[Members](#)[News](#)[Events](#)[Library](#)

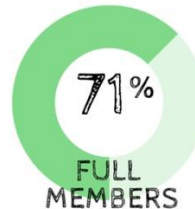
EPF Members

[Full Members](#)[Associate Members](#)[Provisional Members](#)[Become a Member](#)[Share this page](#)

A few numbers about our members!



72
patient
organisations



ICU-oriented



Providing Help & Hope for 75 Years

Since 1944, we've provided support
to anyone affected by cancer

LEARN MORE



A cancer diagnosis turns a person's world upside down —
emotionally, physically and financially. CancerCare® can help.

FOR PATIENTS & SURVIVORS

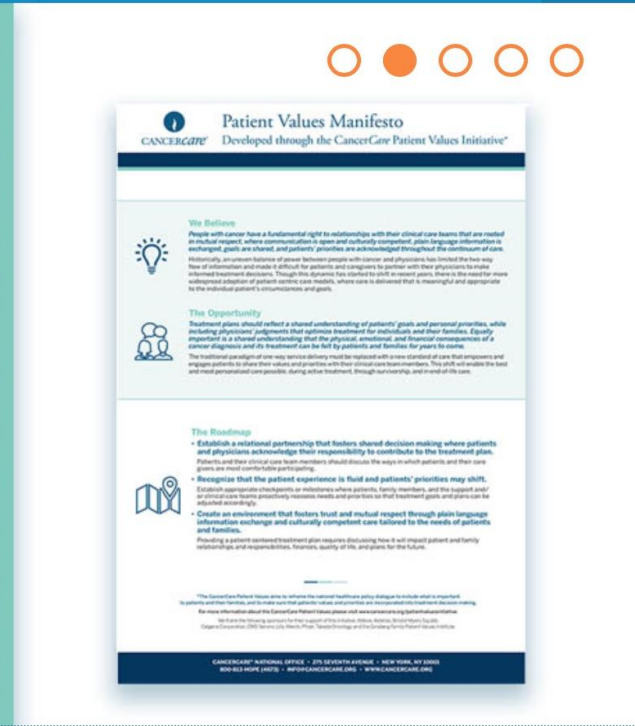
FOR CAREGIVERS & LOVED ONES

FOR HEALTH CARE PROFESSIONALS

CancerCare's Patient Values Manifesto

Declaring the fundamental importance of including patients' values and priorities in cancer treatment planning

READ OUR MANIFESTO



A cancer diagnosis turns a person's world upside down — emotionally, physically and financially. CancerCare® can help.

FOR PATIENTS & SURVIVORS

FOR CAREGIVERS & LOVED ONES

FOR HEALTH CARE PROFESSIONALS



Learn From Cancer Experts

Listen to our free Connect Education Workshops

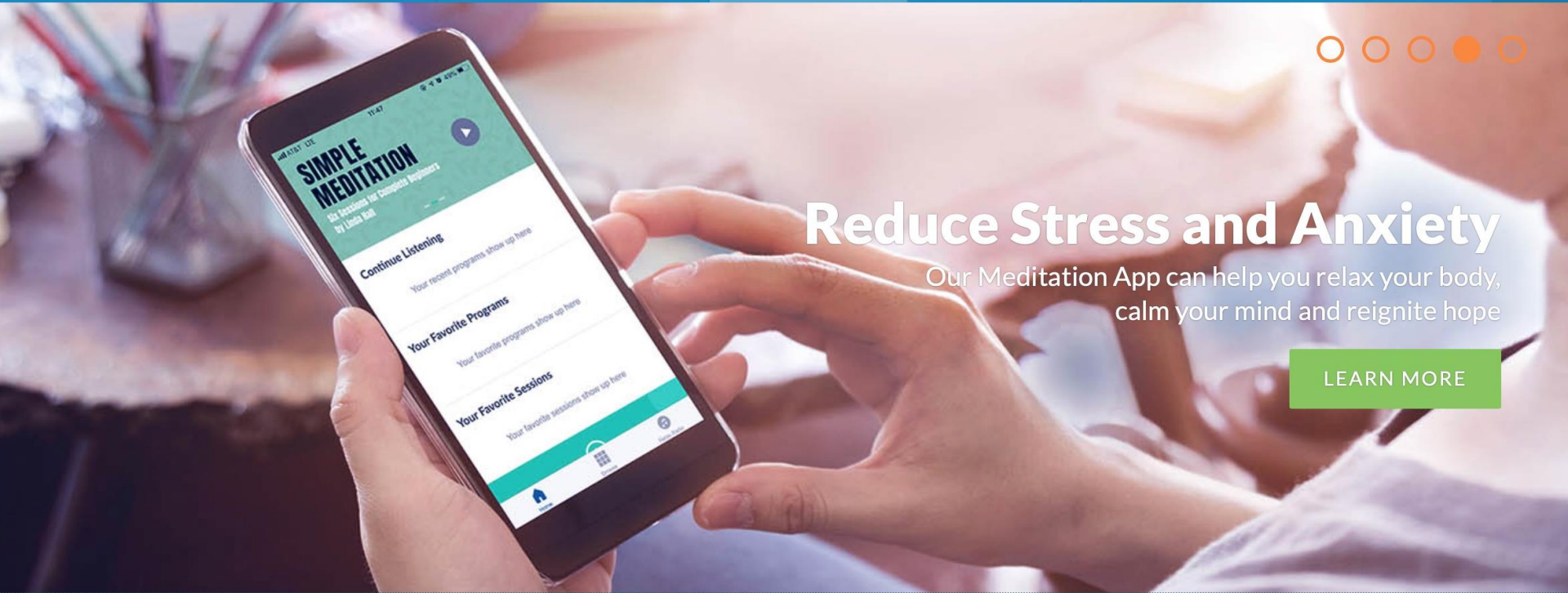
[VIEW ALL](#)

A cancer diagnosis turns a person's world upside down — emotionally, physically and financially. CancerCare® can help.

