# Et après la réanimation?


Dr Julie Delemazure

Unité de Soins de Rééducation Post Réanimation SRPR respiratoire

MIR EOLE Pr Demoule

Hopital Pitié Salpétrière Paris

# Conflit d’intérêt

- Congrès ATS 2023 financé par LVL médical

# Si la réanimation était une maladie

# Diagnostique

# Outcomes after Critical Illness

Margaret S. Herridge, M.D., M.P.H., and Élie Azoulay, M.D., Ph.D.

N Engl J Med 2023;388:913-24.
DOI: 10.1056/NEJMra2104669

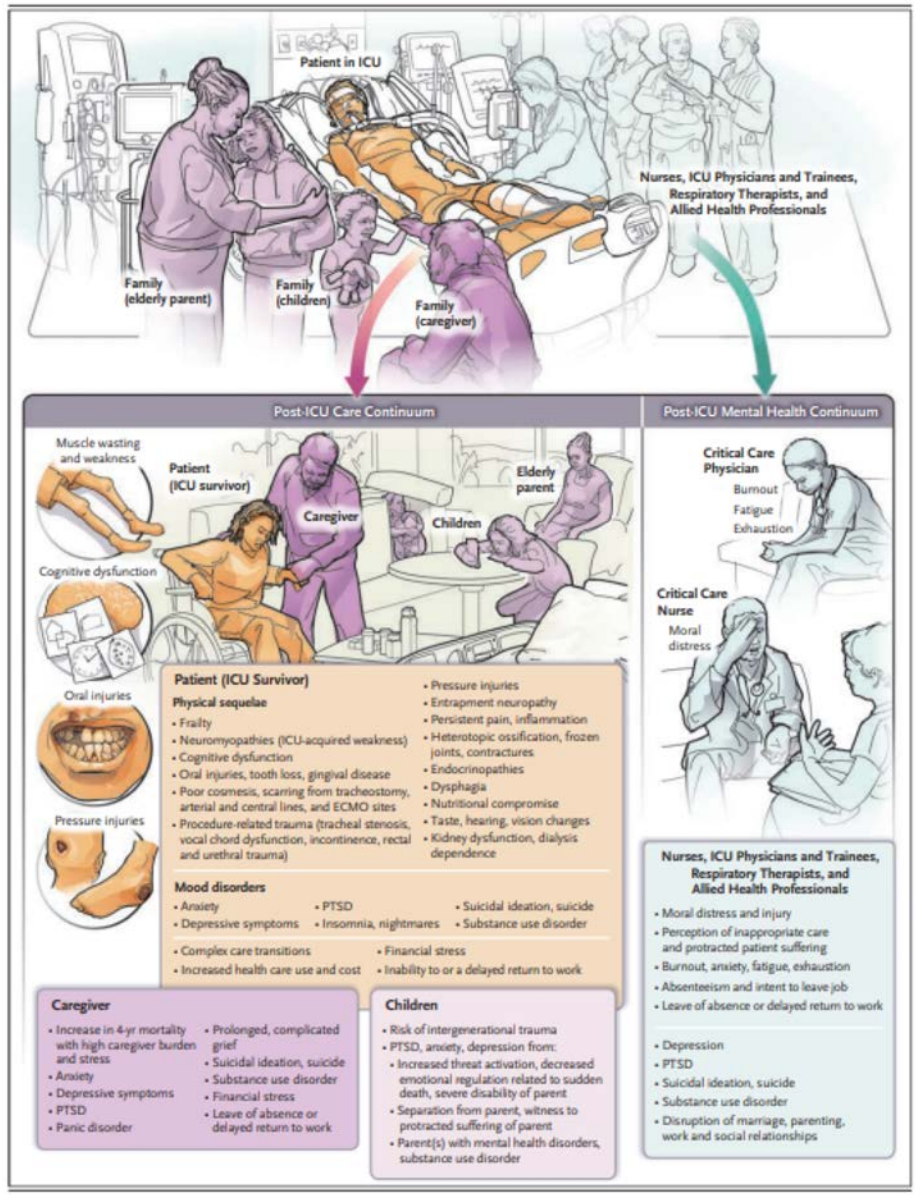



**Table 1. Sequelae of Critical Illness.***

| Disorder | Consequences |
|---|---|
| ICU-acquired weakness | Multidimensional functional disability (prolonged mechanical ventilation, compromised ambulation, impaired ADL, pharyngeal muscle weakness, swallowing difficulties and increased risk of aspiration, employment difficulties, reduced health-related quality of life for ≥5 yr) |
| Nutritional compromise | Compromised physical and neurocognitive recovery |
| Entrapment neuropathy | Foot or wrist drop, compromising rehabilitation and functioning |
| Frailty | Functional disability, new nursing home admission, increased post-ICU mortality |
| Cognitive dysfunction | Decrease in attention, concentration, processing speed, memory, executive dysfunction for ≥5 yr; employment and health status affected |
| Mood disorders | Depressive symptoms, anxiety, PTSD, suicidality, substance misuse for ≥8 yr |
| Pressure injuries | May persist beyond 1 yr and impede return to work; increased post-ICU mortality |
| Oral complications | Gingivitis, dental caries, tooth injury or loss, need for longer-term dental follow-up |
| Endocrinopathies | Derangement of thyroid, adrenal function, and hypothalamic–pituitary axis, disrupting endocrine homeostasis, sexual function |
| Musculoskeletal disorders | Frozen joints, contractures, and heterotopic ossification |
| Changes in appearance | Alopecia, scarring, and disfigurement, complicating social reintegration |
| Taste changes | Difficulty with feeding and nutrition |
| Hearing or vision changes | Delayed recovery, return to home and work |
| Procedure-related trauma | Rectal and urethral injury, vocal cord dysfunction with altered phonation, tracheal stenosis, impeding ADL, rehabilitation, and return to home and work |
| Renal dysfunction | Chronic impairment of the glomerular filtration rate, need for renal-replacement therapy, compromised health-related quality of life, and increased health care use and 1-year mortality |

FICHE

# Diagnostic et prise en charge des patients adultes avec un syndrome post-réanimation (PICS) et de leur entourage

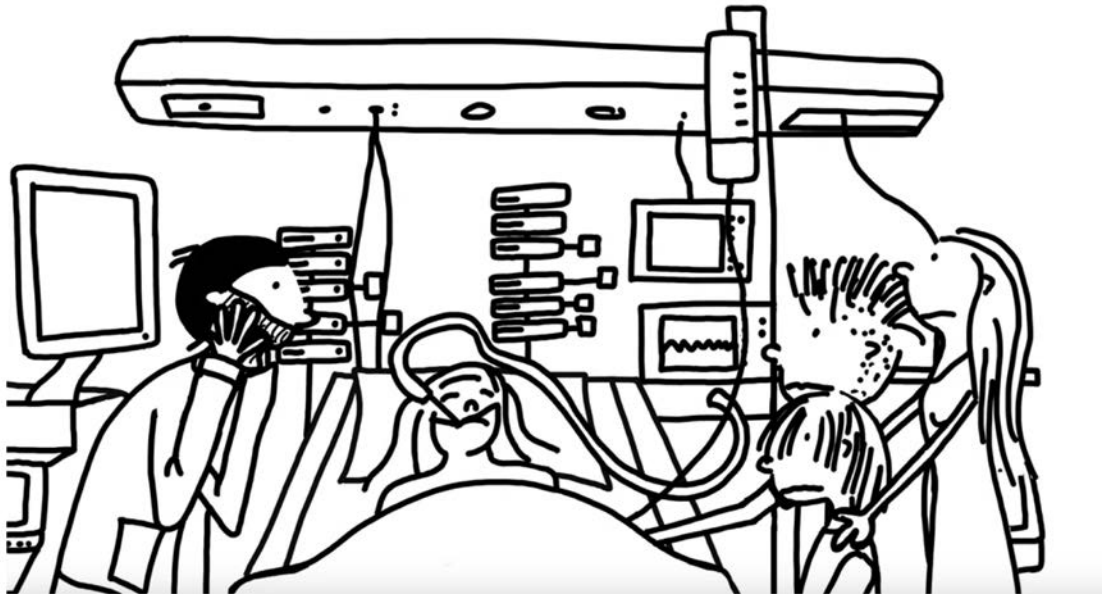
**Outil n° 1, pour le médecin de premier recours**

**Validée par le Collège le 17 mai 2023**

HAS
HAUTE AUTORITÉ DE SANTÉ

## Définition du PICS

Syndrome fréquent (plus de la moitié des patients à 3 mois) défini par la survenue ou par l'aggravation, dans les suites d'un séjour en réanimation, de symptômes physiques, psychologiques/psychiatriques et/ou cognitifs, pouvant entraîner des limitations d'activité, altérer la qualité de vie et l'autonomie, et entraver la réinsertion socioprofessionnelle des patients.

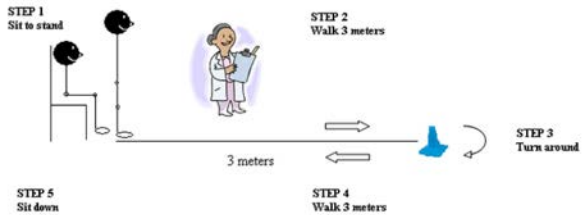


# Facteurs de risques

# Identifier les patients à risque de développer un PICS

Il est recommandé de considérer les patients présentant un ou plusieurs des facteurs de risque ci-dessous comme à risque de développer un PICS.

| Avant le séjour en réanimation | Pendant le séjour en réanimation | À la sortie et après le séjour en réanimation |
|---|---|---|
| – Âge (en particulier > 75 ans)<br>– Fragilité clinique (autonomie limitée avant l'admission, comorbidités préexistantes à l'admission, état général dont dénutrition et sarcopénie)<br>– Limitation fonctionnelle<br>– Troubles cognitifs<br>– Antécédents psychologiques/psychiatriques | – Motif d'admission : choc septique, SDRA (syndrome de détresse respiratoire aiguë)<br>– *Delirium* (syndrome confusionnel)<br>– Durée de séjour : durée de ventilation mécanique et/ou de traitement par catécholamines ≥ 3 jours<br>– Certaines thérapeutiques dont les curares, benzodiazépines | – Statut fonctionnel à la sortie (difficultés à se mobiliser, support ventilatoire)<br>– Dénutrition<br>– Souvenirs d'épisodes délirants<br>– Expérience négative du séjour en réanimation<br>– Apparition précoce de symptômes psychologiques/psychiatriques (troubles anxieux, dépressifs et de stress post-traumatique) |




Trouble de l'anxiété généralisée : échelle à 7 énoncés (GAD-7)

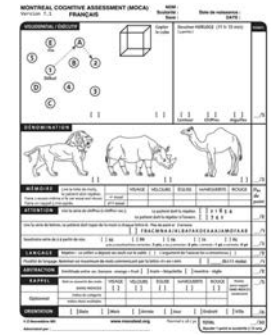
| Au cours des 14 derniers jours, avec quelle fréquence avez-vous été troublé(e) par les problèmes suivants ? | Jamais | Plusieurs jours | Plus de la moitié des jours | Presque tous les jours |
|---|---|---|---|---|
| 1. Sentiment de nervosité, anxiété ou tension | 0 | 1 | 2 | 3 |
| 2. Incapable d'arrêter de vous inquiéter ou de contrôler vos inquiétudes | 0 | 1 | 2 | 3 |
| 3. Inquiétudes excessives à propos de tout ou de rien | 0 | 1 | 2 | 3 |
| 4. Difficulté à se détendre | 0 | 1 | 2 | 3 |
| 5. Agitation telle qu'il est difficile de rester tranquille | 0 | 1 | 2 | 3 |
| 6. Devenir facilement contrarié(e) ou irritable | 0 | 1 | 2 | 3 |
| 7. Avoir peur que quelque chose d'épouvantable puisse arriver | 0 | 1 | 2 | 3 |
| Ajouter le score pour chaque colonne | | + | + | + |

Score Total (ajouter les totaux des colonnes) =


| Types de symptômes | Scores de dépistage rapide (notamment en médecine générale) |
|---|---|
| Physiques | – *Timed up and go test* |
| Psychologiques/psychiatriques | – PHQ-2 (symptômes dépressifs)<br>– GAD-2 (symptômes anxieux)<br>– PCL-5 (syndrome de stress post-traumatique) |
| Cognitifs | – MoCA |
| Autonomie | – Échelle iADL |

*** Le temps total nécessaire pour la réalisation de ces tests est estimé à moins de 30 minutes.**

| Questions | Jamais (0) | Plusieurs jours (1) | Plus de la moitié du temps (2) | Presque tous les jours (3) |
|---|---|---|---|---|
| Au cours des 2 dernières semaines, selon quelle fréquence avez-vous été gêné(e) par les problèmes suivants ? | | | | |
| Peu d'intérêt ou de plaisir à faire les choses | | | | |
| Être triste, déprimé(e) ou désespéré(e) | | | | |
| Difficultés à s'endormir ou à rester endormi(e), ou dormir trop | | | | |
| Se sentir fatigué(e) ou manquer d'énergie | | | | |
| Avoir peu d'appétit ou manger trop | | | | |
| Avoir une mauvaise opinion de soi-même, ou avoir le sentiment d'être nul (le), ou d'avoir déçu sa famille ou s'être déçu(e) soi-même | | | | |
| Avoir du mal à se concentrer, par exemple, pour lire le journal ou regarder la télévision | | | | |
| Bouger ou parler si lentement que les autres auraient pu le remarquer. Ou au contraire, être si agité(e) que vous avez eu du mal à tenir en place par rapport à d'habitude | | | | |
| Penser qu'il vaudrait mieux mourir ou envisager de vous faire du mal d'une manière ou d'une autre | | | | |

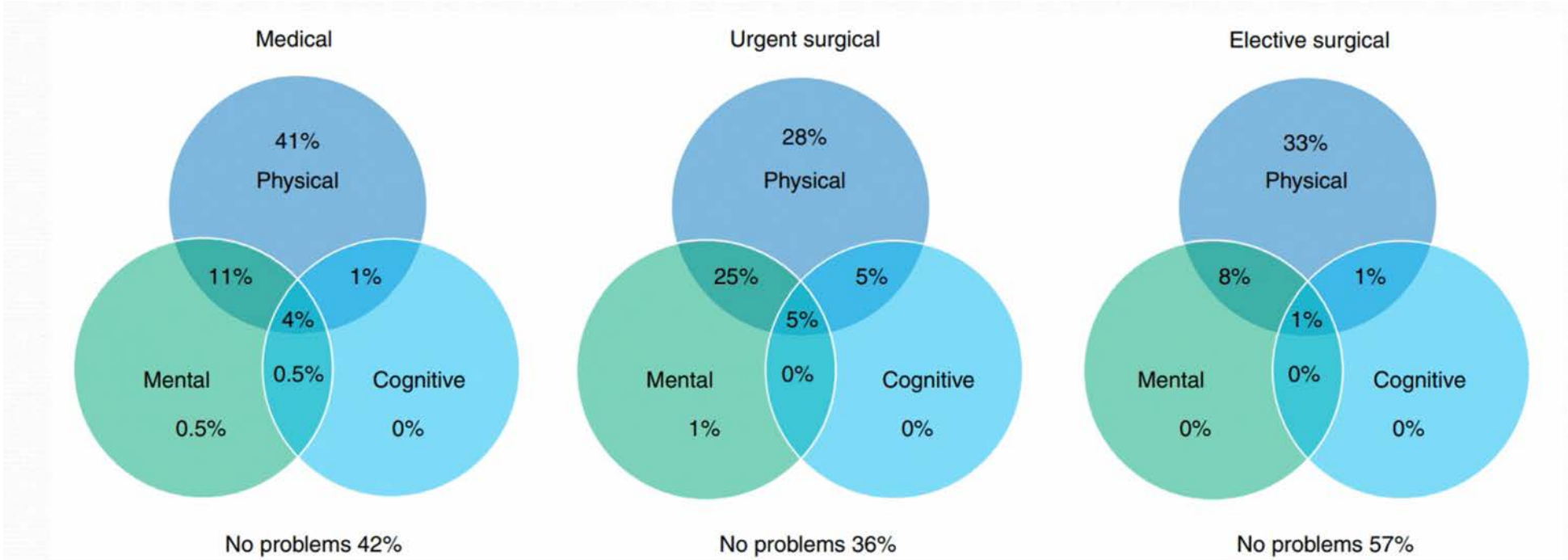
# Incidence

# New Physical, Mental, and Cognitive Problems 1 Year after ICU Admission

Am J Respir Crit Care Med Vol 203, Iss 12, pp 1512–1521, Jun 15, 2021

## A Prospective Multicenter Study

Wytske W. Geense[1], Marieke Zegers[1], Marco A. A. Peters[2], Esther Ewalds[3], Koen S. Simons[4], Hester Vermeulen[5,6], Johannes G. van der Hoeven[1], and Mark van den Boogaard[1]




2300 patients
12h ICU

50% PICS à 1 an

Rousseau *et al. Ann. Intensive Care* (2021) 11:118
https://doi.org/10.1186/s13613-021-00910-9

Annals of Intensive Care

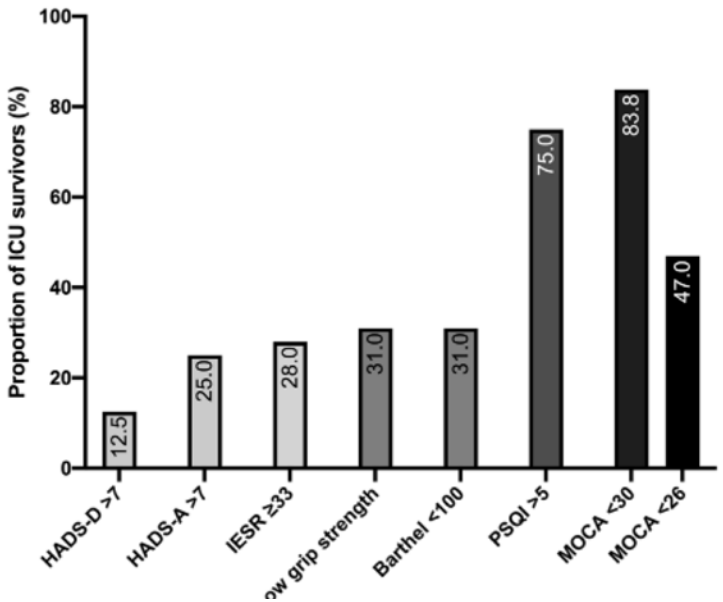
RESEARCH Open Access

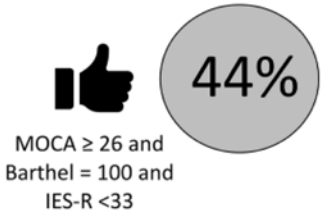
# Post-intensive care syndrome after a critical COVID-19: cohort study from a Belgian follow-up clinic

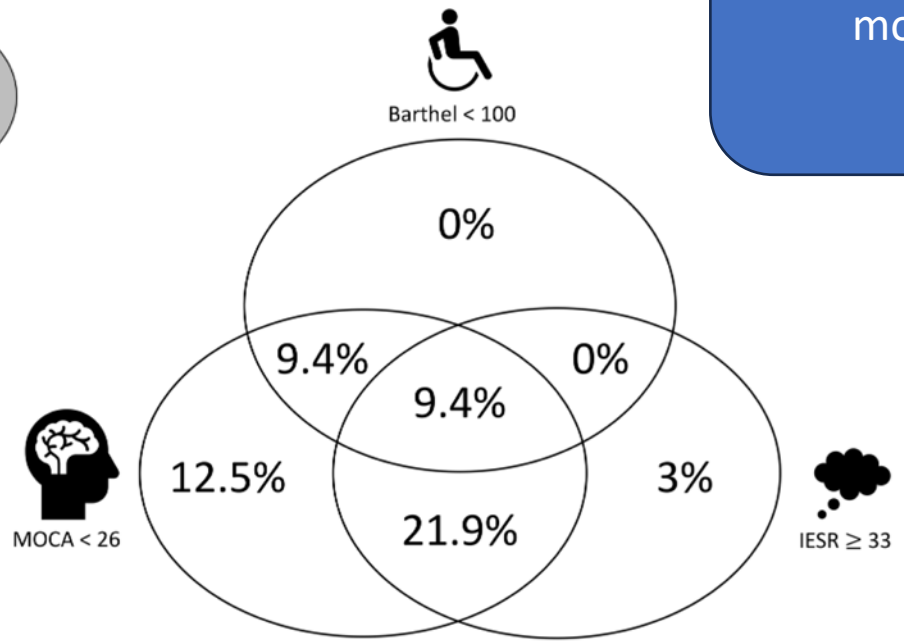
Anne-Françoise Rousseau[1*], Pauline Minguet[1], Camille Colson[1], Isabelle Kellens[1], Sourour Chaabane[1], Pierre Delanaye[2,4], Etienne Cavalier[3], J. Geoffrey Chase[5], Bernard Lambermont[1] and Benoit Misset[1]

ICU > 7 jours

56% PICS à 3 mois



scientific reports

# Prevalence of post-intensive care syndrome in mechanically ventilated patients with COVID-19

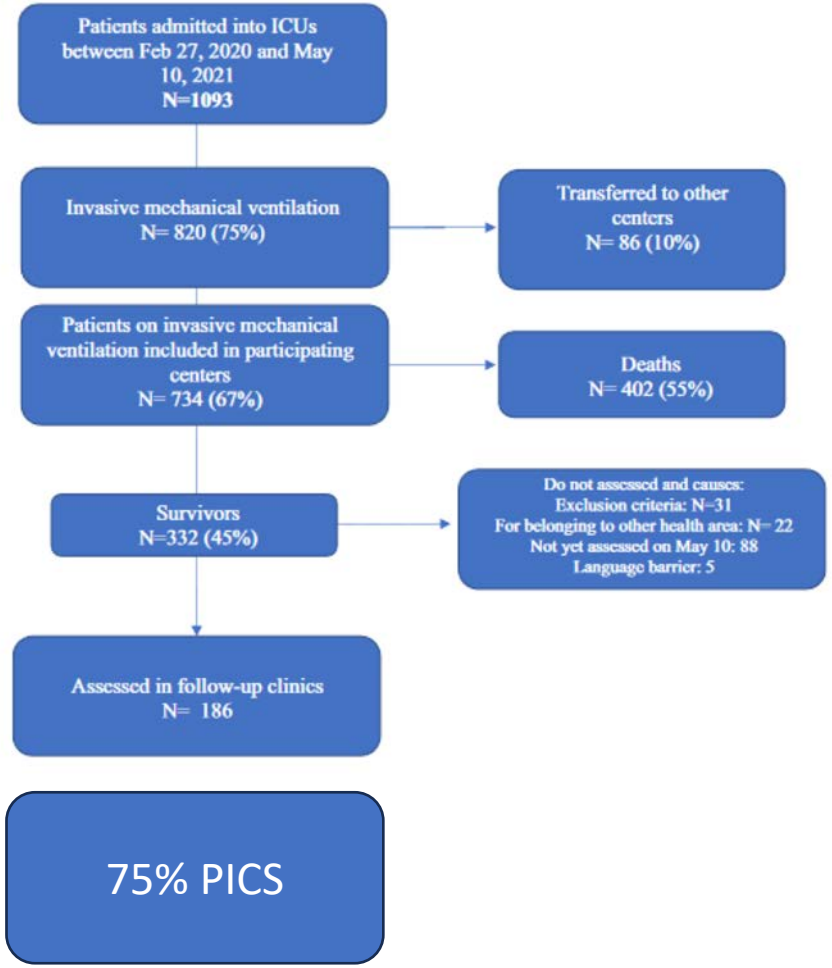
Kapil Nanwani-Nanwani[1], Lorenzo López-Pérez[2], Carola Giménez-Esparza[3], Inés Ruiz-Barranco[1], Elena Carrillo[1], María Soledad Arellano[1], Domingo Díaz-Díaz[2], Beatriz Hurtado[3], Andoni García-Muñoz[1], María Ángeles Relucio[3], Manuel Quintana-Díaz[1,4,12], María Rosario Úrbez[5], Andrés Saravia[1], María Victoria Bonan[6], Francisco García-Río[4,7,8], María Luisa Testillano[9], Jesús Villar[8,10,11], Abelardo García de Lorenzo[1,4,12] & José Manuel Añón[1,4,8]✉

| Scale/assessment tool used | PICS domain |
|---|---|
| Spirometry | Physical/pulmonary |
| Dynamometry | Physical/neuromuscular |
| Barthel score | Physical/dependence |
| HADS-A | Psychiatric |
| HADS-D | Psychiatric |
| PTSD symptom severity scale | Psychiatric |
| MoCA test | Cognitive |

200 patients

VM

à 3 mois




75% PICS

| Procedures | PICS | No PICS | p |
|---|---|---|---|
| MV < 7 days, n (%) | 23 (64) | 13 (36) | 0.09 |
| MV: 7–14 days, n (%) | 41 (69) | 18 (31) | 0.2 |
| MV > 14 days, n (%) | 75 (82) | 16 (18) | 0.01 |
| Midazolam, n (%) | 97 (82) | 21 (18) | 0.002 |
| Propofol, n (%) | 137 (74) | 47 (26) | 0.5 |
| Ketamine, n (%) | 24 (86) | 4 (14) | 0.1 |
| Fentanyl, n (%) | 122 (76) | 39 (24) | 0.2 |
| Remifentanil, n (%) | 32 (68) | 15 (32) | 0.2 |
| Paralysis, n (%) | 118 (75) | 39 (25) | 0.7 |
| Steroids, n (%) | 121 (74) | 42 (26) | 0.3 |
| Vasopressors, n (%) | 119 (77) | 36 (23) | 0.1 |
| Nosocomial infection, n (%) | 91 (80) | 23 (20) | 0.04 |
| RRT, n (%) | 13 (87) | 2 (13) | 0.3 |
| ECMO, n (%) | 5 (100) | 0 (0) | 0.1 |
| $ECCO_2R$, n (%) | 3 (100) | 0 (0) | 0.1 |
| Delirium, n (%) | 94 (79) | 25 (21) | 0.07 |

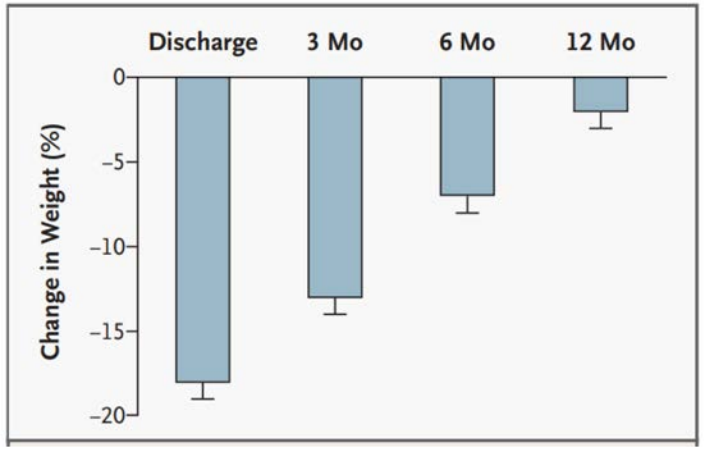
# Symptômes

The NEW ENGLAND JOURNAL of MEDICINE

# Functional Disability 5 Years after Acute Respiratory Distress Syndrome

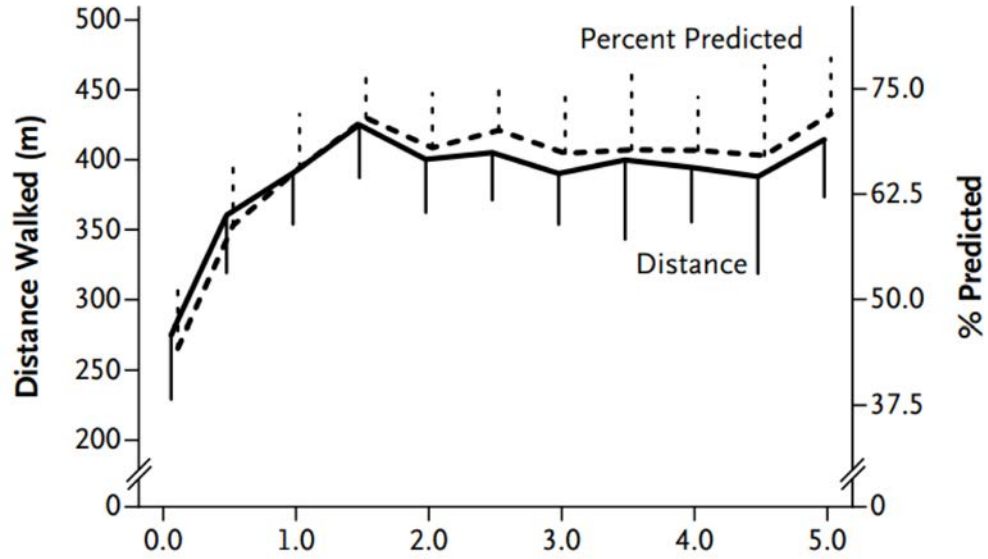
Margaret S. Herridge, M.D., M.P.H., Catherine M. Tansey, M.Sc., Andrea Matté, B.Sc., George Tomlinson, Ph.D., Natalia Diaz-Granados, M.Sc., Andrew Cooper, M.D., Cameron B. Guest, M.D., C. David Mazer, M.D., Sangeeta Mehta, M.D., Thomas E. Stewart, M.D., Paul Kudlow, B.Sc., Deborah Cook, M.D., Arthur S. Slutsky, M.D., and Angela M. Cheung, M.D., Ph.D., for the Canadian Critical Care Trials Group

| Characteristic | Surviving Patients (N=117) |
|---|---|
| Age — yr | |
| Median | 45 |
| Interquartile range | 36–58 |
| Male sex — no. (%) | 66 (56) |
| Preexisting organ dysfunction — no. (%)† | 72 (62) |
| Preexisting pulmonary disease — no. (%)‡ | 13 (11) |




# 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., meron 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



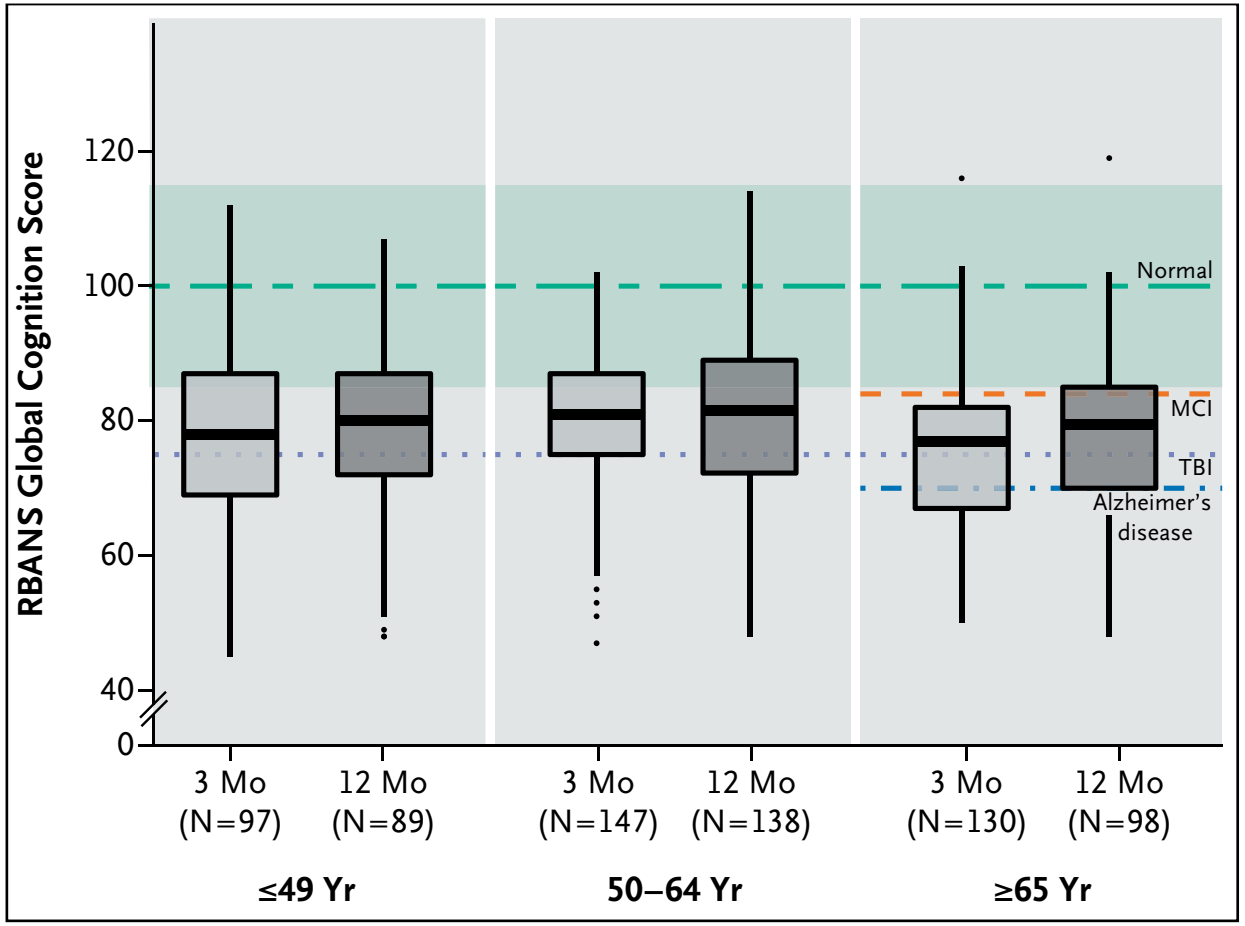

| Clinical Outcomes | At 1 Year (N=83) | At 2 Years (N=69) | At 3 Years (N=71) | At 4 Years (N=63) | At 5 Years (N=64) |
|---|---|---|---|---|---|
| Median SF-36 score | | | | | |
| Physical functioning | 60 | 70 | 70 | 75 | 75 |
| Role, physical | 25 | 50 | 100 | 75 | 88 |
| Bodily pain | 62 | 62 | 72 | 74 | 74 |
| General health | 52 | 62 | 55 | 59 | 62 |
| Vitality | 55 | 55 | 50 | 50 | 55 |
| Social functioning | 63 | 75 | 75 | 69 | 75 |
| Role, emotional | 100 | 100 | 100 | 100 | 100 |
| Mental health | 72 | 76 | 72 | 76 | 76 |

# Long-Term Cognitive Impairment after Critical Illness

P.P. Pandharipande, T.D. Girard, J.C. Jackson, A. Morandi, J.L. Thompson, B.T. Pun, N.E. Brummel, C.G. Hughes, E.E. Vasilevskis, A.K. Shintani, K.G. Moons, S.K. Geevarghese, A. Canonico, R.O. Hopkins, G.R. Bernard, R.S. Dittus, and E.W. Ely, for the BRAIN-ICU Study Investigators*

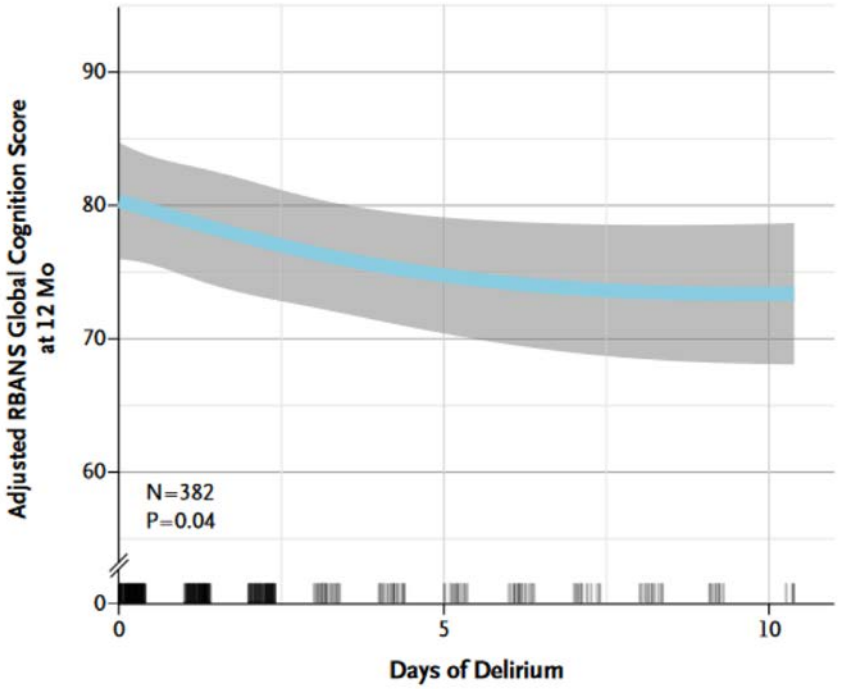
The NEW ENGLAND JOURNAL of MEDICINE

October 3, 2013
N Engl J Med 2013; 369:1306-1316
DOI: 10.1056/NEJMoa1301372




Trauma crânien léger
34%

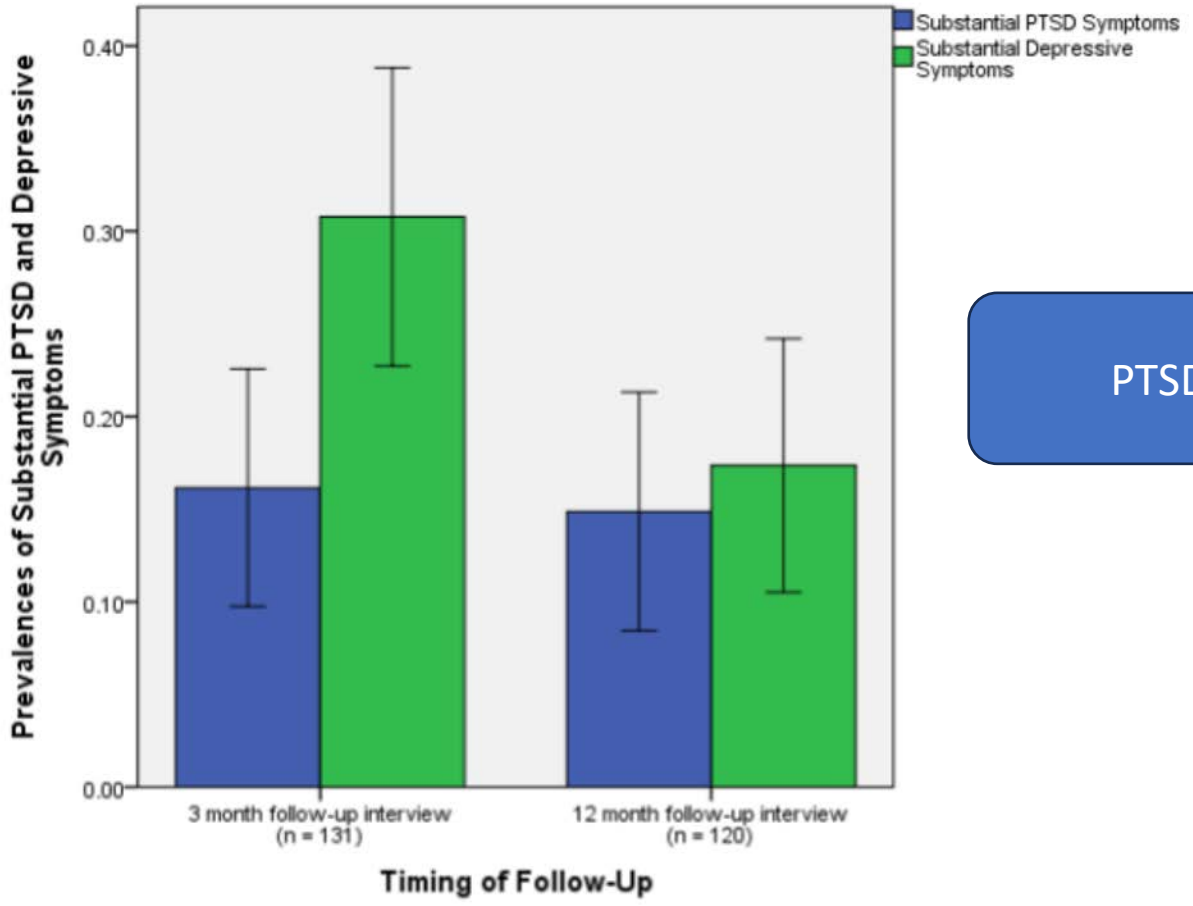
Alzheimer modéré
24%



# A Longitudinal Investigation of Posttraumatic Stress and Depressive Symptoms over the Course of the Year Following Medical-Surgical Intensive Care Unit Admission

*Gen Hosp Psychiatry*. 2013 ; 35(3): 226–232. doi:10.1016/j.genhosppsych.2012.12.005.

**Dimitry S. Davydow, M.D., M.P.H.**[1], **Douglas Zatzick, M.D.**[1], **Catherine L. Hough, M.D., M.Sc.**[2], and **Wayne J. Katon, M.D.**[1]




PTSD 15%

Détression 17%

Clinical Nutrition 41 (2022) 3026–3031

Contents lists available at ScienceDirect

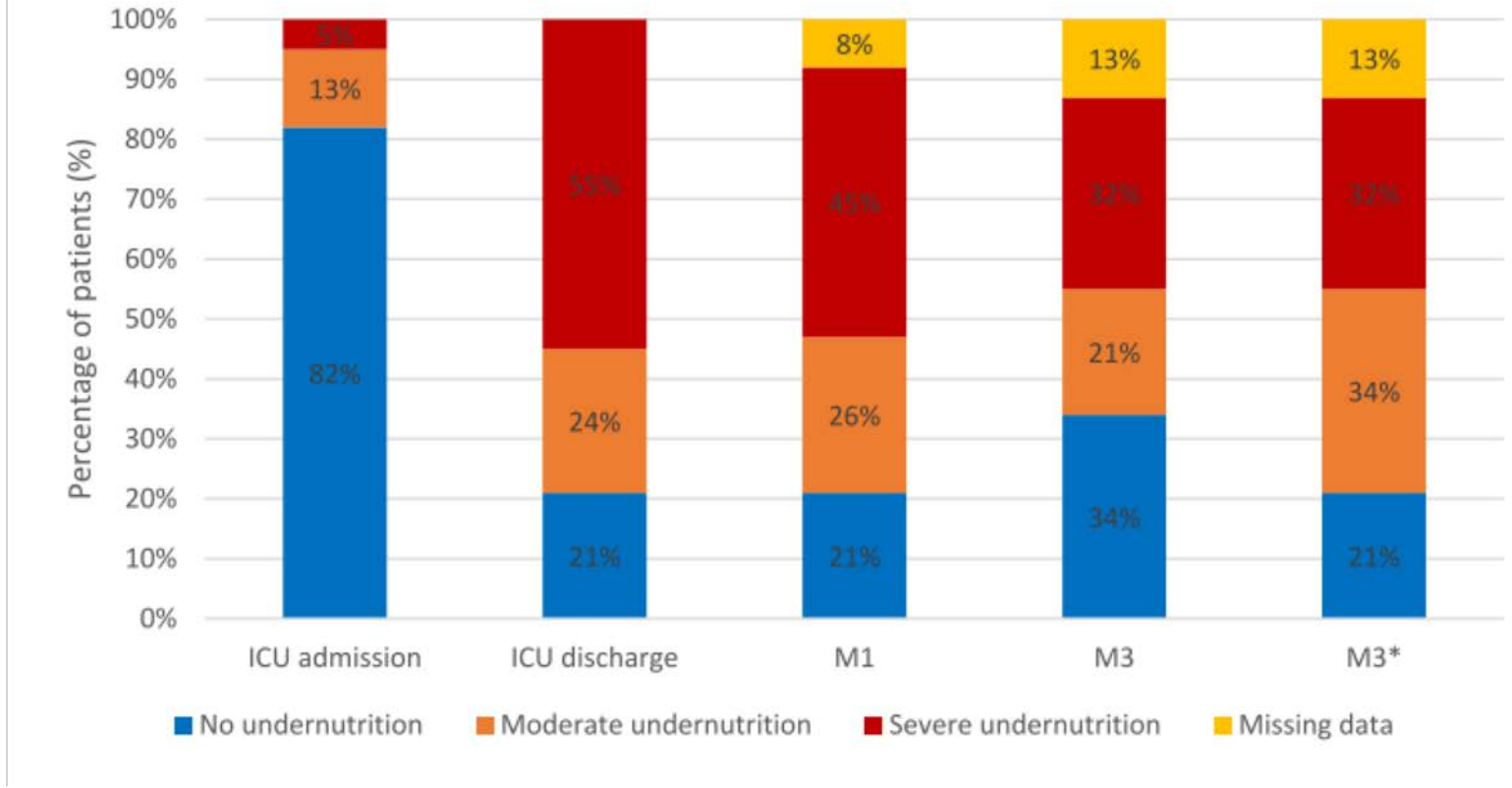
Clinical Nutrition

journal homepage: http://www.elsevier.com/locate/clnu

Covid-19

# Evolution of the nutritional status of COVID-19 critically-ill patients: A prospective observational study from ICU admission to three months after ICU discharge

C. Rives-Lange [a, b, c, *], A. Zimmer [a], A. Merazka [a], C. Carette [a, b, d], A. Martins-Bexinga [b, c], C. Hauw-Berlemont [e], E. Guerot [e], A.S. Jannot [b, f], J.L. Diehl [b, e, g], S. Czernichow [a, b, c], B. Hermann [b, e, h]




Durée VM

DMS ICU

# Persistent Features of Laryngeal Injury Following Endotracheal Intubation: A Systematic Review

Eileen Kelly[1,2] · Julia Hirschwald[1] · Julie Clemens[3] · Julie Regan[1]

Dysphagia (2023) 38:1333–1341
https://doi.org/10.1007/s00455-023-10559-0

**Table 2** Nature, prevalence and severity of persistent laryngeal injury

| Study, $n$ = sample size beyond hospital discharge | Brodsky et al. [27], $n$ = 115 | Zielske et al. [28], $n$ = 60 | Nixon et al. [29], $n$ = 83 | Shinn et al. [3], $n$ = 67 | Naunheim et al. [25], $n$ = 20 | Rouhani et al. [26], $n$ = 41 |
|---|---|---|---|---|---|---|
| Outcome reported | Swallow | Swallow | Voice | Voice | Airway, voice, swallow | Airway, voice, swallow |
| Timepoint beyond hospital discharge, weeks | Multiple time-points (12–240) | 16 | 8 | 10 | NR | 8 |
| *Method of assessment* | | | | | | |
| • Instrumental | | FEES | | | Laryngoscopy<br>Stroboscopy | Nasendoscopy |
| • Clinical | | FOIS [21] | VoiSS [35] | | | GRBAS [19]<br>FOIS [21]<br>WST [36] |
| • Patient-reported Outcome | SSQ [34] | | | VHI-10 [20] | | VHI-10 [20]<br>RSI [31]<br>EAT-10 [33]<br>DHI [32] |
| Prevalence of injury | Dysphagia: 23% | Dysphagia: 23% | Dysphonia: 49% | NR | Airway injury: 27%<br>Dysphagia: 30%<br>Dysphonia: 60% | Airway injury: 18.9%<br>Dysphagia: 30%<br>Dysphonia: 13.2–53.7% |
| Severity | NR | 16% severe dysphagia | 16% severe, 33% moderate | NR | NR | NR |

*SSQ* Sydney Swallow Questionnaire [34], *FEES* Fibreoptic Endoscopic Evaluation of Swallow, *FOIS* Functional Oral Intake Scale [21], *VoiSS* Voice Symptom Scale [35], *VHI-10* Voice Handicap Index-10 [20], *GRBAS* Grade, Roughness, Breathiness, Asthenia, Strain [19], *WST* Water Swallow Test [36], *EAT-10* Eating Assessment Tool-10 [33], *DHI* Dysphagia Handicap Index [32], *NR* Not reported

Dysphonie 15 – 60%

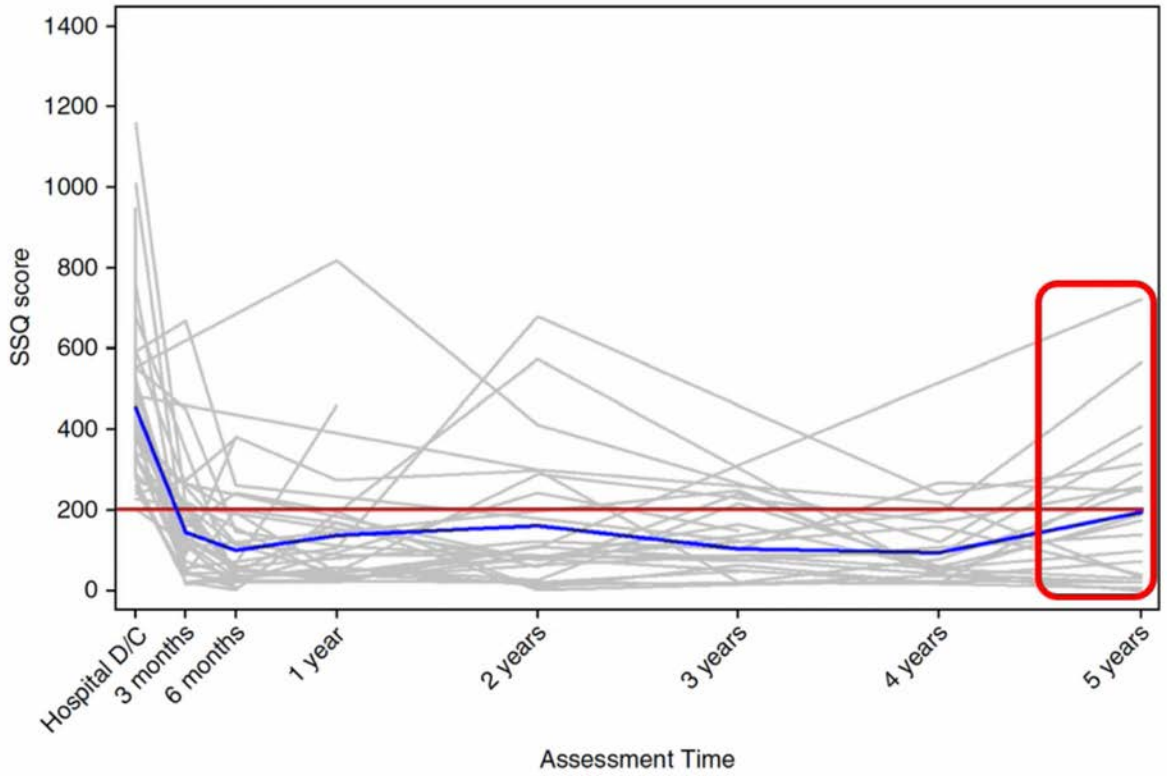
Déglutition 25%

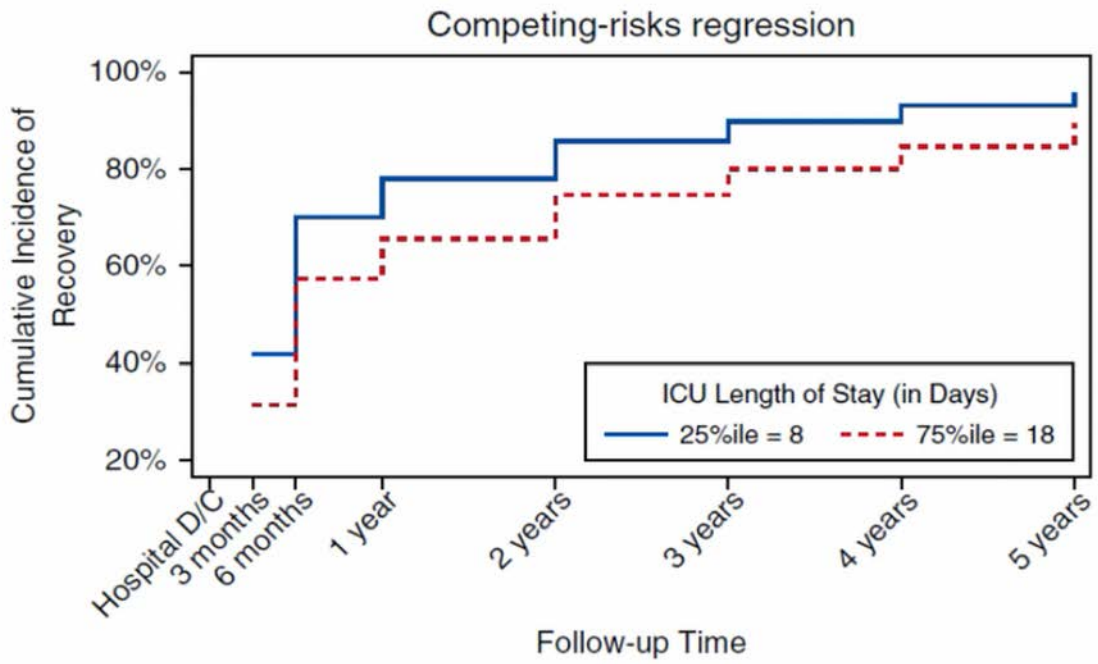
# Recovery from Dysphagia Symptoms after Oral Endotracheal Intubation in Acute Respiratory Distress Syndrome Survivors

## A 5-Year Longitudinal Study

Martin B. Brodsky[1,2], Minxuan Huang[2,3], Carl Shanholtz[4], Pedro A. Mendez-Tellez[2,5], Jeffrey B. Palmer[1,6,7], Elizabeth Colantuoni[2,8], and Dale M. Needham[1,2,3]