[FOR PATIENTS & SURVIVORS](#)

[FOR CAREGIVERS & LOVED ONES](#)

[FOR HEALTH CARE PROFESSIONALS](#)



Reduce Stress and Anxiety

Our Meditation App can help you relax your body, calm your mind and reignite hope

LEARN MORE

A cancer diagnosis turns a person's world upside down — emotionally, physically and financially. CancerCare® can help.

FOR PATIENTS & SURVIVORS

FOR CAREGIVERS & LOVED ONES

FOR HEALTH CARE PROFESSIONALS

CancerCare Pet Assistance & Wellness (PAW) Program

Caring for your pet when you have cancer can be challenging.

Listen to our Connect Education Workshop
*Joys and Challenges of Pets in
Your Home When You Have Cancer*

FULL PAW PROGRAM COMING SOON!



A cancer diagnosis turns a person's world upside down — emotionally, physically and financially. CancerCare® can help.

FOR PATIENTS & SURVIVORS

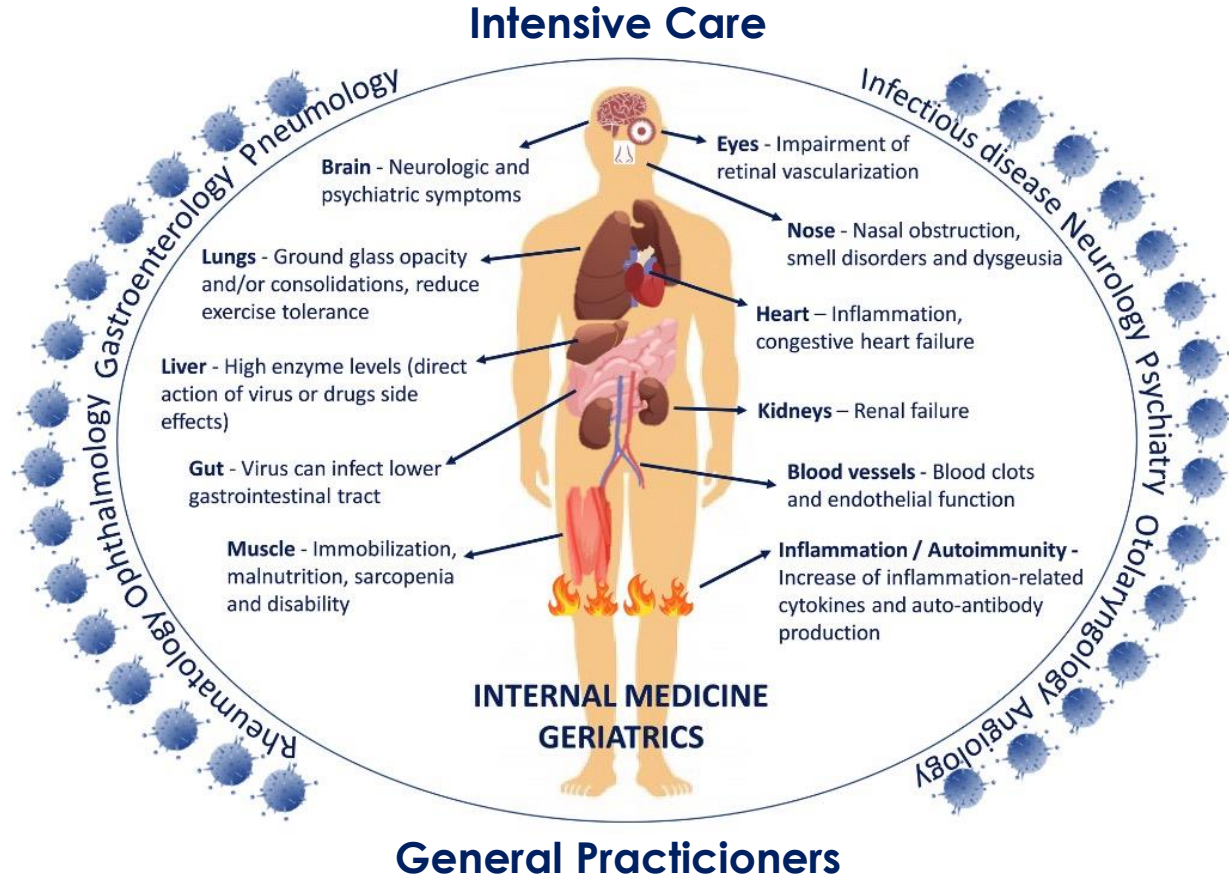
FOR CAREGIVERS & LOVED ONES

FOR HEALTH CARE PROFESSIONALS

COVID

A ~~cancer~~ diagnosis turns a person's world upside down — emotionally, physically and financially. ~~CancerCure~~[®] can help?
Who

COVID à long-terme: une approche multi-disciplinaire





www.one-o-one.eu