Brodsky et al. 2016




Trouble de déglutition sortie de réa pour SDRA 30%

DMS ICU

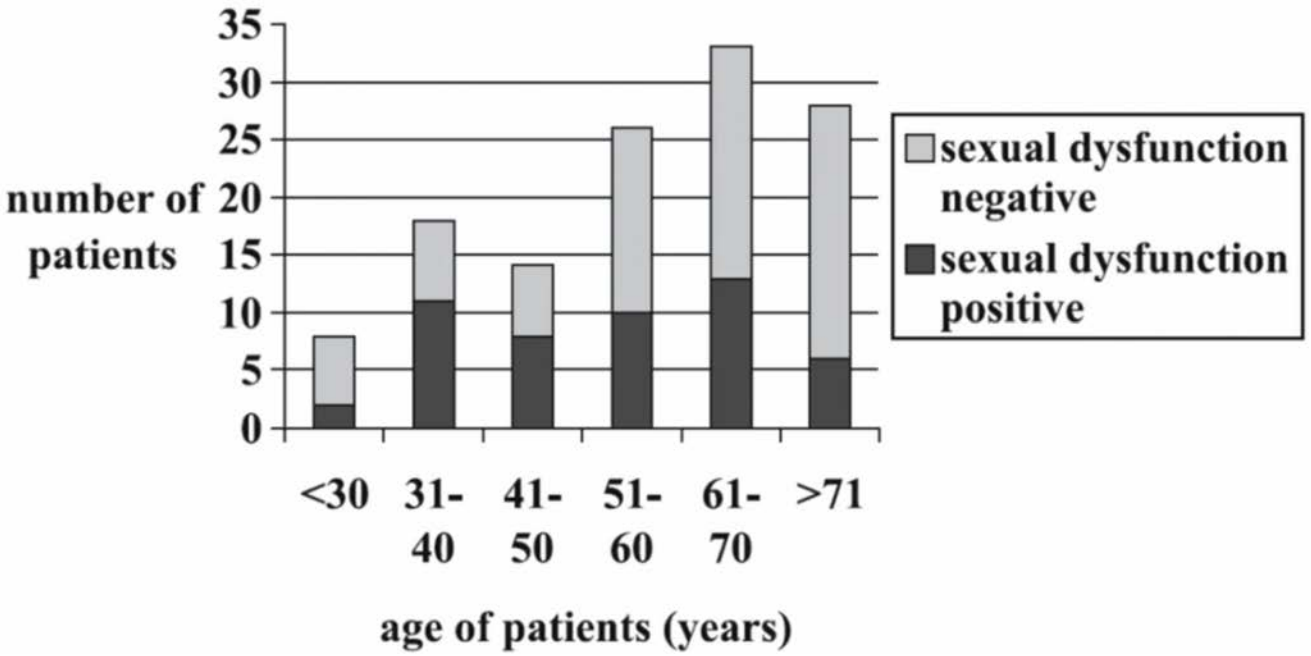
John Griffiths
Melanie Gager
Nicola Alder
Derek Fawcett
Carl Waldmann
Jane Quinlan

# A self-report-based study of the incidence and associations of sexual dysfunction in survivors of intensive care treatment

Intensive Care Med (2006) 32:445–451
DOI 10.1007/s00134-005-0048-7

45% d'insatisfaction

| Characteristic | | Sexual dysfunction Yes ($n=50$)[a] | No ($n=58$) | $p$ value |
|---|---|---|---|---|
| Number with PTSD (%) | | 32 (64.0) | 24 (41.4) | 0.019[b] |
| Age (%) | <41 | 11 (22.0) | 14 (24.1) | 0.8[c] |
| | 41–60 | 14 (28.0) | 16 (27.6) | |
| | > 60 | 25 (50.0) | 28 (48.3) | |



Bourdiol *et al. Critical Care* (2023) 27:199
https://doi.org/10.1186/s13054-023-04491-w

Critical Care

RESEARCH Open Access

# Prevalence and risk factors of significant persistent pain symptoms after critical care illness: a prospective multicentric study

50% douleurs

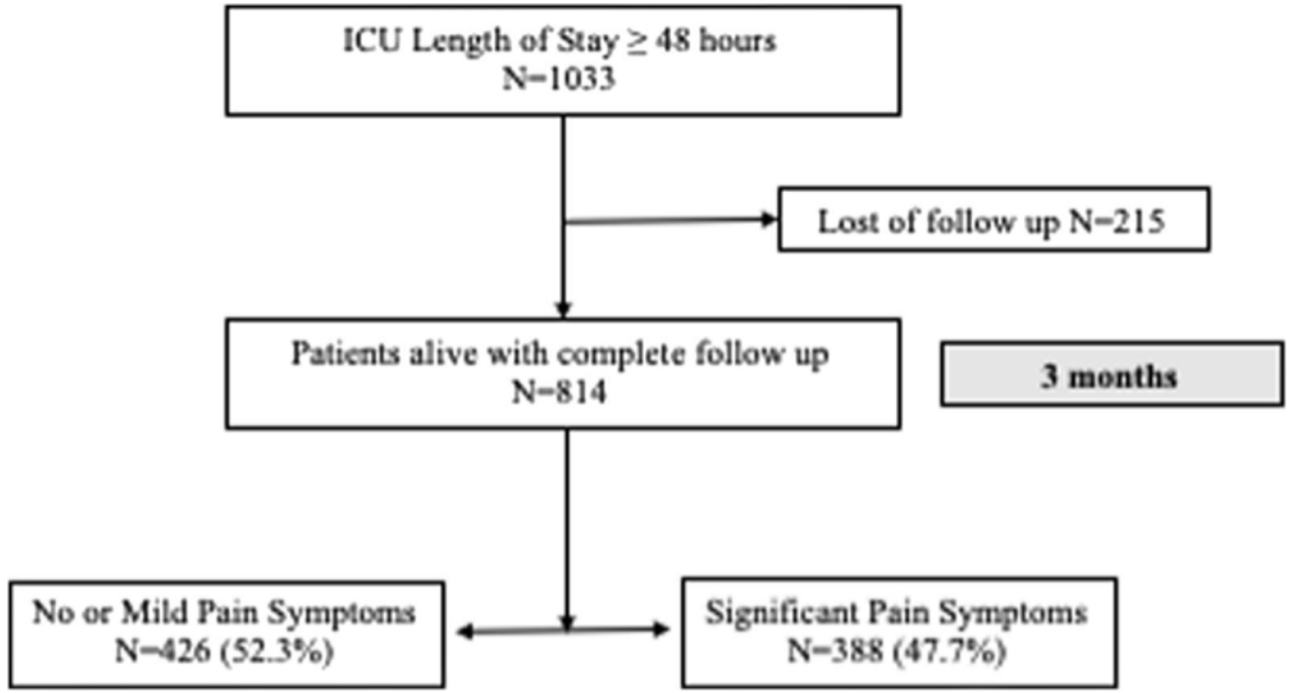
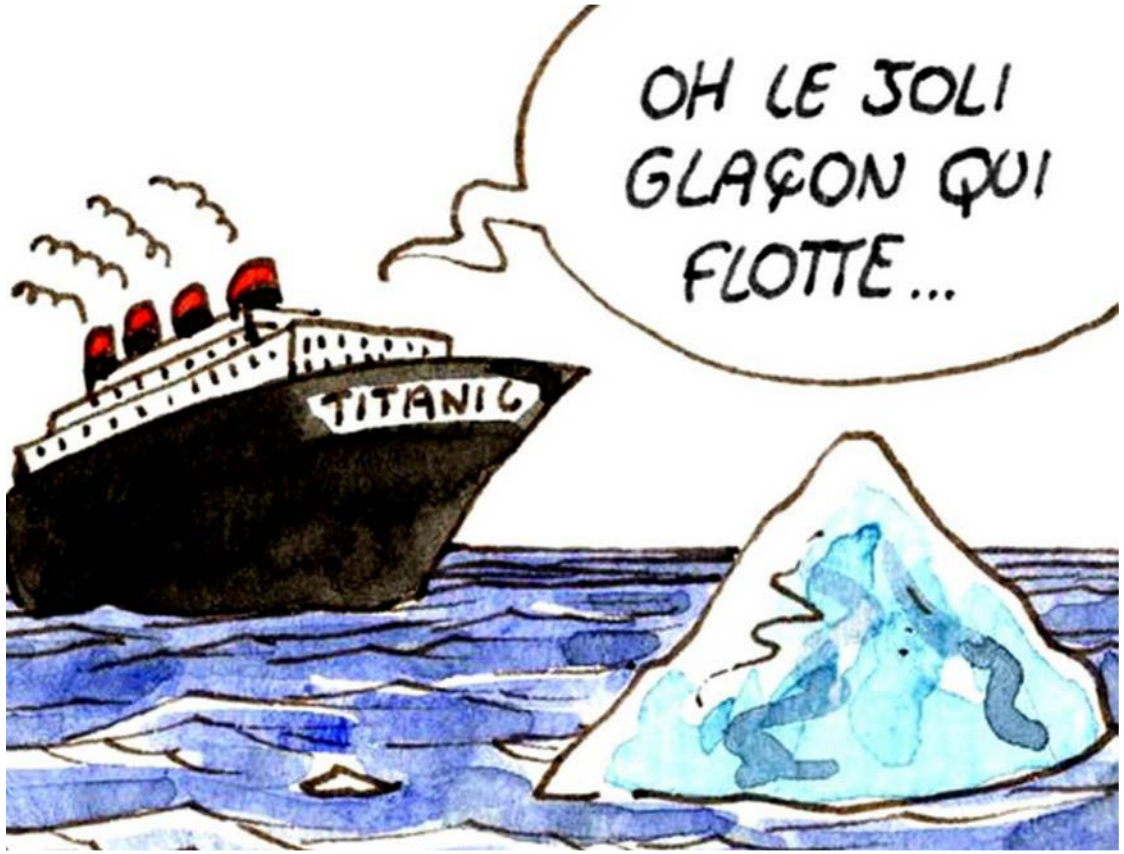



**Table 4** Risk factors of significant persistent pain symptoms, 3 months after ICU admission

| Risk factors | *N* = | Odds ratio | 95% Confidence interval | *P* value |
|---|---|---|---|---|
| Female | 270 | 1.5 | [1.1–2.1] | 0.02 |
| Anti-depressive agents | 72 | 2.2 | [1.3–4] | 0.006 |
| Prone positioning in the ICU | 47 | 3 | [1.4–6.4] | 0.003 |
| NRS ≥ 3 on ICU discharge | 483 | 2.4 | [1.7–3.4] | < 0.0001 |
| *Cause of admission* | | | | |
| Medical cause | 199 | Ref | | |
| Trauma (non neuro) | 123 | 3.5 | [2.1–6] | < 0.0001 |
| Surgical cause | 265 | 1.1 | [0.8–1.7] | 0.5 |
| Burn | 65 | 1.04 | [0.5–1.9] | 0.9 |

# Pronostique

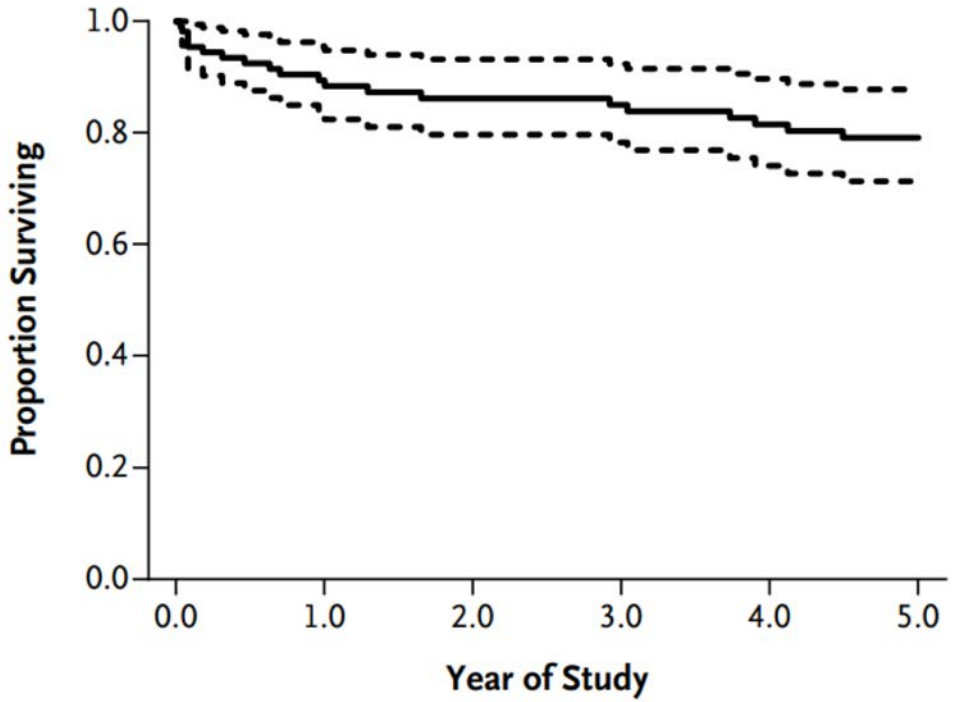


The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 APRIL 7, 2011 VOL. 364 NO. 14

# Functional Disability 5 Years after Acute Respiratory Distress Syndrome

Margaret S. Herridge, M.D., M.P.H., Catherine M. Tansey, M.Sc., Andrea Matté, B.Sc., George Tomlinson, Ph.D., Natalia Diaz-Granados, M.Sc., Andrew Cooper, M.D., Cameron B. Guest, M.D., C. David Mazer, M.D., Sangeeta Mehta, M.D., Thomas E. Stewart, M.D., Paul Kudlow, B.Sc., Deborah Cook, M.D., Arthur S. Slutsky, M.D., and Angela M. Cheung, M.D., Ph.D., for the Canadian Critical Care Trials Group



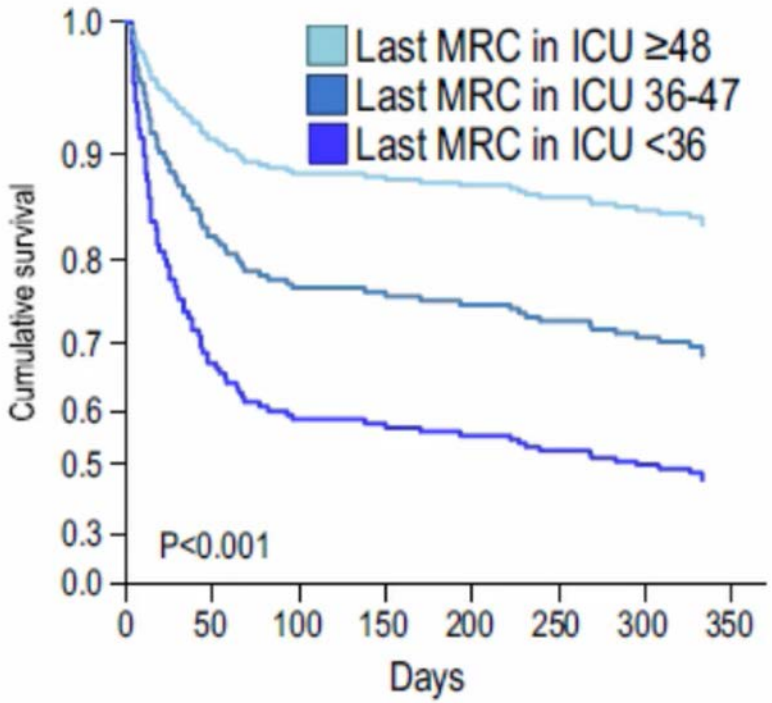

| Characteristic | (N=117) |
|---|---|
| Age — yr | |
| Median | 45 |
| Interquartile range | 36–58 |
| Male sex — no. (%) | 66 (56) |
| Preexisting organ dysfunction — no. (%)† | 72 (62) |
| Preexisting pulmonary disease — no. (%)‡ | 13 (11) |

# ICU-acquired weakness

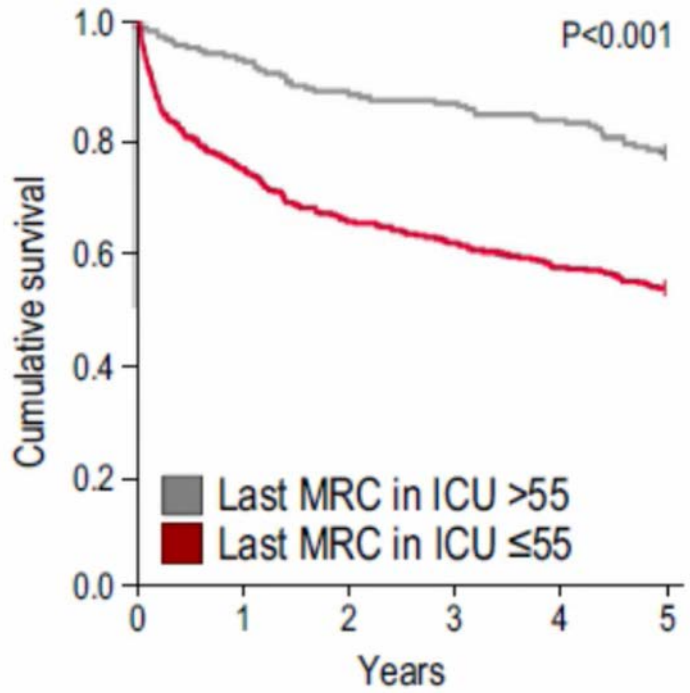
Ilse Vanhorebeek[1], Nicola Latronico[2,3] and Greet Van den Berghe[1*]

*Intensive Care Med (2020) 46:637–653*
https://doi.org/10.1007/s00134-020-05944-4

**One-year survival**




**Five-year survival**

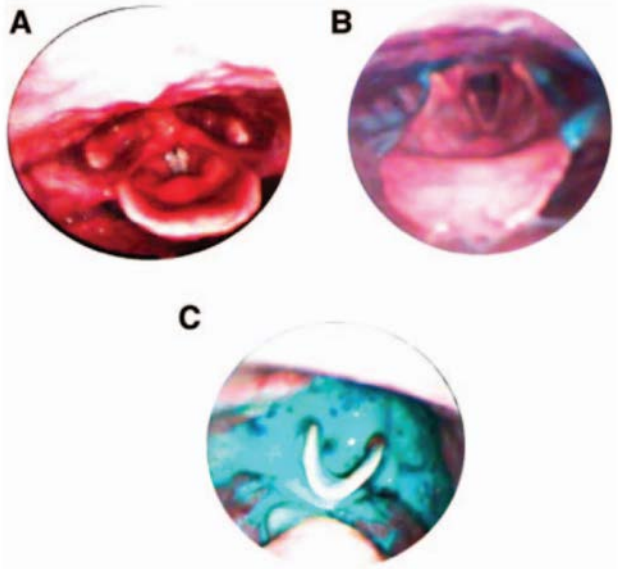


# Muscle Weakness Predicts Pharyngeal Dysfunction and Symptomatic Aspiration in Long-term Ventilated Patients

Hooman Mirzakhani, M.D.,* June-Noelle Williams, M.S., C.C.C.-S.L.P.,†
Jennifer Mello, M.S., C.C.C.-S.L.P.,† Sharma Joseph, M.D.,‡ Matthew J. Meyer, M.D.,‡
Karen Waak, P.T., D.P.T., C.C.S.,§ Ulrich Schmidt, M.D.,|| Emer Kelly, M.D.,#
Matthias Eikermann, M.D., Ph.D.**

http://links.lww.com/ALN/A927

| Characteristics/ Independent Predictors | Total Cohort N = 30 | Symptomatic Aspiration | | *P* Value Unadjusted | *P* Value Adjusted | OR (95% CI) |
|---|---|---|---|---|---|---|
| | | Yes | No | | | |
| FEES results indicating *risk of aspiration* | | | | | | |
| PAS >1 | | 14 | 9 | 0.025 | 0.037 | 9 (1–91) |
| VPSR >1 | | 10 | 7 | 0.27 | 0.9 | 2 (0.5–10) |
| Medical Research Council | | | | | | |
| <48 *clinically significant muscle weakness* | 20 | 14 | 6 | 0.003 | 0.009 | 9.8 (1.6–60) |
| ≥48 | 10 | 1 | 9 | | | |



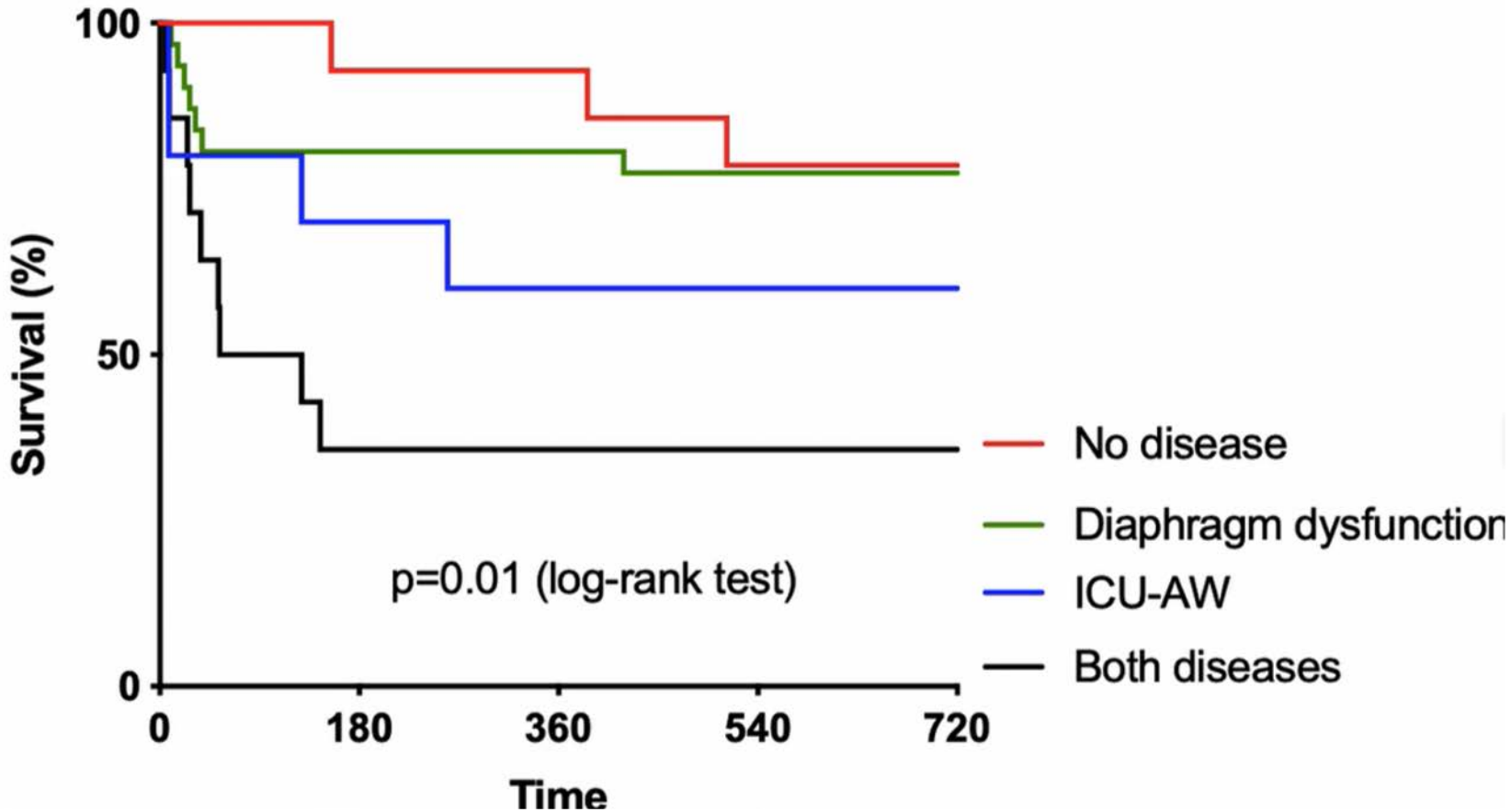

Suivi à 3 mois
10 jours de ventilation mécanique invasive
30 patients
Inhalation symptomatique corrélé à la NMR

# ICU-acquired weakness, diaphragm dysfunction and long-term outcomes of critically ill patients

Clément Saccheri[1], Elise Morawiec[1], Julie Delemazure[1], Julien Mayaux[1], Bruno-Pierre Dubé[2,3], Thomas Similowski[1,4], Alexandre Demoule[1,4] and Martin Dres[1,4*]

Annals of Intensive Care

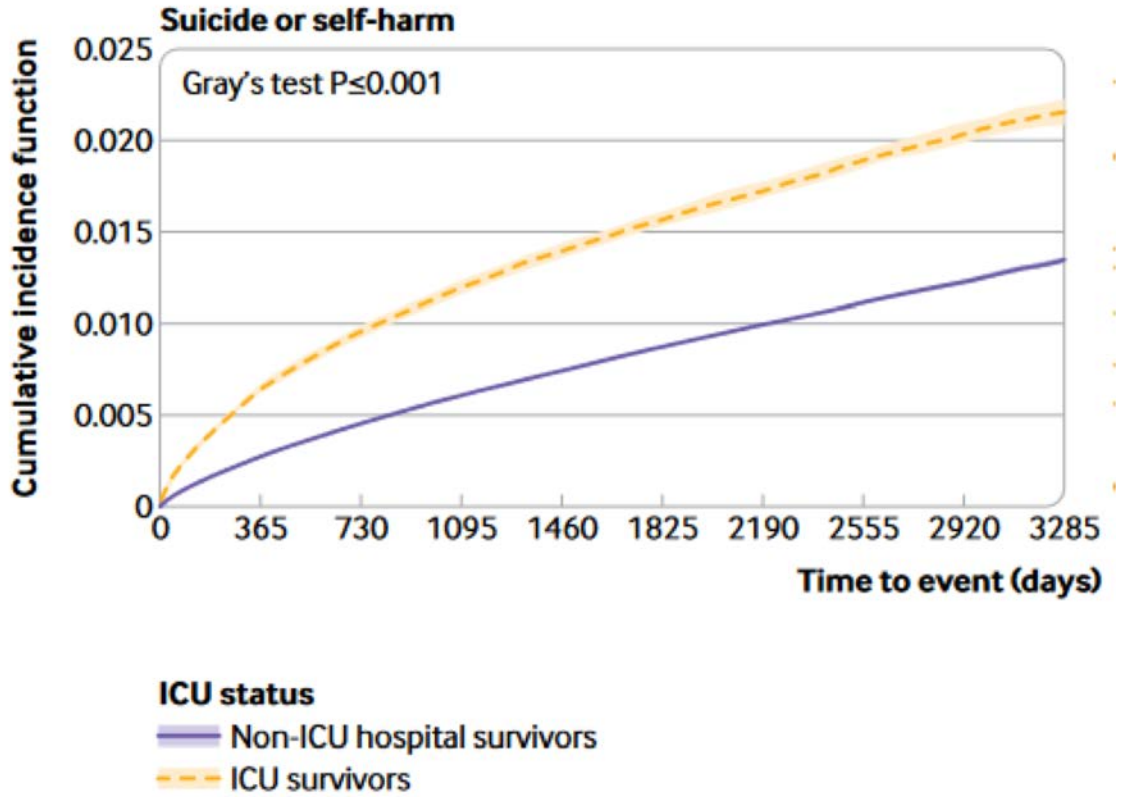
Saccheri *et al. Ann. Intensive Care* (2020) 10:1
https://doi.org/10.1186/s13613-019-0618-4

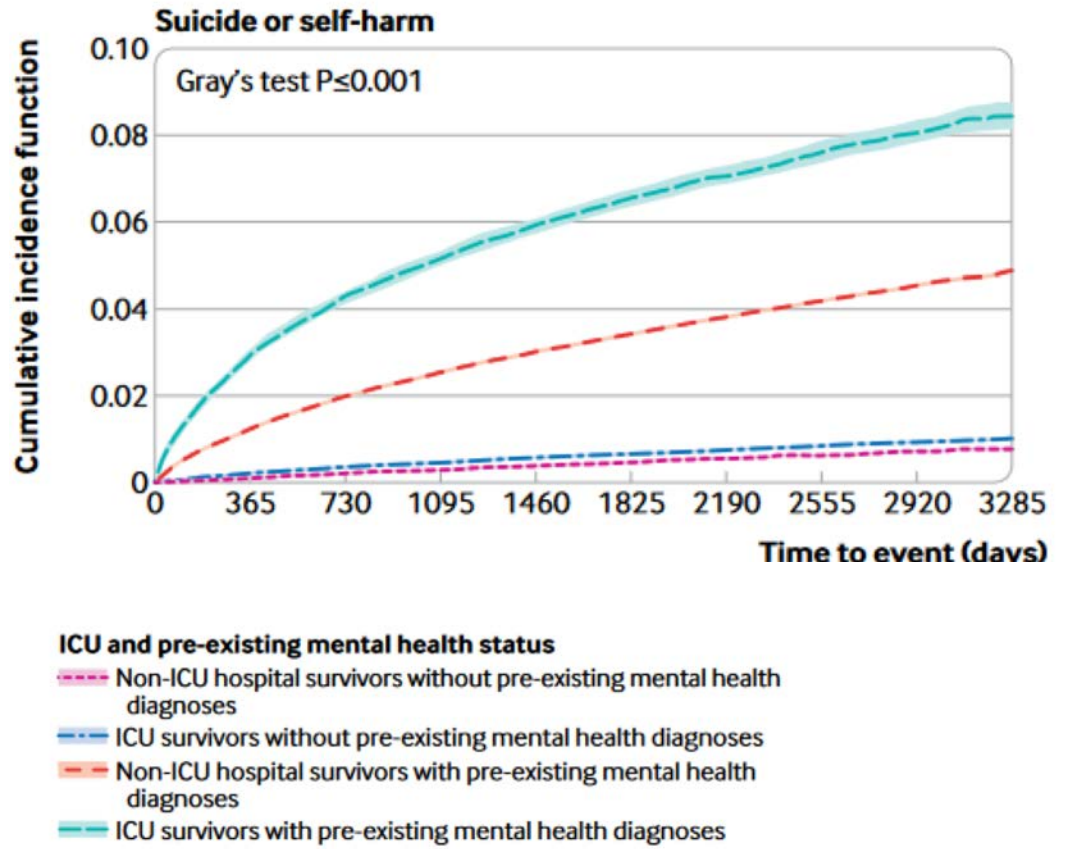


# Suicide and self-harm in adult survivors of critical illness: population based cohort study

BMJ 2021;373:n973

Shannon M Fernando,[1,2] Danial Qureshi,[3,4,5,6] Manish M Sood,[3,4,5,7] Michael Pugliese,[3,4] Robert Talarico,[3,4] Daniel T Myran,[3,4,8] Margaret S Herridge,[9,10,11] Dale M Needham,[12,13] Bram Rochwerg,[14,15] Deborah J Cook,[14,15] Hannah Wunsch,[3,9,11,16] Robert A Fowler,[3,9,11,16] Damon C Scales,[3,9,11,16,17] O Joseph Bienvenu,[18] Kathryn M Rowan,[19] Magdalena Kisilewicz,[20] Laura H Thompson,[4] Peter Tanuseputro,[3,4,5,6,21] Kwadwo Kyeremanteng[1,4,21,22]



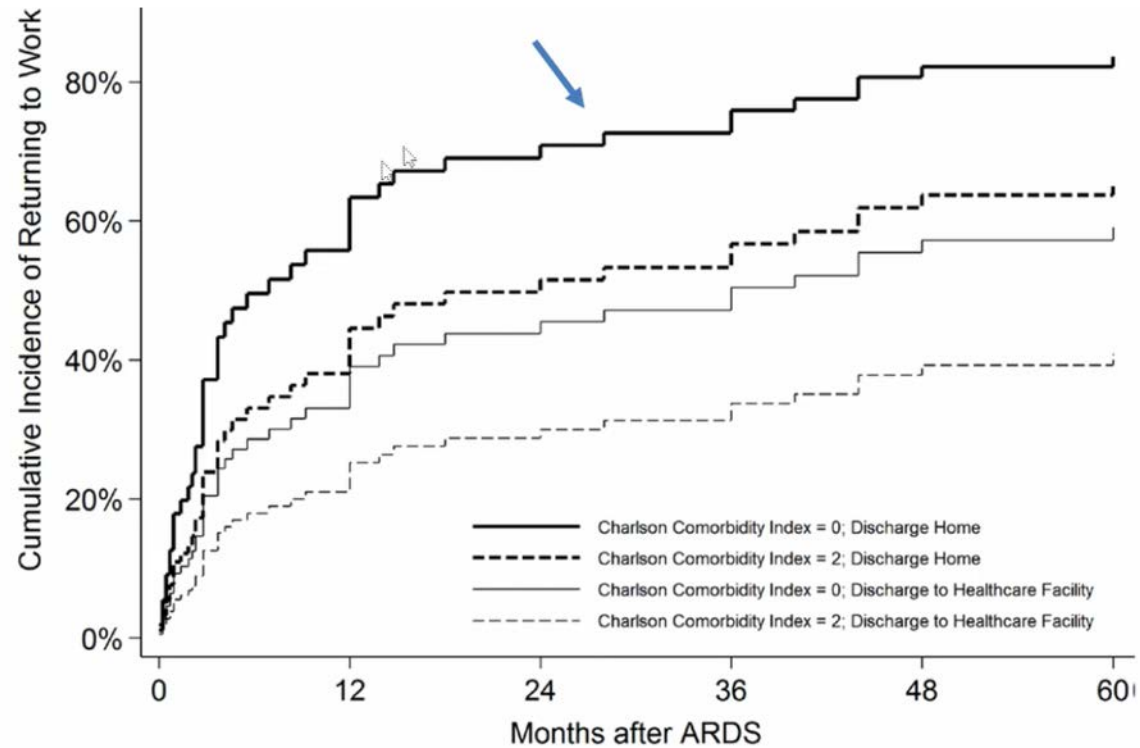



# Return to work and lost earnings after acute respiratory distress syndrome: a 5-year prospective, longitudinal study of long-term survivors

Kamdar BB, *et al*. *Thorax* 2018;**73**:125–133.

**Table 2** Multivariable predictors of returning to work within 5 years of ARDS*

| Characteristic | HR (95% CI) | p Value |
|---|---|---|
| **Model 1: baseline variables** | | |
| Age at ARDS diagnosis, per year ≤40 years | 0.99 (0.95 to 1.04) | 0.79 |
| Age at ARDS diagnosis, per year >40 years | 0.97 (0.93 to 1.02) | 0.28 |
| Charlson Comorbidity Index, per point | 0.75 (0.56 to 0.99) | 0.05 |
| Functional Comorbidity Index, per point | 0.93 (0.72 to 1.20) | 0.55 |
| **Model 2: ICU and discharge variables** | | |
| Mechanical ventilation, per day ≤5 days | 0.66 (0.54 to 0.81) | <0.001 |
| Mechanical ventilation, per day >5 days | 1.02 (0.99 to 1.05) | 0.22 |
| Discharge to rehabilitation or other healthcare facility | 0.41 (0.21 to 0.78) | 0.01 |
| **Model 3: final multivariable model** | | |
| Charlson Comorbidity Index, per point | 0.77 (0.59 to 0.99) | 0.04 |
| Mechanical ventilation, per day ≤5 days | 0.67 (0.55 to 0.82) | <0.001 |
| Mechanical ventilation, per day >5 days | 1.02 (0.99 to 1.05) | 0.20 |
| Discharge to rehabilitation or other healthcare facility | 0.49 (0.26 to 0.93) | 0.03 |

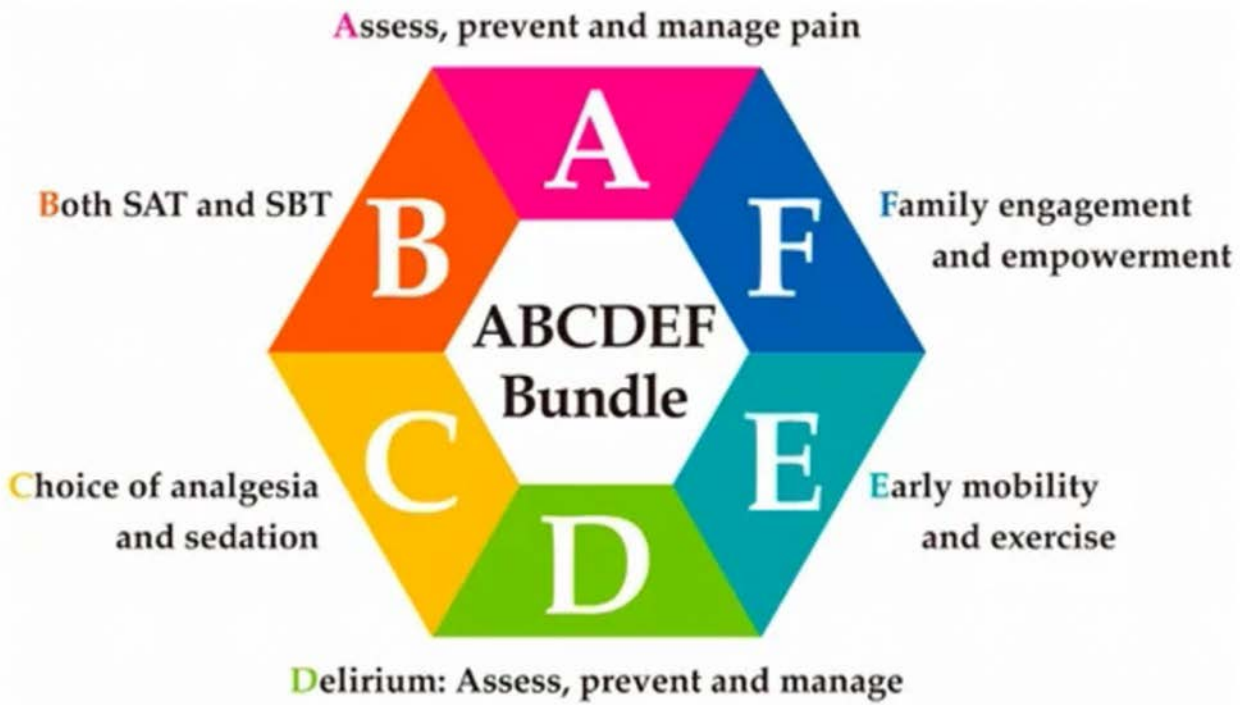


# Traitement

# Recovery after critical illness: putting the puzzle together—a consensus of 29

Critical Care (2017) 21:296

Elie Azoulay[1*], Jean-Louis Vincent[2], Derek C. Angus[3], Yaseen M. Arabi[4], Laurent Brochard[5], Stephen J. Brett[6], Giuseppe Citerio[7], Deborah J. Cook[8], Jared Randall Curtis[9], Claudia C. dos Santos[10], E. Wesley Ely[11], Jesse Hall[12], Scott D. Halpern[13], Nicholas Hart[14], Ramona O. Hopkins[15,16], Theodore J. Iwashyna[17], Samir Jaber[18], Nicola Latronico[19], Sangeeta Mehta[20], Dale M. Needham[21], Judith Nelson[22], Kathleen Puntillo[23], Michael Quintel[24], Kathy Rowan[25], Gordon Rubenfeld[26], Greet Van den Berghe[27], Johannes Van der Hoeven[26], Hannah Wunsch[28] and Margaret Herridge[29]




Crit Care Med. 2017 Feb;45(2):321-330. doi: 10.1097/CCM.0000000000002175.

# The ABCDEF Bundle: Science and Philosophy of How ICU Liberation Serves Patients and Families

E Wesley Ely [1]

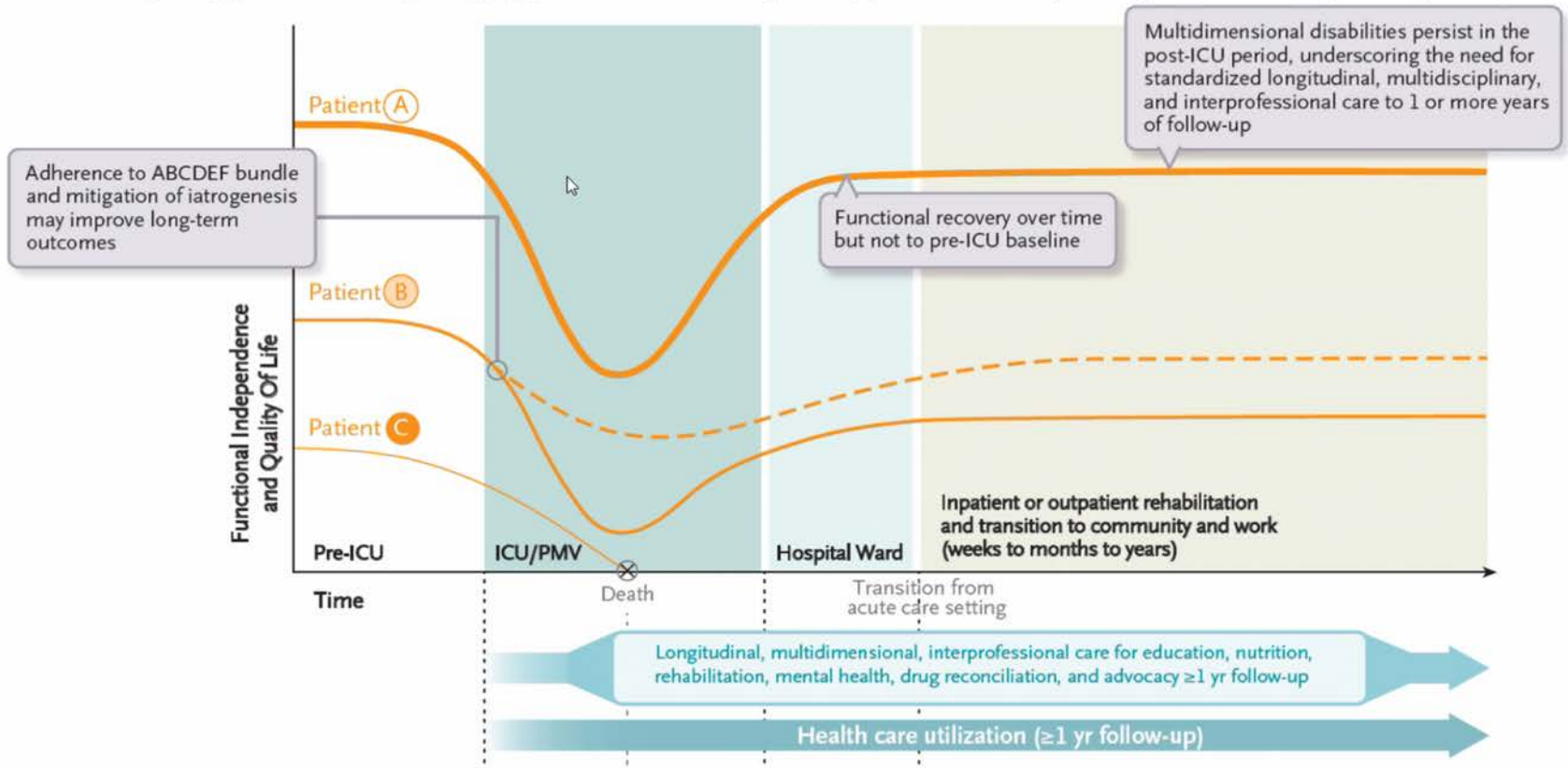
| Symptoms<br>Pain, Agitation, Delirium Guidelines | Monitoring<br>Tools | Care<br>ABCDEF Bundle | Done |
|---|---|---|---|
| Pain | Critical-Care Pain Observation Tool (CPOT)<br>NRS Numeric Rating Scale<br>BPS Behavioral Pain Scale | A: Assess, Prevent and Manage Pain | ☐ |
| Agitation | Richmond Agitation-Sedation Scale (RASS)<br>Sedation-Agitation Scale (SAS) | B: Both Spontaneous Awakening Trials (SAT) and Spontaneous Breathing Trials (SBT)<br>C: Choice of Analgesia and Sedation | ☐<br>☐ |
| Delirium | Confusion Assessment Method for the Intensive Care Unit (CAM-ICU)<br>Intensive Care Delirium Screening Checklist (ICDSC) | D: Delirium: Assess, Prevent and Manage<br>E: Early Mobility and Exercise<br>F: Family Engagement and Empowerment | ☐<br>☐<br>☐ |

# Outcomes after Critical Illness

Margaret S. Herridge, M.D., M.P.H., and Élie Azoulay, M.D., Ph.D.

N Engl J Med 2023;388:913-24.
DOI: 10.1056/NEJMra2104669

**A Patient Trajectory (risk stratified by frailty, age, burden of coexisting illness, pre-ICU function, and cognitive health trajectories)**

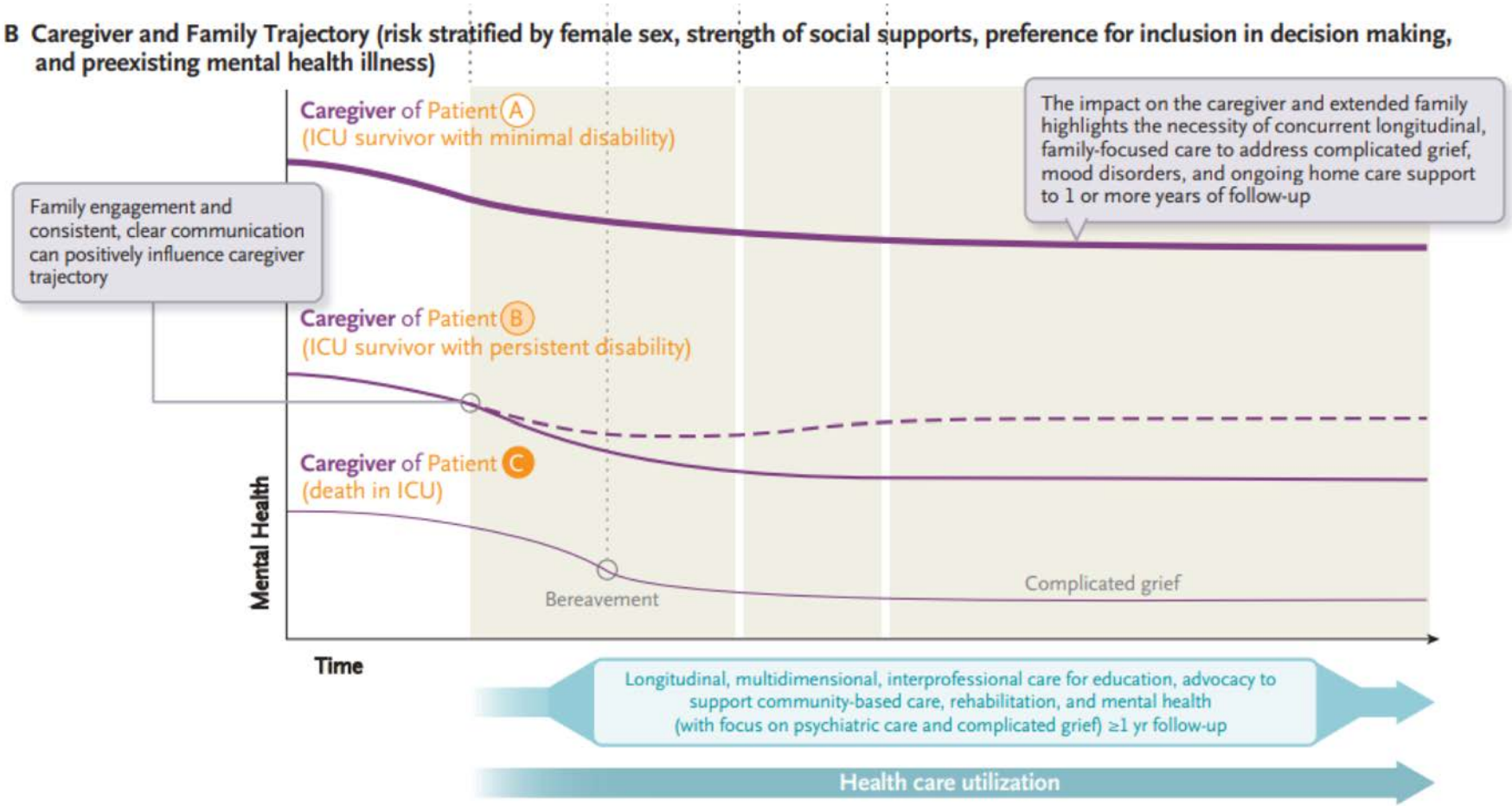


# Outcomes after Critical Illness

Margaret S. Herridge, M.D., M.P.H., and Élie Azoulay, M.D., Ph.D.

N Engl J Med 2023;388:913-24.
DOI: 10.1056/NEJMra2104669

**B Caregiver and Family Trajectory (risk stratified by female sex, strength of social supports, preference for inclusion in decision making, and preexisting mental health illness)**



# PICS

# Merci de votre attention


Unité de Soins de Rééducation Post Réanimation SRPR respiratoire

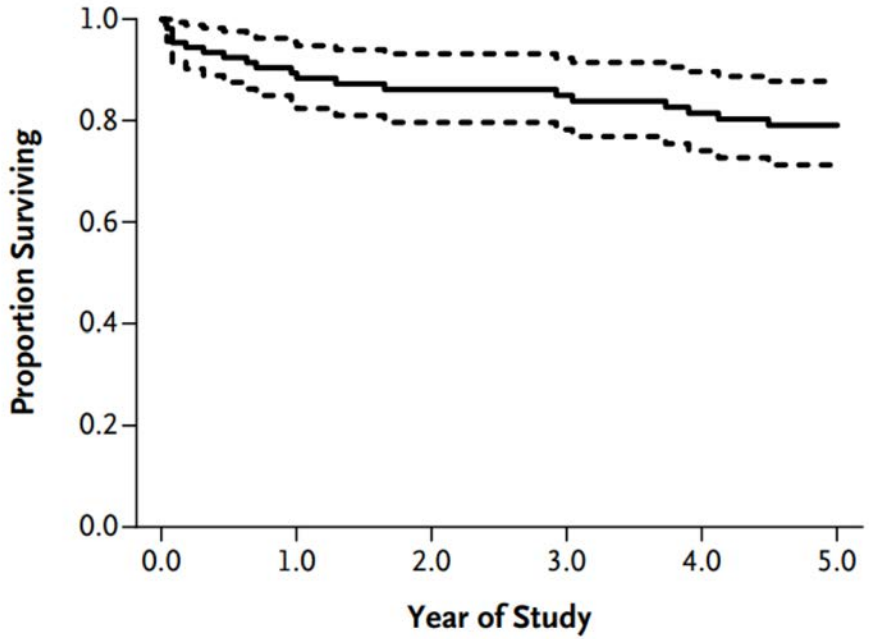
Julie.delemazure@aphp.fr 01 84 82 75 73

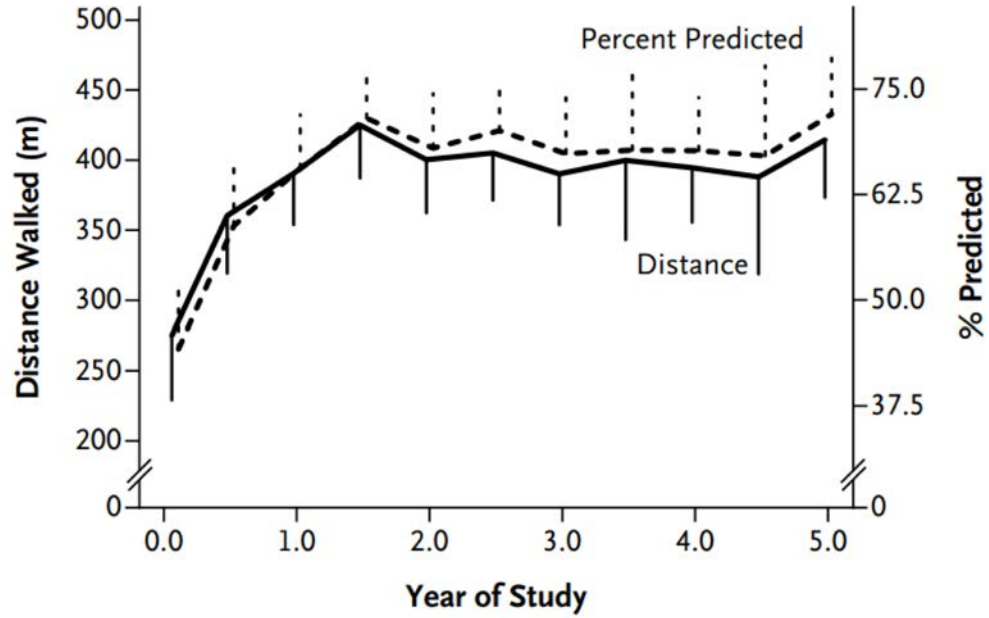
The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 APRIL 7, 2011 VOL. 364 NO. 14

# Functional Disability 5 Years after Acute Respiratory Distress Syndrome

Margaret S. Herridge, M.D., M.P.H., Catherine M. Tansey, M.Sc., Andrea Matté, B.Sc., George Tomlinson, Ph.D., Natalia Diaz-Granados, M.Sc., Andrew Cooper, M.D., Cameron B. Guest, M.D., C. David Mazer, M.D., Sangeeta Mehta, M.D., Thomas E. Stewart, M.D., Paul Kudlow, B.Sc., Deborah Cook, M.D., Arthur S. Slutsky, M.D., and Angela M. Cheung, M.D., Ph.D., for the Canadian Critical Care Trials Group




| Clinical Outcomes | At 1 Year (N=83) | At 2 Years (N=69) | At 3 Years (N=71) | At 4 Years (N=63) | At 5 Years (N=64) |
|---|---|---|---|---|---|
| Median SF-36 score | | | | | |
| Physical functioning | 60 | 70 | 70 | 75 | 75 |
| Role, physical | 25 | 50 | 100 | 75 | 88 |
| Bodily pain | 62 | 62 | 72 | 74 | 74 |
| General health | 52 | 62 | 55 | 59 | 62 |
| Vitality | 55 | 55 | 50 | 50 | 55 |
| Social functioning | 63 | 75 | 75 | 69 | 75 |
| Role, emotional | 100 | 100 | 100 | 100 | 100 |
| Mental health | 72 | 76 | 72 | 76 | 76 |

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ESTABLISHED IN 1812 APRIL 7, 2011 VOL. 364 NO. 14

**Table 1. Characteristics of Patients with the Acute Respiratory Distress Syndrome (ARDS) at 1 Year and 5 Years after Discharge from the Intensive Care Unit (ICU).**

| Characteristic | At 1 Year (N=83) | At 5 Years (N=64) |
|---|---|---|
| Age at enrollment — yr | | |
| Median | 45 | 44 |
| Interquartile range | 36–56 | 35–57 |
| Preexisting pulmonary disease — no. (%) | 8 (10) | 6 (9) |
| Working full time before ARDS — no. (%) | 64 (77) | 53 (83) |
| Tracheostomy — no. (%) | 43 (52) | 32 (50) |
| Ventilator use — days | | |
| Median | 21 | 24 |
| Interquartile range | 12–40 | 12–41 |
| Length of stay in ICU — days | | |
| Median | 25 | 26 |
| Interquartile range | 14–47 | 16–49 |
| Length of hospitalization — days | | |
| Median | 47 | 49 |
| Interquartile range | 26–73 | 29–72 |

# Functional Disability 5 Years after Acute Respiratory Distress Syndrome

Margaret S. Herridge, M.D., M.P.H., Catherine M. Tansey, M.Sc., Andrea Matté, B.Sc., George Tomlinson, Ph.D., Natalia Diaz-Granados, M.Sc., Andrew Cooper, M.D., Cameron B. Guest, M.D., C. David Mazer, M.D., Sangeeta Mehta, M.D., Thomas E. Stewart, M.D., Paul Kudlow, B.Sc., Deborah Cook, M.D., Arthur S. Slutsky, M.D., and Angela M. Cheung, M.D., Ph.D., for the Canadian Critical Care Trials Group

**Table 2. Clinical Outcomes from 1 Year to 5 Years in Survivors of ARDS.**

| Clinical Outcomes | At 1 Year (N=83) | At 2 Years (N=69) | At 3 Years (N=71) | At 4 Years (N=63) | At 5 Years (N=64) |
|---|---|---|---|---|---|
| Site of visit — no. of patients (%) | | | | | |
| Clinic | 60 (72) | 44 (64) | 42 (59) | 36 (57) | 35 (55) |
| Home | 23 (28) | 25 (36) | 29 (41) | 27 (43) | 29 (45) |
| Returned to work — no. of patients (%)* | 40 (48) | 45 (65) | 50 (70) | 46 (73) | 49 (77) |
| Returned to original work — no. of patients/total no. (%) | 31/40 (78) | 36/45 (80) | 46/50 (92) | 41/46 (89) | 46/49 (94) |
| Pulmonary function — % of predicted† | | | | | |
| Forced vital capacity | | | | | |
| Median | 85 | 86 | 76 | 84 | 84 |
| Interquartile range | 71–98 | 71–100 | 67–98 | 70–100 | 72–101 |
| Forced expiratory volume in 1 sec | | | | | |
| Median | 86 | 87 | 79 | 85 | 83 |
| Interquartile range | 74–100 | 75–99 | 66–97 | 68–98 | 69–98 |
| Total lung capacity‡ | | | | | |
| Median | 95 | 94 | 93 | 92 | 94 |
| Interquartile range | 81–103 | 84–108 | 78–107 | 79–104 | 78–105 |
| Residual volume‡ | | | | | |
| Median | 105 | 96 | 101 | 96 | 96 |
| Interquartile range | 90–116 | 78–118 | 80–116 | 80–110 | 73–108 |
| Carbon monoxide diffusion capacity‡ | | | | | |
| Median | 72 | 78 | 77 | 82 | 80 |
| Interquartile range | 61–86 | 63–89 | 63–93 | 68–94 | 70–86 |
| Distance walked in 6 min§ | | | | | |
| Median — m | 422 | 416 | 418 | 406 | 436 |
| Interquartile range | 277–510 | 285–496 | 311–474 | 314–488 | 324–512 |
| Percent of predicted¶ | 66 | 68 | 67 | 71 | 76 |
| Oxygen saturation <88% — no. of patients/total no. (%) | 5/81 (6) | 7/64 (11) | 6/64 (9) | 5/57 (8) | 8/54 (15) |
| Change in weight from pre–ICU stay — % | −2 | 1 | 2 | 2 | 3 |

# Evolution of the nutritional status of COVID-19 critically-ill patients: A prospective observational study from ICU admission to three months after ICU discharge

C. Rives-Lange [a, b, c, *], A. Zimmer [a], A. Merazka [a], C. Carette [a, b, d], A. Martins-Bexinga [b, c], C. Hauw-Berlemont [e], E. Guerot [e], A.S. Jannot [b, f], J.L. Diehl [b, e, g], S. Czernichow [a, b, c], B. Hermann [b, e, h]

Clinical Nutrition 41 (2022) 3026–3031

Contents lists available at ScienceDirect

Clinical Nutrition

journal homepage: http://www.elsevier.com/locate/clnu

Factors associated with the nutritional status at three months after ICU discharge according to GLIM criteria.

| Characteristic | All patients N = 33[a] | Nutritional Status | | p-value[b] |
|---|---|---|---|---|
| | | No malnutrition N = 13[a] | Malnutrition N = 20[a] | |
| Demographic characteristics at ICU admission | | | | |
| Age (years) | 65 [59, 71] | 60 [56, 67] | 66 [62, 72] | 0.319 |
| Male sex | 26 (79%) | 8 (62%) | 18 (90%) | 0.084 |
| COPD | 4 (12%) | 1 (7.7%) | 3 (15%) | 1.0 |
| History of neoplasia | 2 (6.1%) | 0 (0%) | 2 (10%) | 0.508 |
| Active smoker | 4 (12%) | 1 (7.7%) | 3 (15%) | 1.0 |
| CKD | 10 (30%) | 4 (31%) | 6 (30%) | 1.0 |
| Obesity | 9 (27%) | 3 (23%) | 6 (30%) | 1.0 |
| BMI (kg/m$^2$) | 28.6 [25.8, 30.9] | 27.1 [25.0, 29.1] | 28.6 [27.3, 31.0] | 0.136 |
| ICU stay characteristics | | | | |
| SAPS2 | 47 [35, 55] | 49 [42, 54] | 46 [35, 56] | 0.825 |
| Duration of IMV (days) | 22 [12, 38] | 13 [11, 24] | 28 [18, 44] | **0.011** |
| Vasopressor | 26 (79%) | 11 (85%) | 15 (75%) | 1.0 |
| Duration of treatment of vasopressor (days) | 4.5 [1.8,8.2] | 4.0 [2.0, 6.0] | 7.0 [2.0, 11.0] | 0.154 |
| Prone positioning | 10 (30%) | 2 (15%) | 8 (40%) | 0.245 |
| KRT | 14 (42%) | 4 (31%) | 10 (50%) | 0.275 |
| Length of ICU stay (days) | 23 [17, 39] | 17 [11, 21] | 32 [22, 48] | **0.006** |
| Anthropometrics at M3 | | | | |
| Weight (kg) | 79 [70, 86] | 72 [67, 86] | 80 [73, 86] | 0.357 |
| BMI (kg/m$^2$) | 25.9 [23.8, 28.1] | 26.10 [23.18, 28.24] | 25.71 [24.37, 27.40] | 0.839 |
| Nutritional support | | | | |
| Coverage of energy need during ICU (%) | 80 [73, 91] | 80 [74, 88] | 80 [71, 92] | 0.685 |
| Protein intakes during ICU (g/kg/day) | 1.03 [0.87, 1.17] | 1.00 [0.87, 1.06] | 1.10 [0.92, 1.21] | 0.204 |
| Nutritional support within 3 months of ICU discharge | 10 (30%) | 3 (23%) | 7 (35%) | 1.0 |

John Griffiths
Melanie Gager
Nicola Alder
Derek Fawcett
Carl Waldmann
Jane Quinlan

# A self-report-based study of the incidence and associations of sexual dysfunction in survivors of intensive care treatment

Intensive Care Med (2006) 32:445–451
DOI 10.1007/s00134-005-0048-7

**Table 1** Demographic data

| | All patients | Patients with sexual dysfunction | Patients with no sexual dysfunction | Significance |
|---|---|---|---|---|
| Number of patients[a] | 127 | 52[a] | 67[a] | |
| Age, mean (years) | 56.9 (range 17–85) | 55.2 (range 24–80) | 65 (range 19–85) | |
| Gender, male / female (%) | 84 / 43 (66 / 34) | 37 / 15 (71 / 29) | 42 / 25 (63 / 37) | 0.33[b] |
| ICU stay, (days) | | | | |
| Mean | 14 | 15.2 | 12.7 | |
| Median (range) | 12 (2[d]-101) | 12 (2-35) | 11.5 (2-101) | 0.41[c] |
| Mechanical ventilation, no. of patients (%) | 108 (85) | 47 (90.4) | 59 (88) | 0.86[b] |
| Inotropes, no. of patients (%) | 62 (49) | 31 (59.6) | 31 (46.2) | 0.17[b] |
| CVVHF, no. of patients (%) | 21 (17) | 9 (17.3) | 11 (16.4) | 0.93[b] |
| Tracheostomy, no. of patients (%) | 73 (57) | 34 (65.4) | 38 (56.7) | 0.39[b] |
| Admission diagnostic categories, n (%) | | | | |
| Cardiovascular | 15 (11.7) | 7 (13.5) | 8 (11.9) | |
| Respiratory | 37 (28.9) | 14 (26.9) | 22 (32.8) | |
| Gastrointestinal | 34 (26.6) | 13 (25) | 21 (31.3) | |
| Neurological | 10 (7.8) | 3 (5.7) | 7 (10.4) | |
| Trauma | 16 (12.5) | 6 (11.5) | 10 (14.9) | |
| Metabolic | 3 (2.3) | 2 (3.8) | 1 (1.5) | |
| Renal | 2 (1.6) | 1 (1.9) | 1 (1.5) | |
| Sepsis | 9 (7) | 4 (7.7) | 5 (7.5) | |
| Other | 2 (1.6) | 0 (0) | 2 (2.9) | |

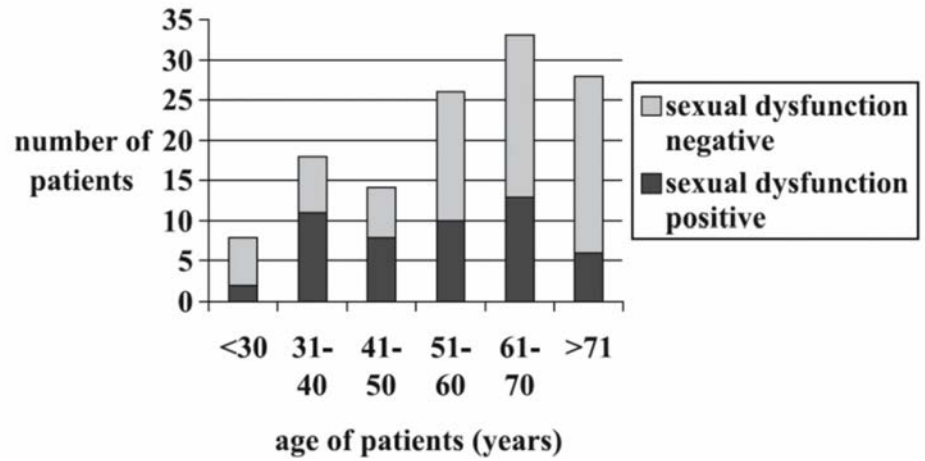



**Table 3** Relationship between stated reason for sexual dysfunction and PTSD

| PTSD | Reason | | Total |
|---|---|---|---|
| | Nothing works | No desire | |
| No | 6 | 3 | 9 |
| Yes | 5 | 12 | 17 |
| Total | 11 | 15 | 26 |

# 1-year outcomes in hospital survivors with COVID-19: a longitudinal cohort study

*Lixue Huang*, Qun Yao*, Xiaoying Gu*, Qiongya Wang*, Lili Ren*, Yeming Wang*, Ping Hu*, Li Guo*, Min Liu, Jiuyang Xu, Xueyang Zhang, Yali Qu, Yanqing Fan, Xia Li, Caihong Li, Ting Yu, Jiaan Xia, Ming Wei, Li Chen, Yanping Li, Fan Xiao, Dan Liu, Jianwei Wang†, Xianguang Wang†, Bin Cao†*

**Lancet 2021; 398: 747–58**

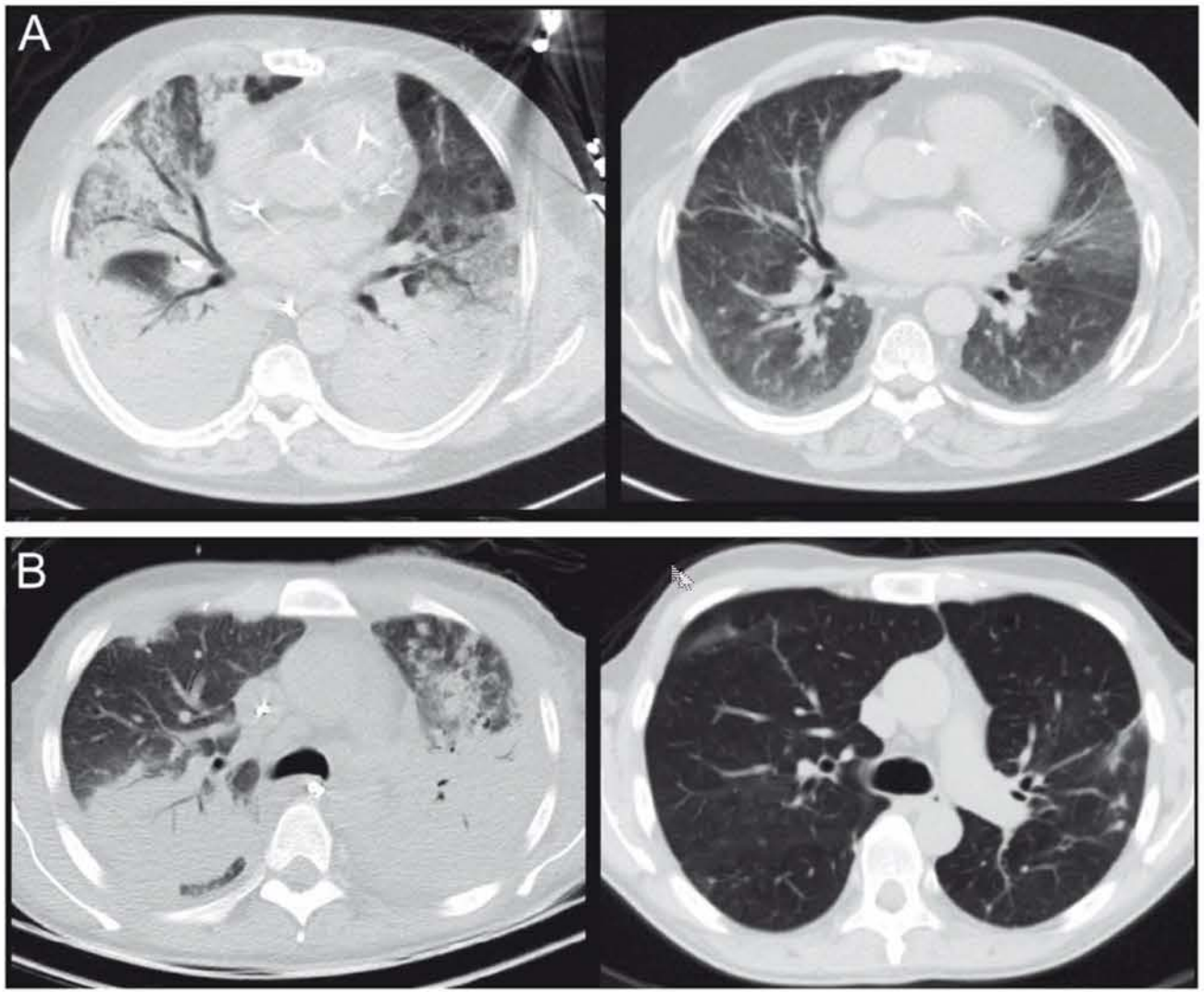
| | Scale 3: not requiring supplemental oxygen | | | Scale 4: requiring supplemental oxygen | | | Scale 5–6: requiring HFNC, NIV, or IMV | | |
|---|---|---|---|---|---|---|---|---|---|
| | 6 month | 12 month | p value | 6 month | 12 month | p value | 6 month | 12 month | p value |
| **Lung function** | | | | | | | | | |
| Number of patients | 59 | 56 | .. | 125 | 118 | .. | 70 | 70 | .. |
| $FEV_1$ <80%, % of predicted | 4 (7%) | 2 (4%) | 0·32 | 2 (2%) | 3 (3%) | 0·56 | 10 (14%) | 4 (6%) | 0·014 |
| FVC <80%, % of predicted | 3 (5%) | 2 (4%) | <0·0001 | 0 (0%) | 2 (2%) | 0·16 | 9 (13%) | 6 (9%) | 0·08 |
| $FEV_1$/FVC <70% | 5 (8%) | 4 (7%) | 0·32 | 11 (9%) | 6 (5%) | 0·10 | 2 (3%) | 0 (0%) | 0·16 |
| TLC <80%, % of predicted | 6/57 (11%) | 3 (5%) | 0·18 | 12/124 (10%) | 8/117 (7%) | 0·65 | 27/69 (39%) | 20 (29%) | 0·021 |
| FRC <80%, % of predicted | 4/57 (7%) | 6 (11%) | 0·32 | 5/124 (4%) | 5/116 (4%) | 1·00 | 14/67 (21%) | 16 (23%) | 1·00 |
| RV <80%, % of predicted | 12/57 (21%) | 15 (27%) | 1·00 | 18/124 (15%) | 26/117 (22%) | 0·050 | 34/69 (49%) | 44 (63%) | 0·11 |
| DLCO <80%, % of predicted* | 12/57 (21%) | 13 (23%) | 0·53 | 32/124 (26%) | 36/117 (31%) | 0·13 | 39/69 (57%) | 38 (54%) | 0·53 |
| **Chest CT** | | | | | | | | | |
| Number of patients | 33 | 28 | .. | 56 | 52 | .. | 39 | 38 | .. |
| At least one abnormal CT pattern | 33 (100%) | 11 (39%) | <0·0001 | 56 (100%) | 21 (40%) | <0·0001 | 39 (100%) | 33 (87%) | 0·025 |
| GGO | 28 (85%) | 11 (39%) | 0·0047 | 52 (93%) | 14 (27%) | <0·0001 | 32 (82%) | 29 (76%) | 0·56 |
| Irregular lines | 6 (18%) | 6 (21%) | 1·00 | 13 (23%) | 12 (23%) | 1·00 | 18 (46%) | 23 (61%) | 0·22 |
| Subpleural line | 5 (15%) | 1 (4%) | 0·10 | 1 (2%) | 2 (4%) | 0·56 | 3 (8%) | 8 (21%) | 0·06 |
| Interlobular septal thickening | 1 (3%) | 0 (0%) | 0·32 | 2 (4%) | 1 (2%) | 0·56 | 0 (0%) | 4 (11%) | 0·046 |
| Reticular pattern | 0 (0%) | 0 (0%) | NA | 0 (0%) | 1 (2%) | 0·32 | 1 (3%) | 3 (8%) | 0·16 |
| Consolidation | 0 (0%) | 0 (0%) | NA | 4 (7%) | 0 (0%) | 0·08 | 0 (0%) | 1 (3%) | 0·32 |

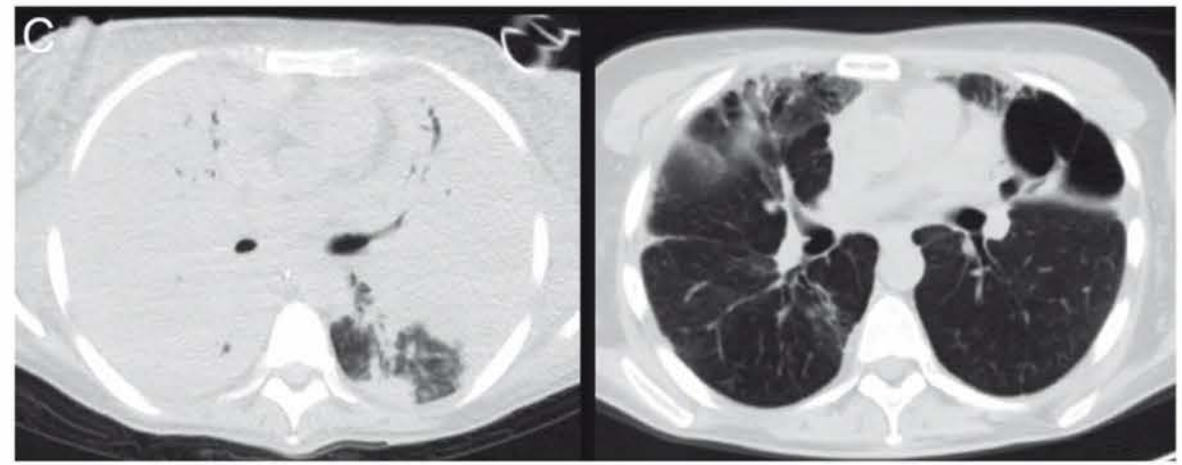
Data are absolute values, n (%), or n/N (%) when data are missing. HFNC=high-flow nasal cannula for oxygen therapy. NIV=non-invasive ventilation. IMV=invasive mechanical ventilation. $FEV_1$=forced expiratory volume in 1 s. FVC=forced vital capacity. TLC=total lung capacity. FRC=functional residual capacity. RV=residual volume. DLCO=diffusion capacity for carbon monoxide. GGO=ground glass opacity. NA=not applicable. *Carbon monoxide diffusion capacity was not corrected for haemoglobin.

*Table 3:* **Lung function and chest CT among COVID-19 patients at 6-month and 12-month follow-up according to severity scale**

# What's Next After ARDS: Long-Term Outcomes

Davide Chiumello MD, Silvia Coppola MD, Sara Froio MD, and Miriam Gotti MD

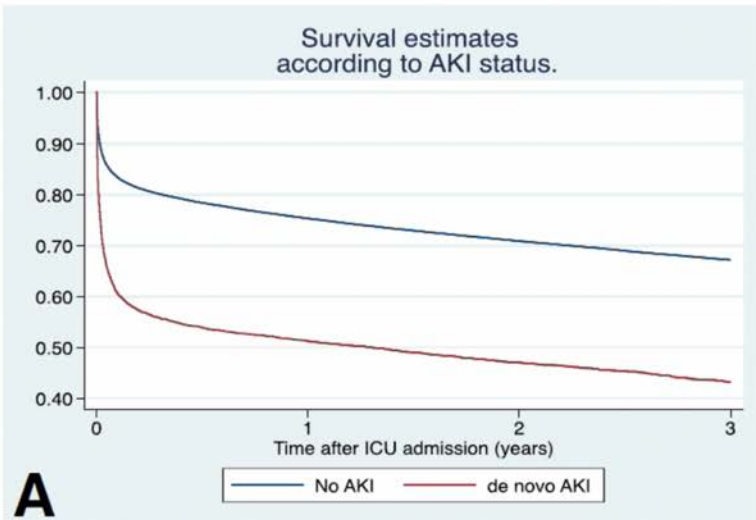


# Evolution of chronic renal impairment and long-term mortality after de novo acute kidney injury in the critically ill; a Swedish multi-centre cohort study

Rimes-Stigare *et al. Critical Care* (2015) 19:221
DOI 10.1186/s13054-015-0920-y

Etude de Cohorte – 97782 Patients – 5.4% AKI



# Evolution of chronic renal impairment and long-term mortality after de novo acute kidney injury in the critically ill; a Swedish multi-centre cohort study

Rimes-Stigare *et al. Critical Care* (2015) 19:221
DOI 10.1186/s13054-015-0920-y

Etude de Cohorte – 97782 Patients – 5.4% AKI

**Table 3. Time specific probability of developing ESRD and CKD in AKI and No AKI groups.**

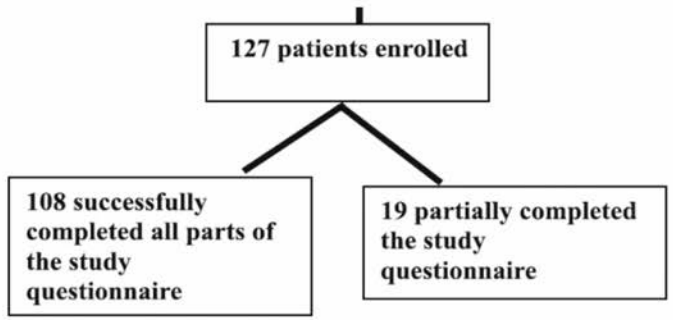
| Group | Outcome | Estimate of percentage of patients who develop outcome at specific time points· | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 6 months | CI | 1 year | CI | 3year | CI | 5 year | CI |
| No AKI | ESRD | 0·05 | 0·04-0·07 | 0·08 | 0·06-0·10 | 0·20 | 0·16-0·23 | 0·3 | 0·25-0·38 |
| AKI | | 1.8 | 1.4-2.4 | 2.0 | 1.6-2.7 | 3.0 | 2.2-4.0 | 3.9 | 2·7-5.5 |
| No AKI | CKD | 0·21 | 0·18-0·24 | 0·44 | 0·39-0·49 | 1.1 | 1.0-1.2 | 1·8 | 1·6-1·9 |
| AKI | | 3·7 | 3·0-4·4 | 6.0 | 5.1-7.0 | 8.7 | 7.5-10.2 | 10.5 | 13.0 |

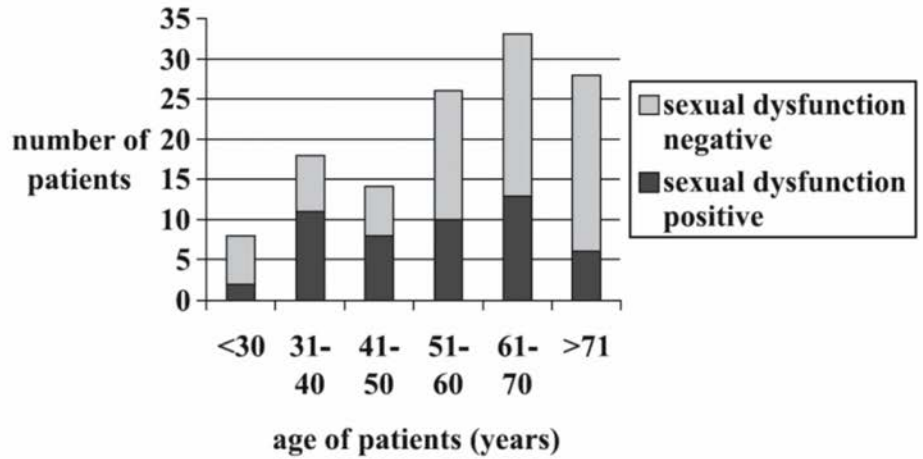
CKD= Chronic Kidney disease· ESRD= End Stage Renal disease· AKI= Acute kidney Injury· CI= 95% Confidence interval.

John Griffiths
Melanie Gager
Nicola Alder
Derek Fawcett
Carl Waldmann
Jane Quinlan

# A self-report-based study of the incidence and associations of sexual dysfunction in survivors of intensive care treatment

Intensive Care Med (2006) 32:445–451
DOI 10.1007/s00134-005-0048-7




**Suivi à M3, M6 et M12**

**52 patients (43.6%) reported symptoms of sexual dysfunction.**

| Characteristic | | Sexual dysfunction Yes ($n=50$)[a] | No ($n=58$) | $p$ value |
|---|---|---|---|---|
| Number with PTSD (%) | | 32 (64.0) | 24 (41.4) | 0.019[b] |
| Age (%) | <41 | 11 (22.0) | 14 (24.1) | 0.8[c] |
| | 41–60 | 14 (28.0) | 16 (27.6) | |
| | > 60 | 25 (50.0) | 28 (48.3) | |

# Joint contracture following prolonged stay in the intensive care unit

Heidi Clavet BScPT, Paul C. Hébert MD MHSc, Dean Fergusson PhD, Steve Doucette MSc, Guy Trudel MD

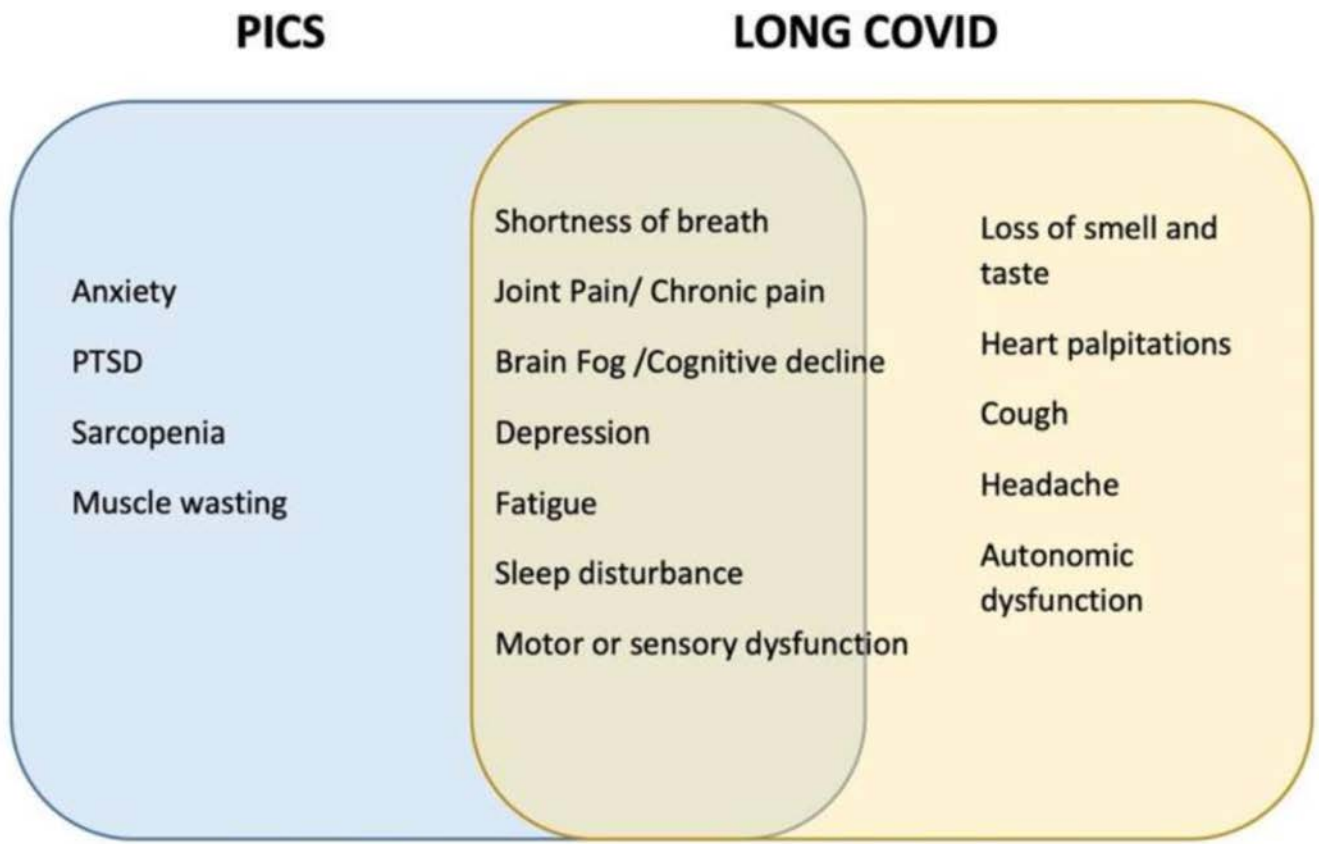
*CMAJ* 2008;178(6):691-7

Table 3: Numbers of patients and joints affected by contractures at the time of transfer out of the intensive care unit (ICU) and immediately before or at the time of discharge to home

| Variable | Any contracture | Functionally significant contracture |
|---|---|---|
| No. (%) of patients with ≥ 1 contracture | | |
| On transfer out of ICU | 61/155 (39) | 52/155 (34) |
| On discharge to home* | 50/147 (34) | 34/147 (23) |
| No. of joints affected | | |
| On transfer out of ICU | 212 | 144 |
| On discharge to home | 182 | 90 |
| Type of joint affected on transfer out of ICU, no. (%) | | |
| Shoulder | 24 (11) | 13 (9) |
| Elbow | 76 (36) | 49 (34) |
| Hip | 30 (14) | 18 (12) |
| Knee | 31 (15) | 17 (12) |
| Ankle | 51 (24) | 47 (33) |

155 patients – 3 semaines de réanimation – 6 d'Hospitalisation

**Interpretation:** Following a prolonged stay in the ICU, a functionally significant contracture of a major joint occurred in more than one-third of patients, and most of these contractures persisted until the time of discharge to home.


PICS
LONG COVID
Anxiety
PTSD
Sarcopenia
Muscle wasting
Shortness of breath
Joint Pain/ Chronic pain
Brain Fog /Cognitive decline
Depression
Fatigue
Sleep disturbance
Motor or sensory dysfunction
Loss of smell and taste
Heart palpitations
Cough
Headache
Autonomic dysfunction

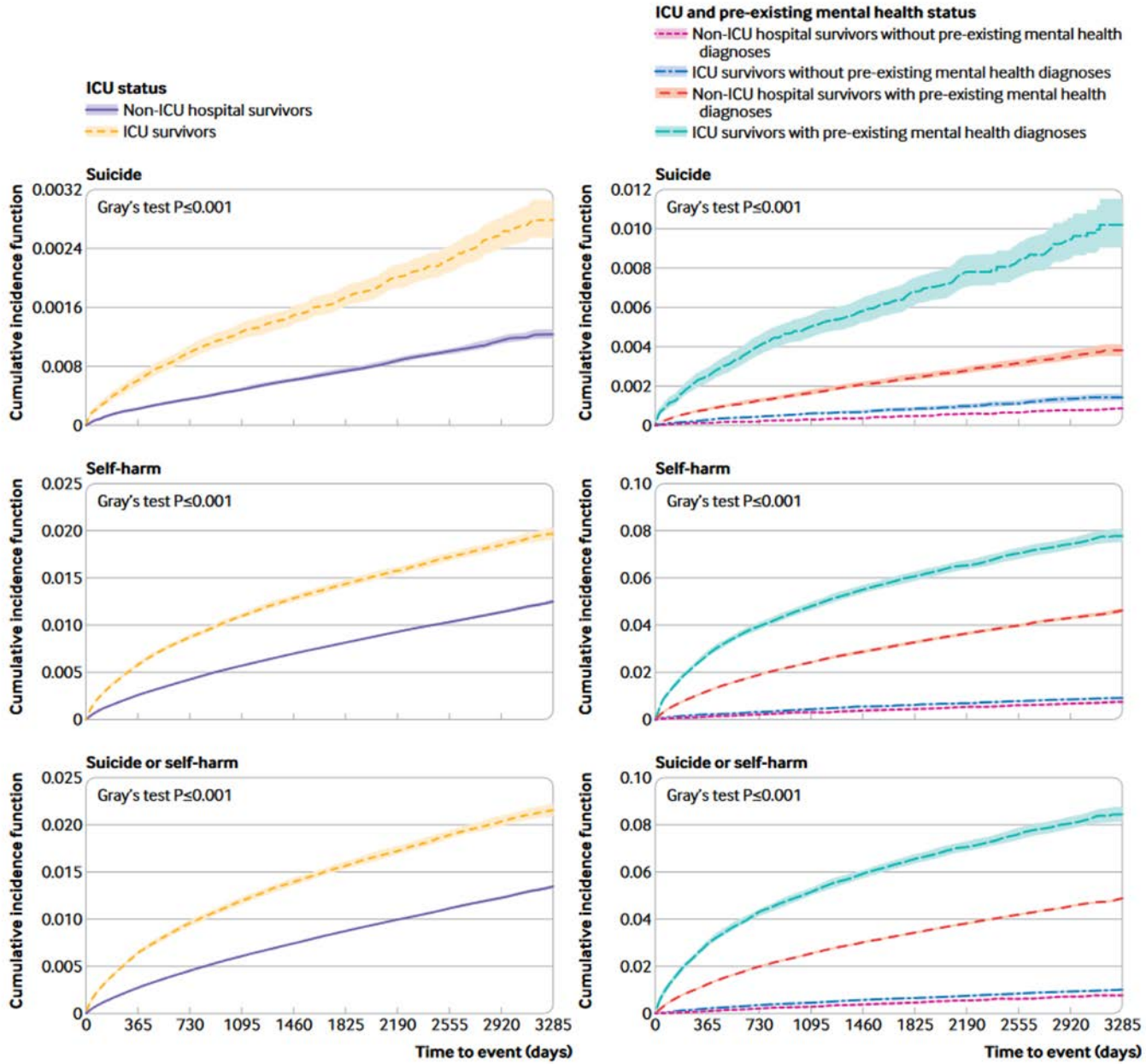



Fig 1 | Left panels: cumulative incidence function curves for suicide, self-harm, and suicide or self-harm among ICU survivors and non-ICU hospital survivors. Right panels: cumulative incidence function curves for suicide, self-harm, and suicide or self-harm among ICU survivors with or without pre-existing mental health diagnoses, and non-ICU hospital survivors with or without pre-existing mental health diagnoses

| | PTSD (n = 39) | No PTSD (n = 104) | *p* Value for PTSD vs. No-PTSD[a] |
|---|---|---|---|
| Mobility/physical ability | | | <.01 |
| Good | 21 (56) | 82 (79) | |
| Mild impairment | 17 (44) | 21 (21) | |
| Severe impairment | 0 | 0 | |
| Ability to care for themselves | | | <.05 |
| Good | 27 (70) | 95 (93) | |
| Mild impairment | 10 (27) | 7 (7) | |
| Severe impairment | 1 (3) | 0 | |
| Pain | | | <.05 |
| No pain | 11 (29) | 54 (52) | |
| Mild pain | 21 (55) | 48 (46) | |
| Severe pain | 6 (16) | 2 (2) | |
| Depressive mood | | | <.001 |
| No depression | 5 (13) | 71 (70) | |
| Mild depression | 21 (55) | 28 (28) | |
| Severe depression | 12 (31) | 1 (1) | |

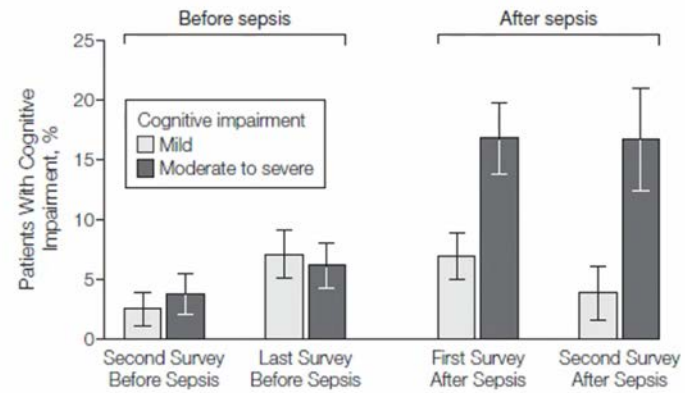
*JAMA*. 2010 October 27; 304(16): 1787–1794. doi:10.1001/jama.2010.1553.

# Long-term Cognitive Impairment and Functional Disability Among Survivors of Severe Sepsis

**Theodore J. Iwashyna, MD, PhD[1], E. Wesley Ely, MD, MPH[2], Dylan M. Smith, PhD[3], and Kenneth M. Langa, MD, PhD[1,4,5]**

Long-term Cognitive Impairment and Functional Disability Among Survivors of Severe Sepsis

**Figure 2.** Cognitive Impairment Among Survivors of Severe Sepsis at Each Survey Time Point




| | Second Survey Before Sepsis | Last Survey Before Sepsis | First Survey After Sepsis | Second Survey After Sepsis |
|---|---|---|---|---|
| Time to sepsis admission, median (IQR), y | −3.1 (−3.7 to −2.7) | −1.1 (−1.7 to −0.7) | 0.9 (0.4 to 1.4) | 2.8 (2.3 to 3.4) |
| No. of patients | 484 | 623 | 623 | 288 |

Error bars indicate 95% confidence intervals (CIs); IQR, interquartile range.
**Interpretive Example:** Compared with stable rates before severe sepsis, the prevalence of moderate to severe cognitive impairment increased from 6.1% (95% CI, 4.2%-8.0%) before severe sepsis to 16.7% (95% CI, 13.8%-19.7%) at the first survey after severe sepsis ($P < .001$ by $\chi^2$ test; Table 2).

REVIEW ARTICLE

C. Corey Hardin, M.D., Ph.D., *Editor*

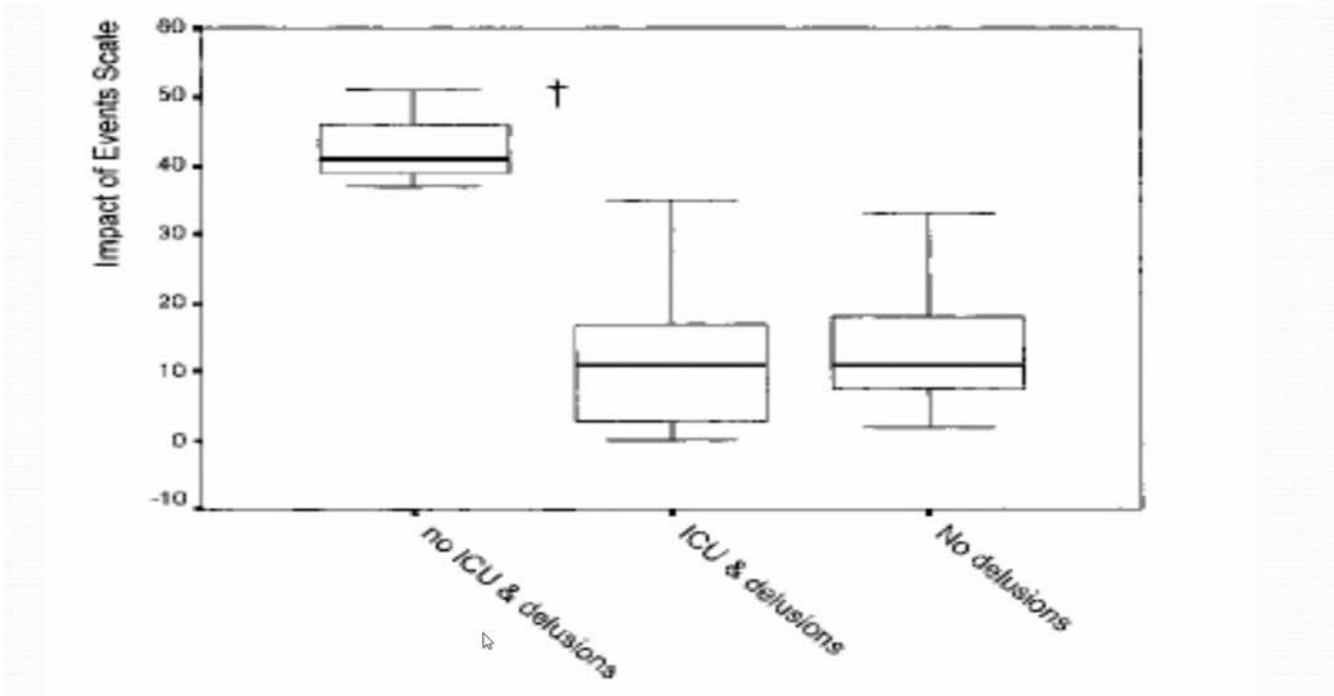
# Outcomes after Critical Illness

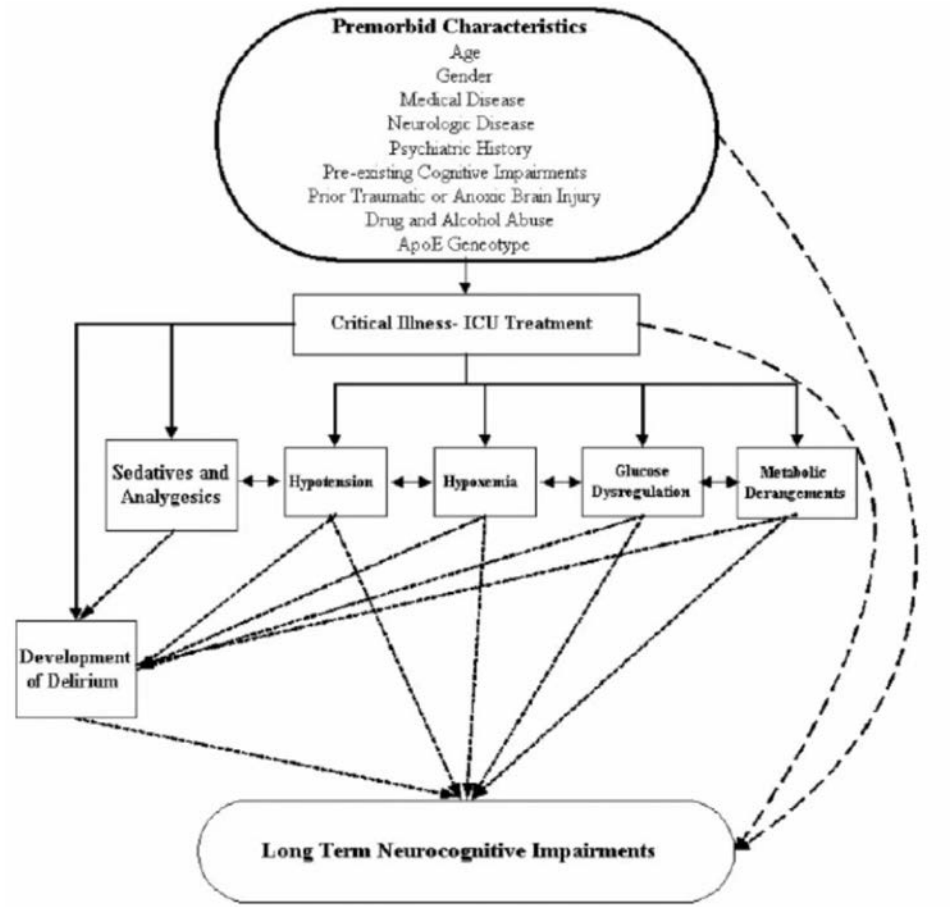
Margaret S. Herridge, M.D., M.P.H., and Élie Azoulay, M.D., Ph.D.

Memory, delusions, and the development of acute posttraumatic stress disorder-related symptoms after intensive care

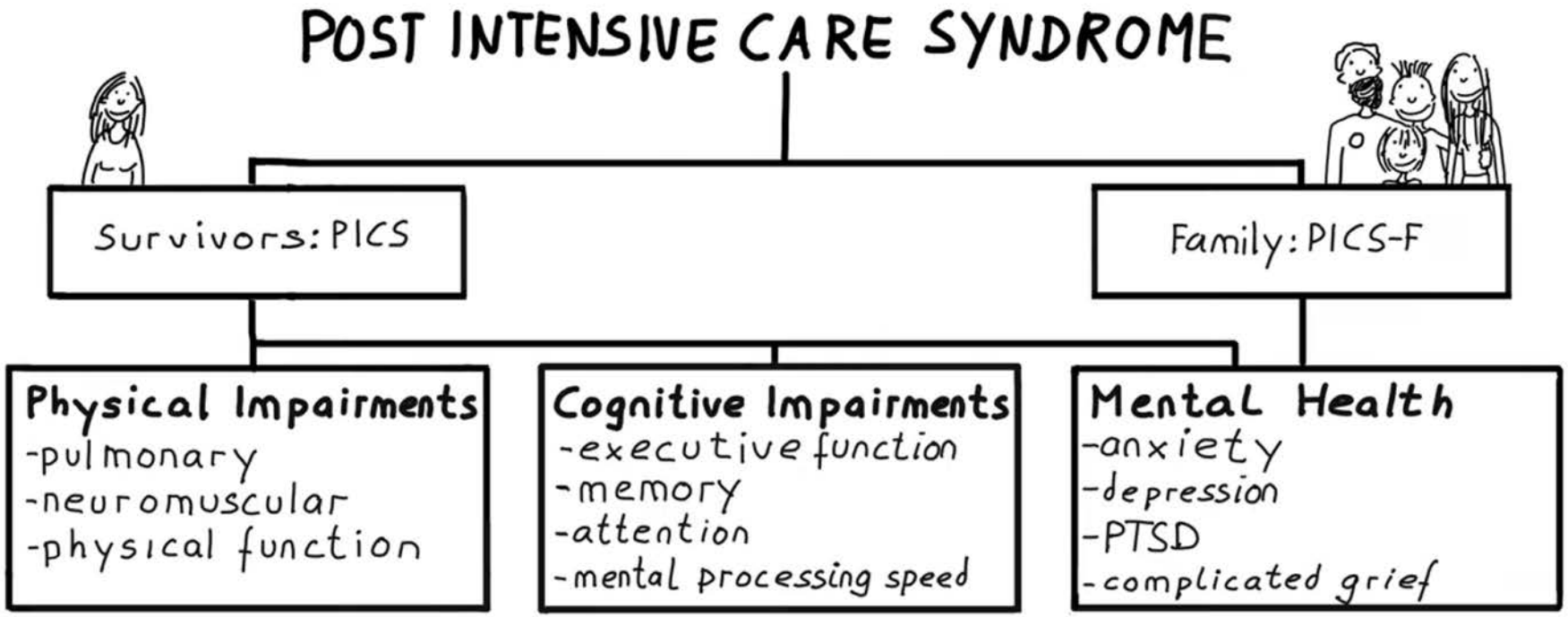
Christina Jones, Mphil; Richard D. Griffiths, MD, FRCP; Gerry Humphris, PhD, M Clin Psych; Paul M. Skirrow, BSc

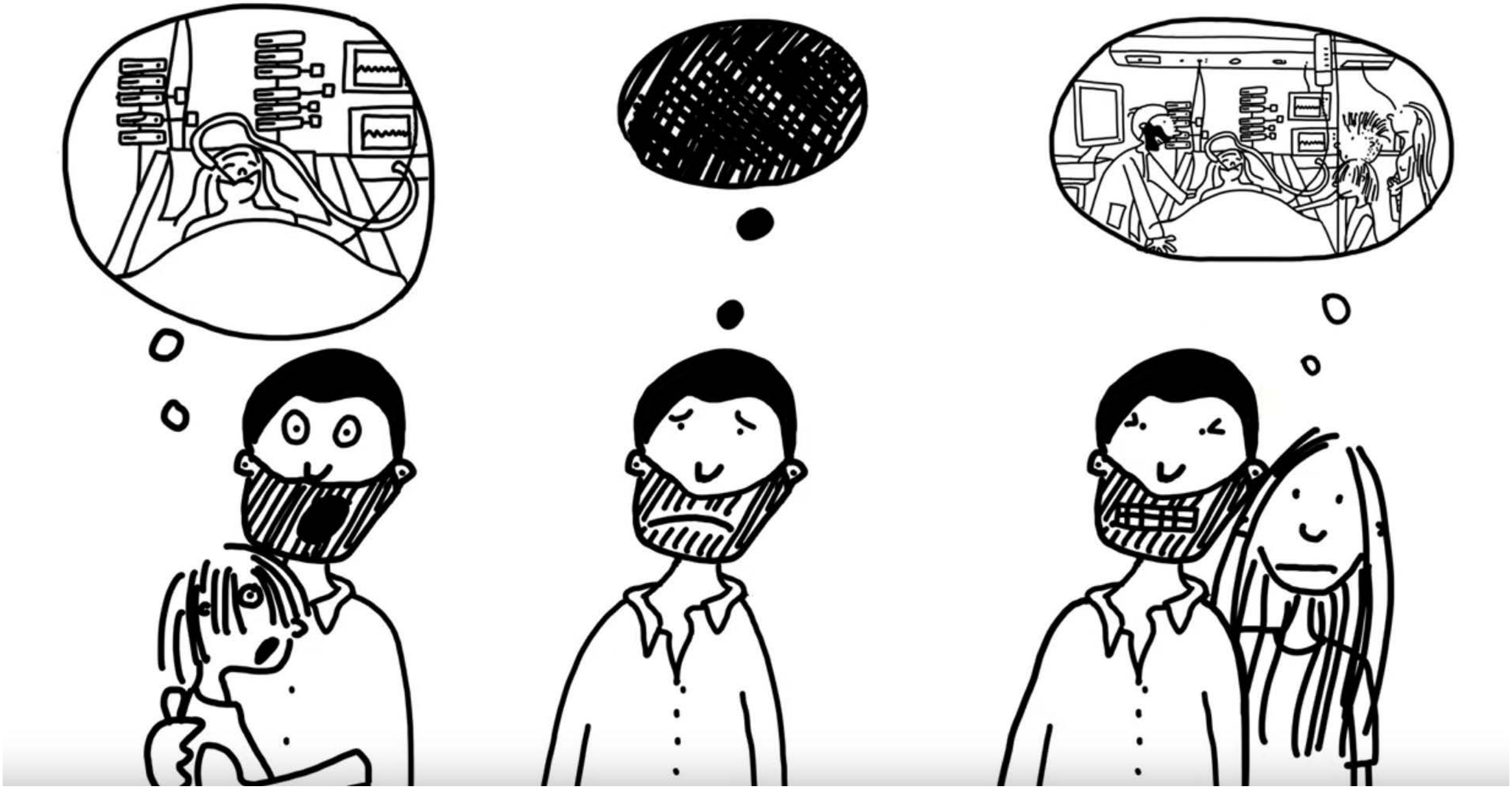
Crit Care Med 2001 Vol. 29, No. 3

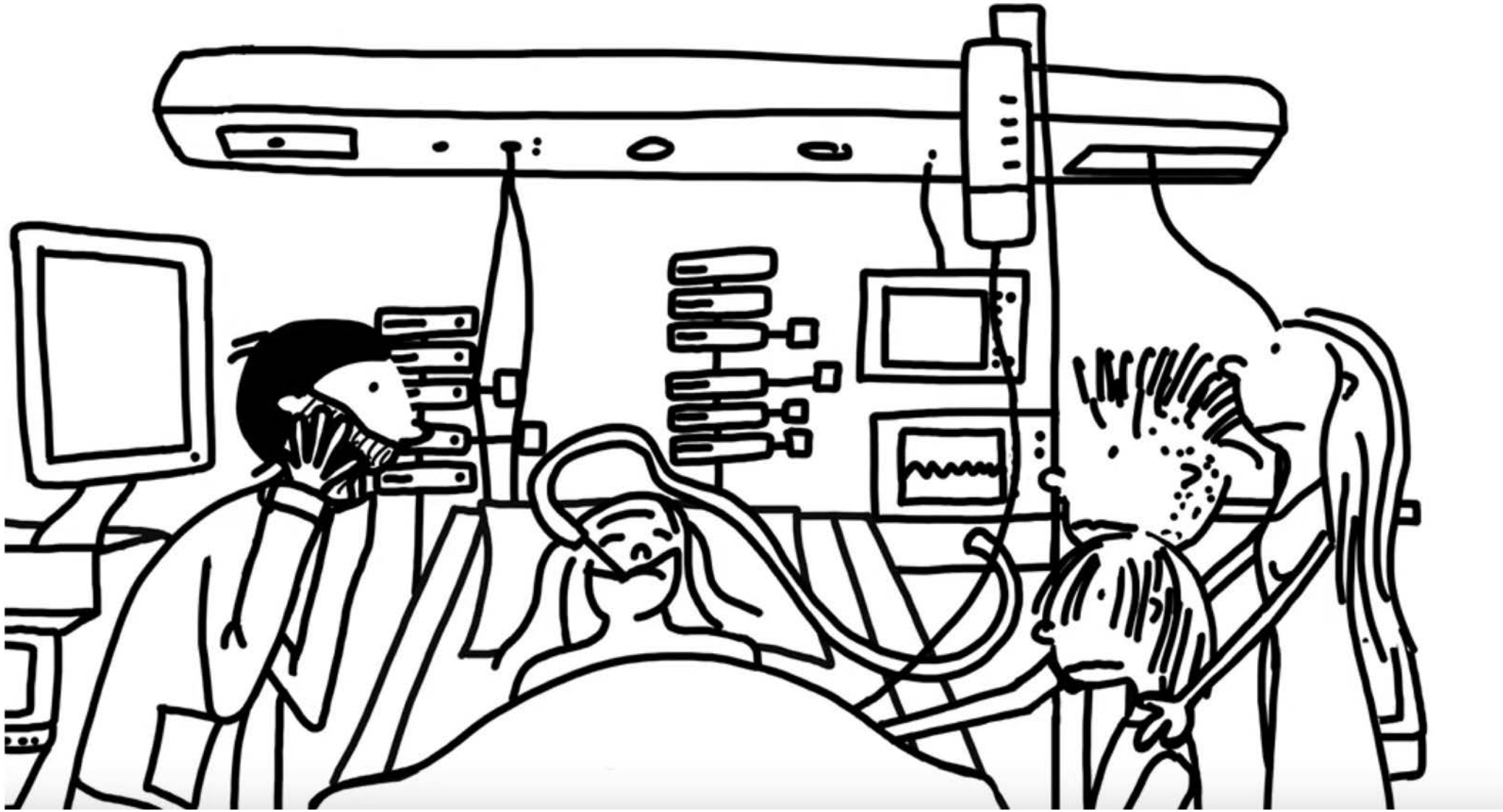



Premorbid Characteristics
Age
Gender
Medical Disease
Neurologic Disease
Psychiatric History
Pre-existing Cognitive Impairments
Prior Traumatic or Anoxic Brain Injury
Drug and Alcohol Abuse
ApoE Genotype
Critical Illness- ICU Treatment
Sedatives and Analygesics
Hypotension
Hypoxemia
Glucose Dysregulation
Metabolic Derangements
Development of Delirium
Long Term Neurocognitive Impairments

- https://www.youtube.com/watch?v=MhdZGNaN6b4





- 

# Post-intubation laryngeal injuries and extubation failure: a fiberoptic endoscopic study

Intensive Care Med (2010) 36:991–998
DOI 10.1007/s00134-010-1847-z

Fig. 2 Post-extubation granulation of the right vocal cord. Photograph taken during endoscopic treatment

Fig. 1 Post-extubation nonobstructive edema

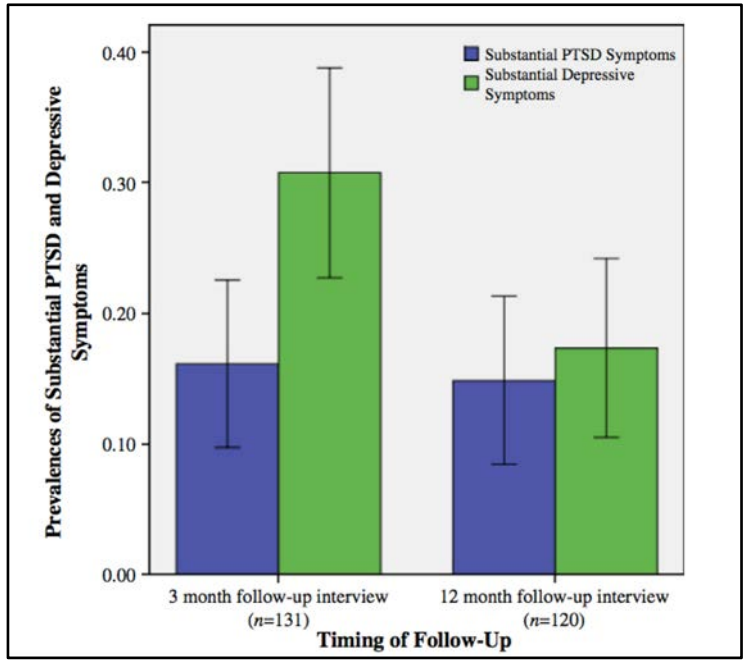
**136 patients consécutifs**

**73% explorés en post-extubation présentent une lésion laryngée**

Tadié et al.

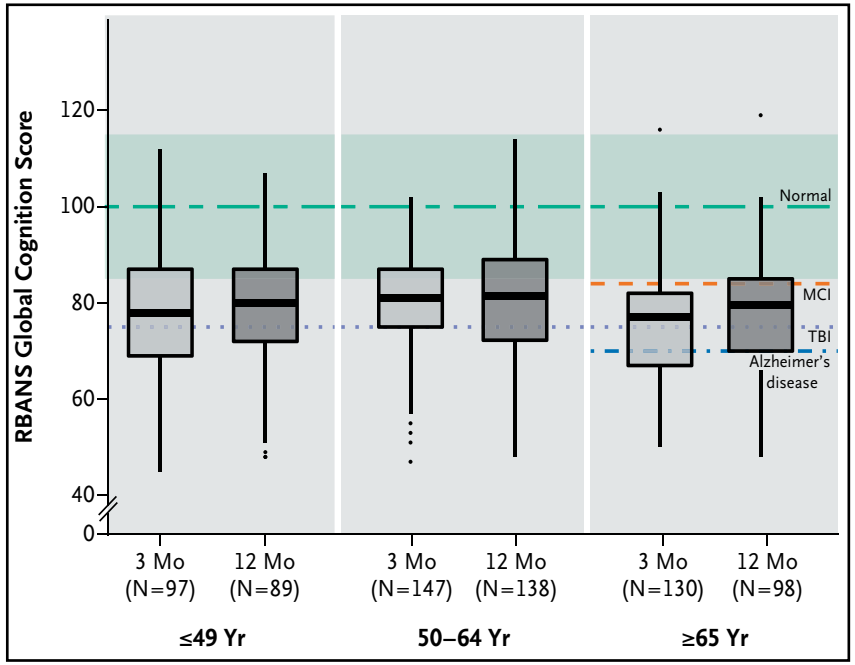
# LES PROCHES

## Mental health



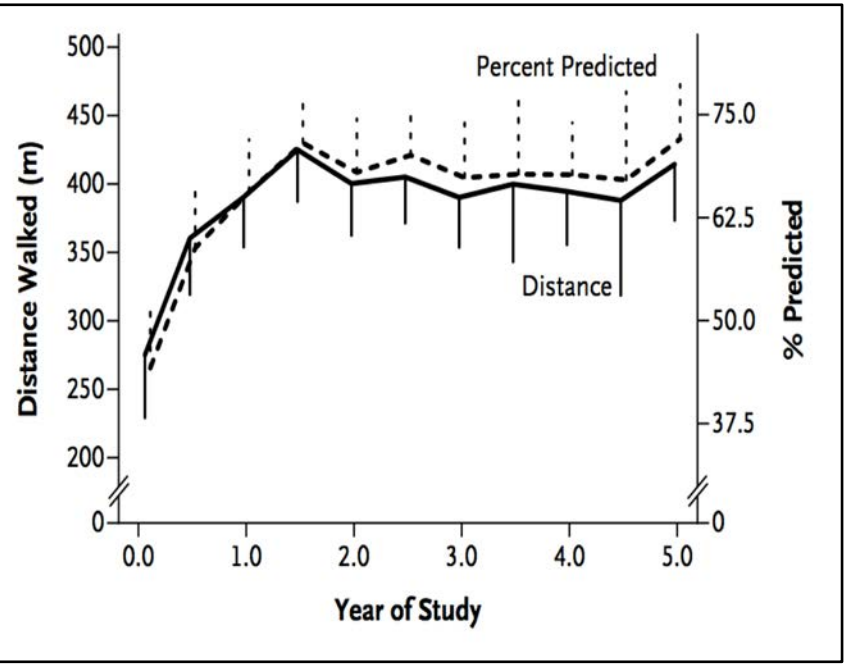

Davydow, Gen Hosp Psychiatry, 2013

## Cognitive impairment




Pandharipande, N Engl J Med, 2013

## Physical impairment




Herridge, N Engl J Med, 2011

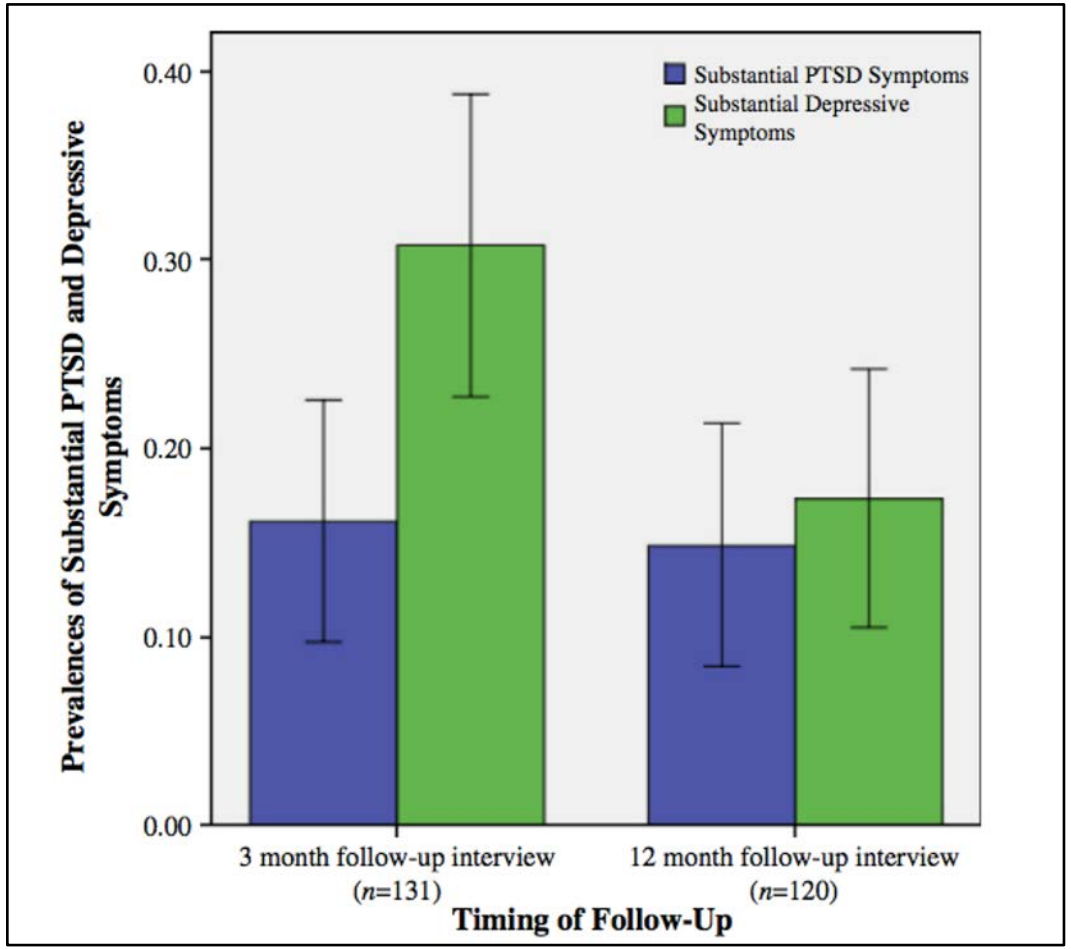
Altération de l'autonomie - Augmentation de la dépendance

Altération de la qualité de vie

Augmentation de la consommation des soins

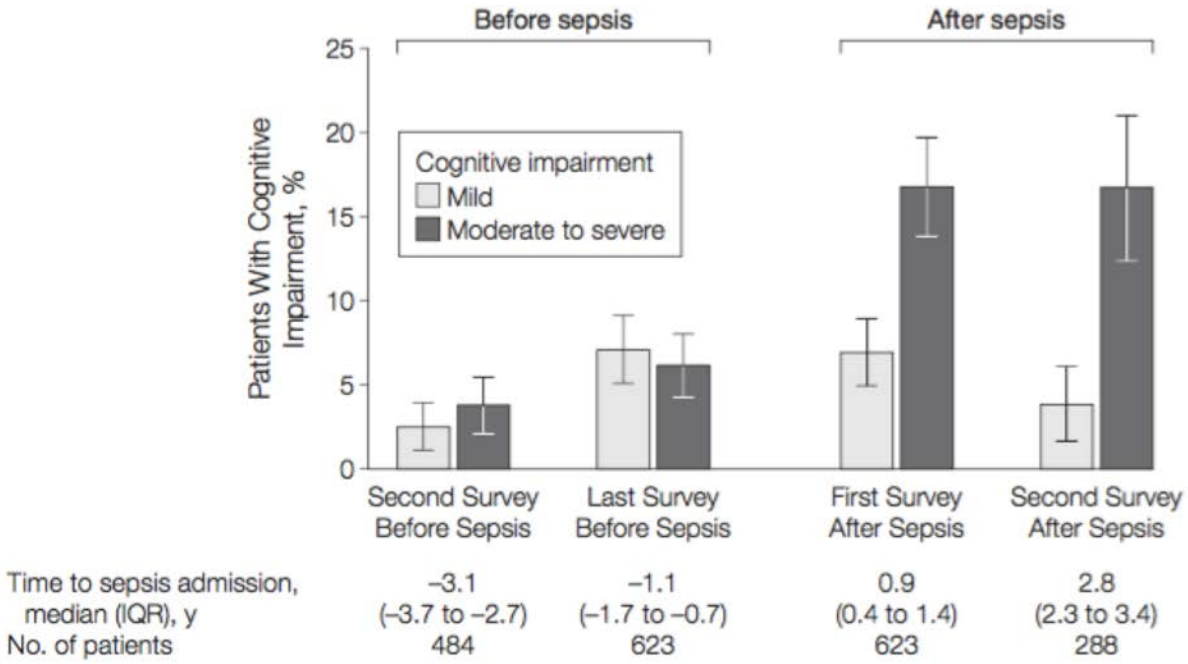
Augmentation de la mortalité

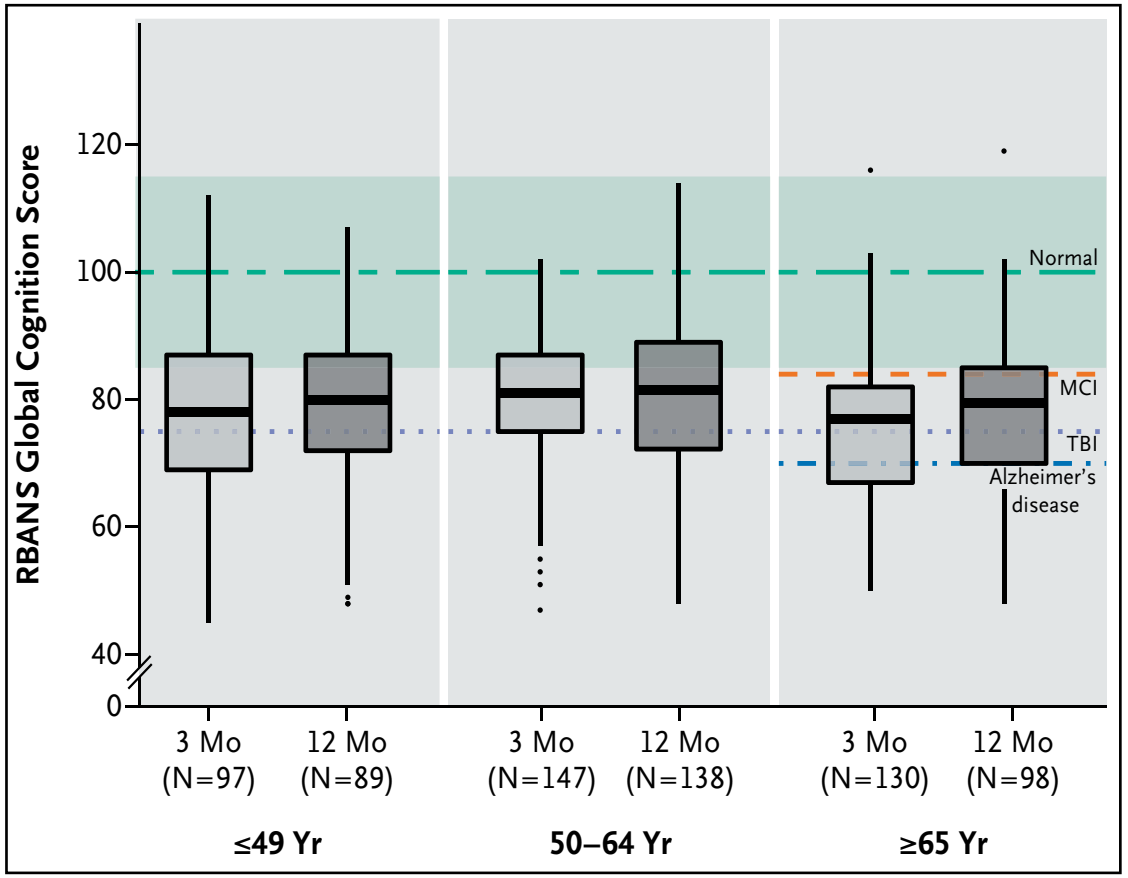
# Séquelles psychiques




Davydow, Gen Hosp Psychiatry, 2013

# Séquelles cognitives




Iwashyna, JAMA, 2010
Pandharipande, N Engl J Med, 2013

# Séquelles physiques – Neuromyopathie de réanimation

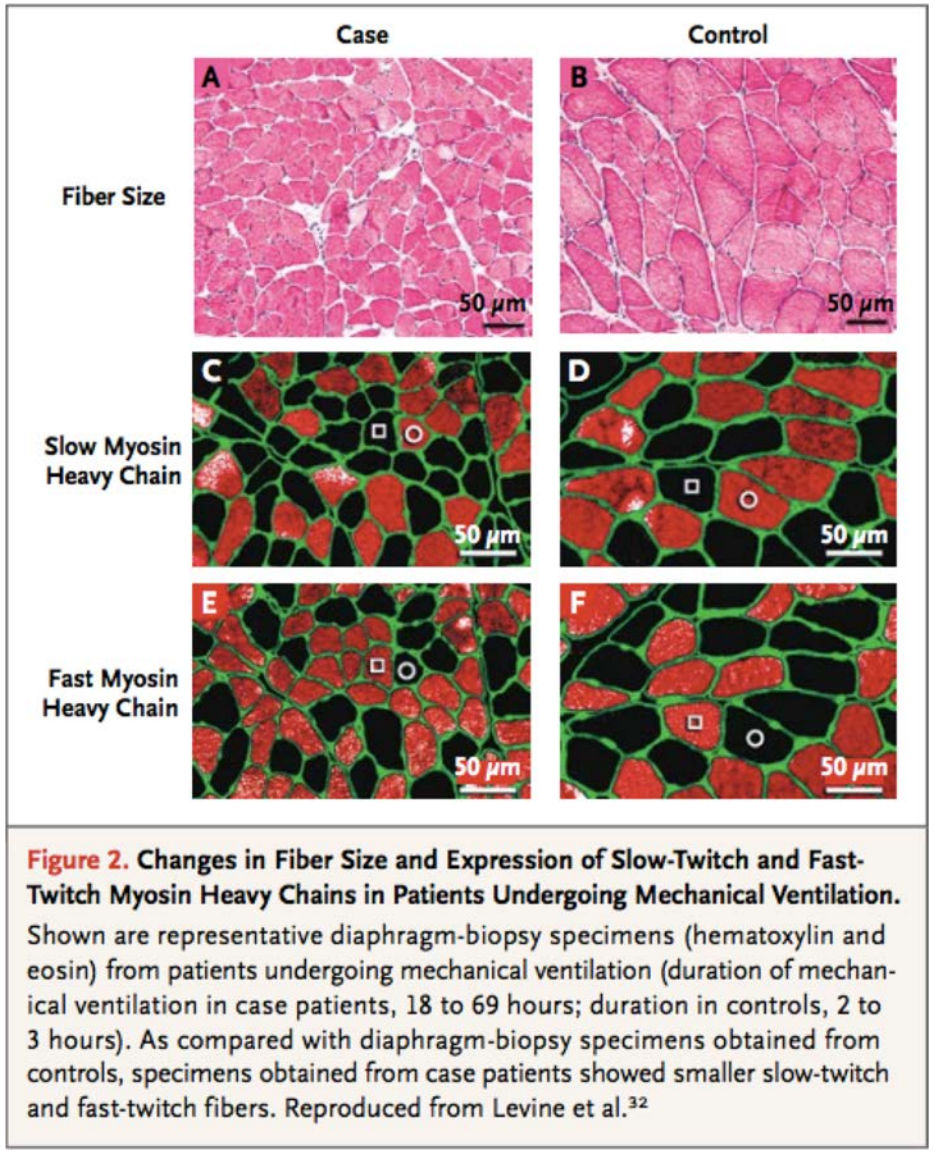
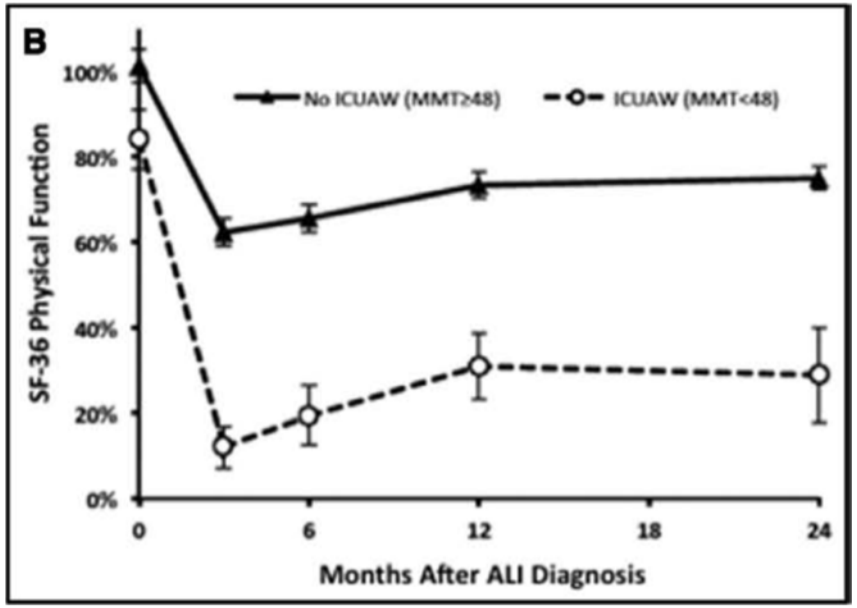
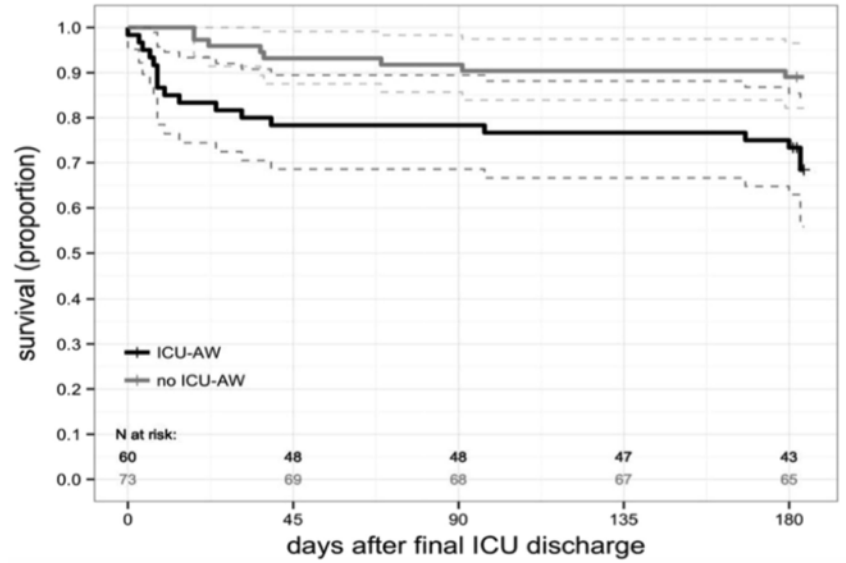



**Figure 2. Changes in Fiber Size and Expression of Slow-Twitch and Fast-Twitch Myosin Heavy Chains in Patients Undergoing Mechanical Ventilation.**

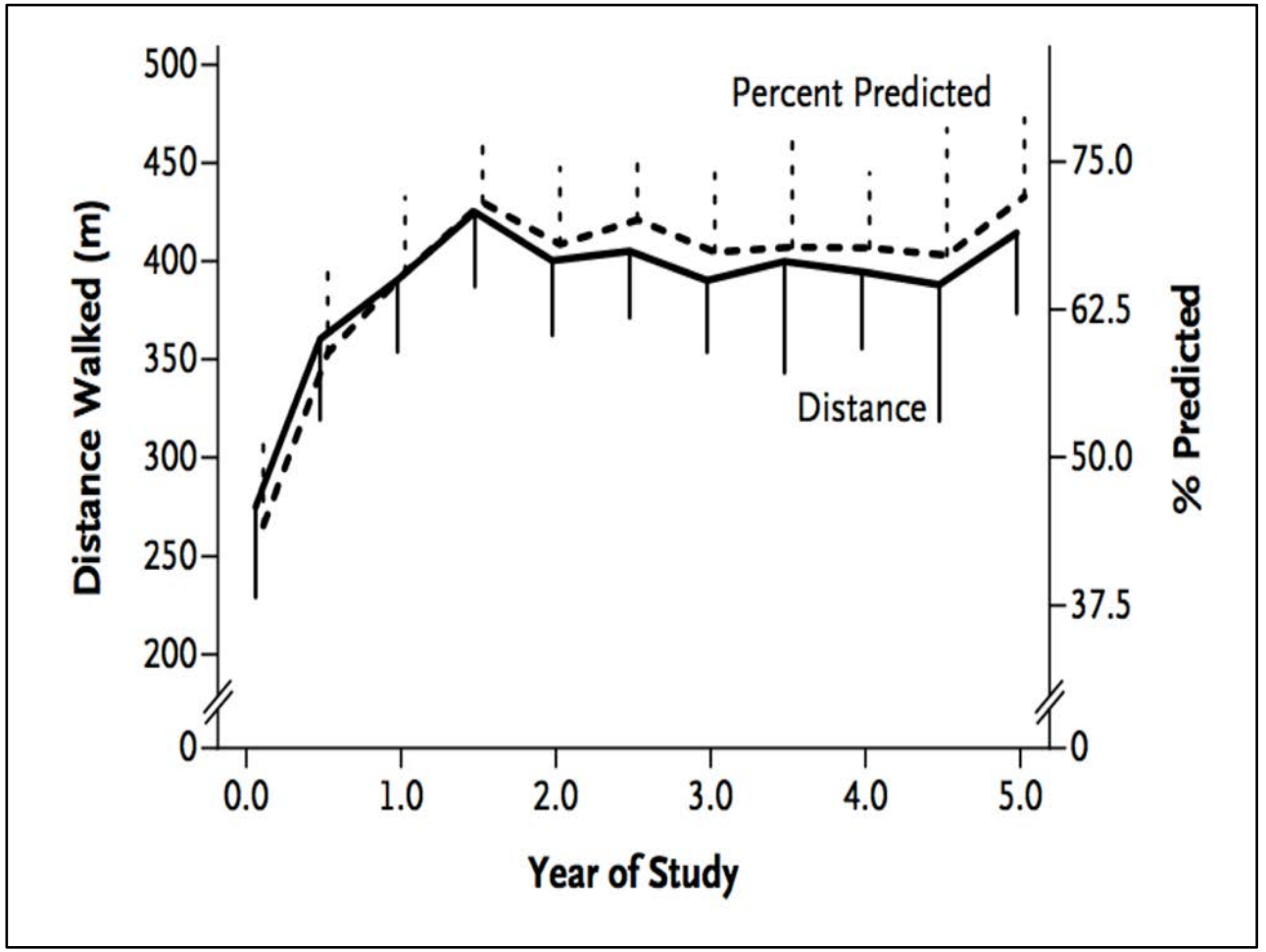
Shown are representative diaphragm-biopsy specimens (hematoxylin and eosin) from patients undergoing mechanical ventilation (duration of mechanical ventilation in case patients, 18 to 69 hours; duration in controls, 2 to 3 hours). As compared with diaphragm-biopsy specimens obtained from controls, specimens obtained from case patients showed smaller slow-twitch and fast-twitch fibers. Reproduced from Levine et al.[32]




Fan, Crit Care Med, 2014
Dettling-Ingefeldt, 2017
Kress, N Engl J Med, 2014

# Séquelles physiques – Fonction respiratoire




Herridge, N Engl J Med, 2011

# Séquelles physiques – Autres

- Enraidissement articulaire
- Sténose trachéale
- Troubles de la déglutition
- Troubles endocriniens
- Ostéopénie
- Troubles du sommeil
- Cicatrices
- Douleurs
- Fatigue
- Déficit immunitaire
- Dénutrition
- Perte d’appétit
- Troubles de l’audition
- Escarres
- Problèmes bucco-dentaires
- Modification de l’apparence
- Sténose urétrale
- Insuffisance rénale chronique
- Troubles sexuels

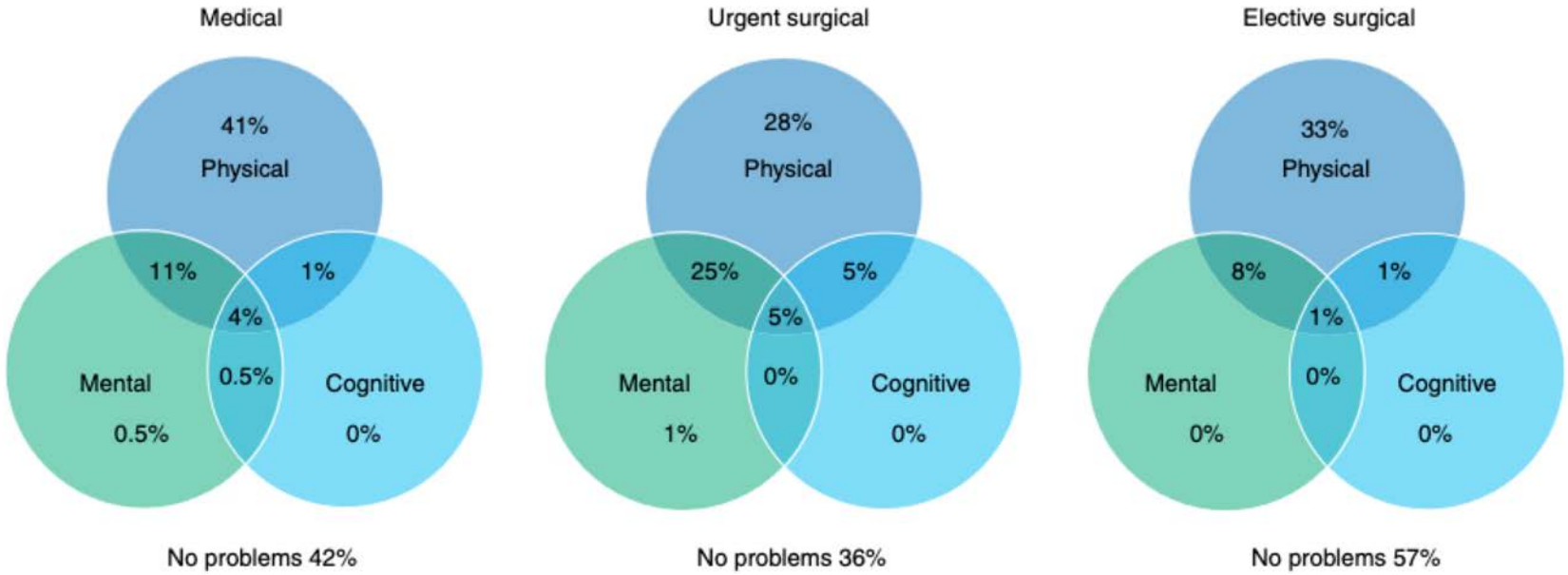



**Figure 2.** Cooccurrence of newly experienced physical, mental, and cognitive health problems 1 year after ICU admission.

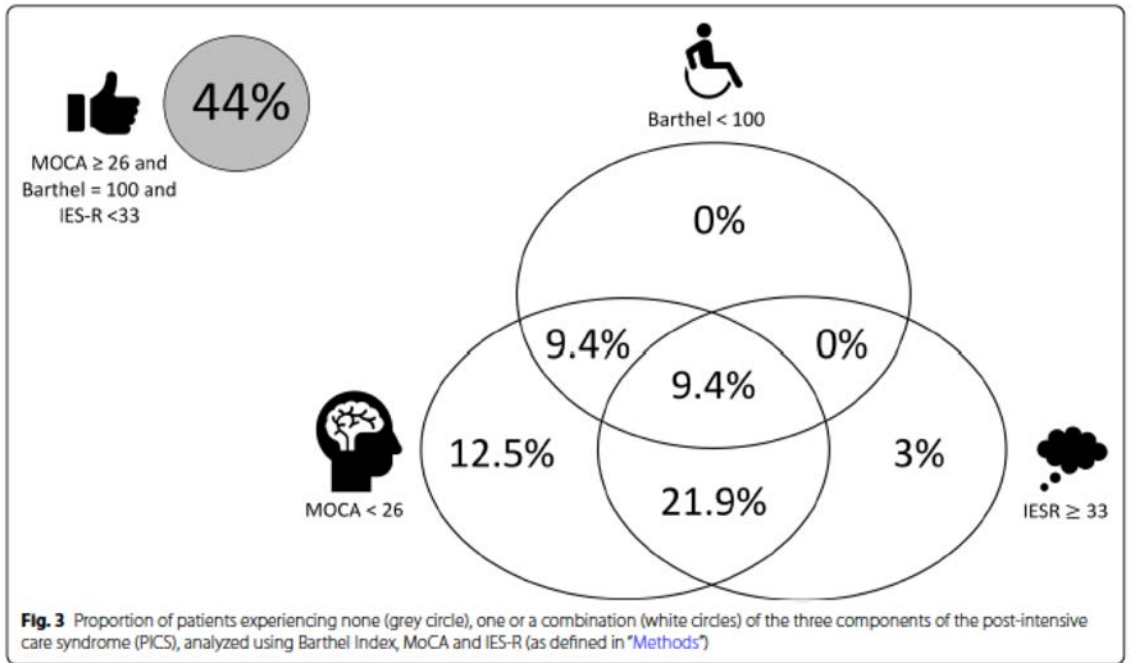
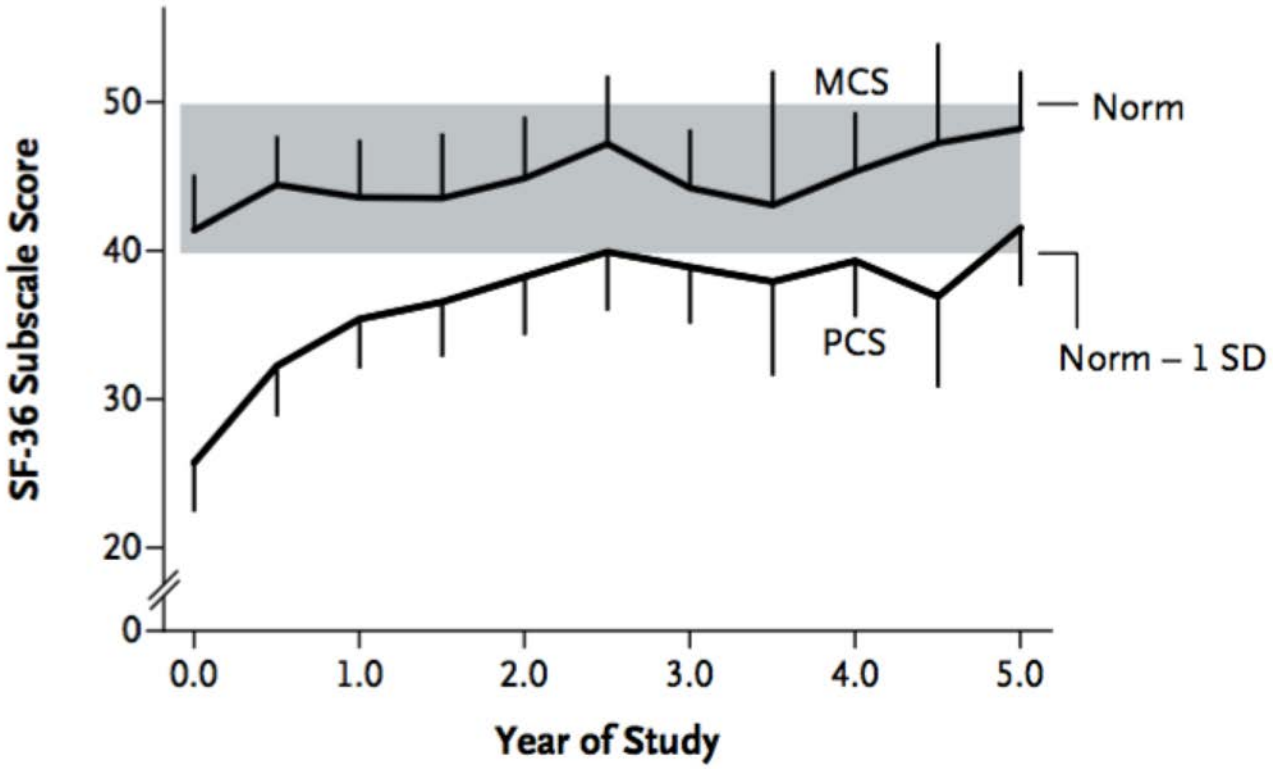



**Fig. 3** Proportion of patients experiencing none (grey circle), one or a combination (white circles) of the three components of the post-intensive care syndrome (PICS), analyzed using Barthel Index, MoCA and IES-R (as defined in "Methods")

Geense, AJRCCM, 2021
Rousseau, AIC, 2021

# Qualité de vie



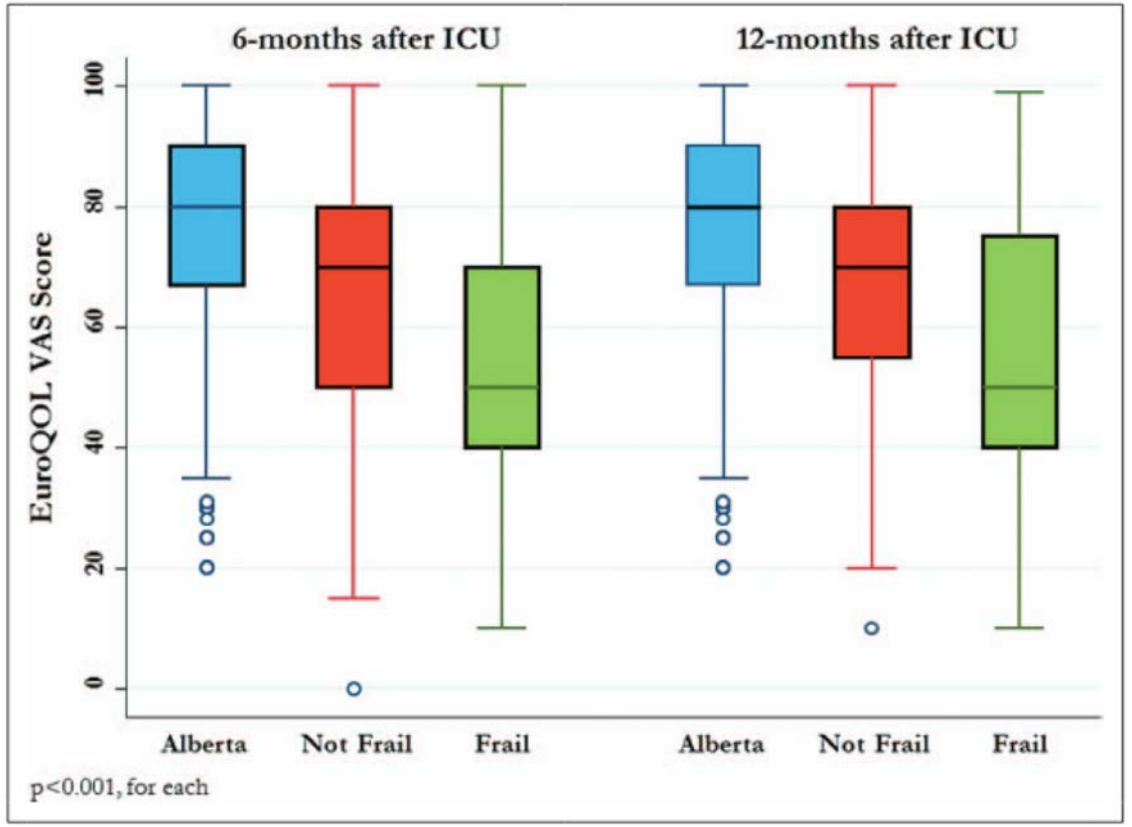
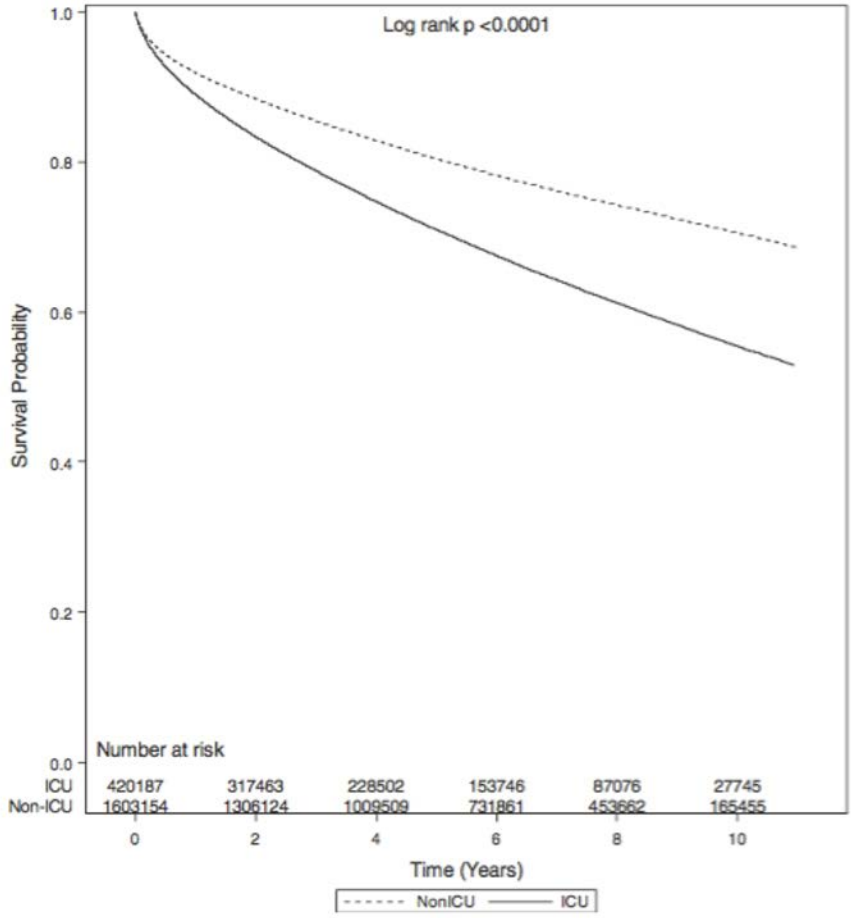
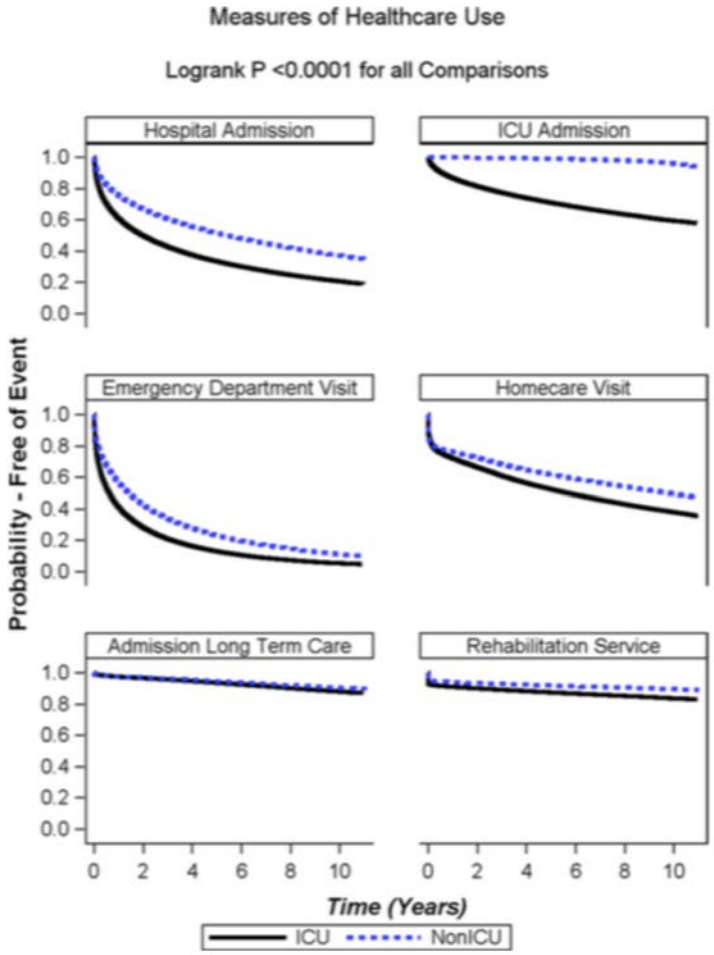



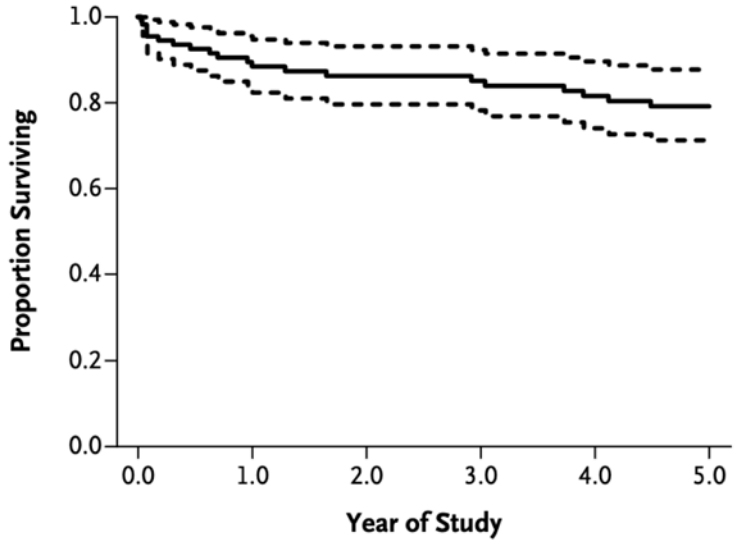

**Figure 2.** Health-related quality of life assessed by the EuroQol-visual analog scale (VAS) at 6 and 12 mo by frailty status and referenced with the population norms for Alberta, Canada.

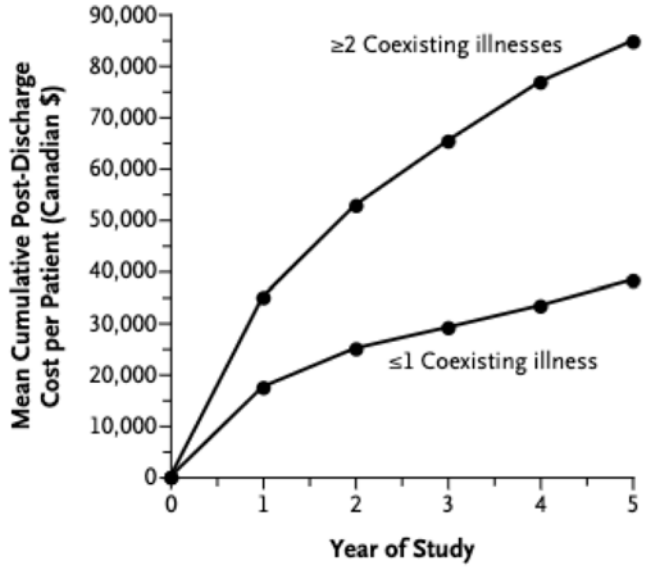
Herridge, N Engl J Med, 2011
Bagshaw, Crit Care Med, 2015

# morbidité et mortalité




Herridge, NEJM, 2011
Hill, Crit Care, 2016

# Autonomie

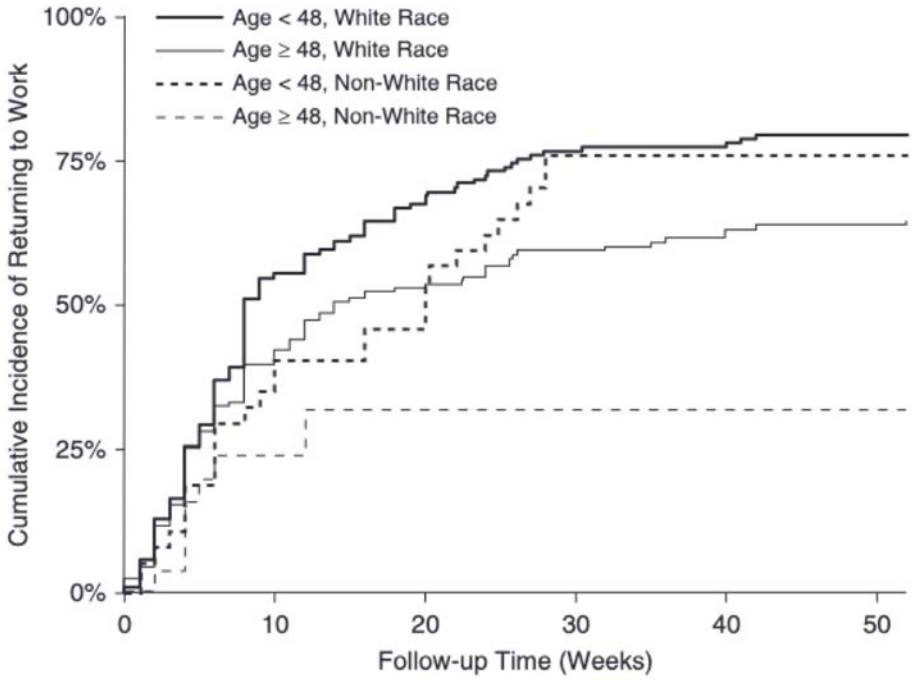



**Figure 2.** Cumulative incidence of returning to work over 12-month follow-up, stratified by age and race, with retirement and death treated as competing risks.

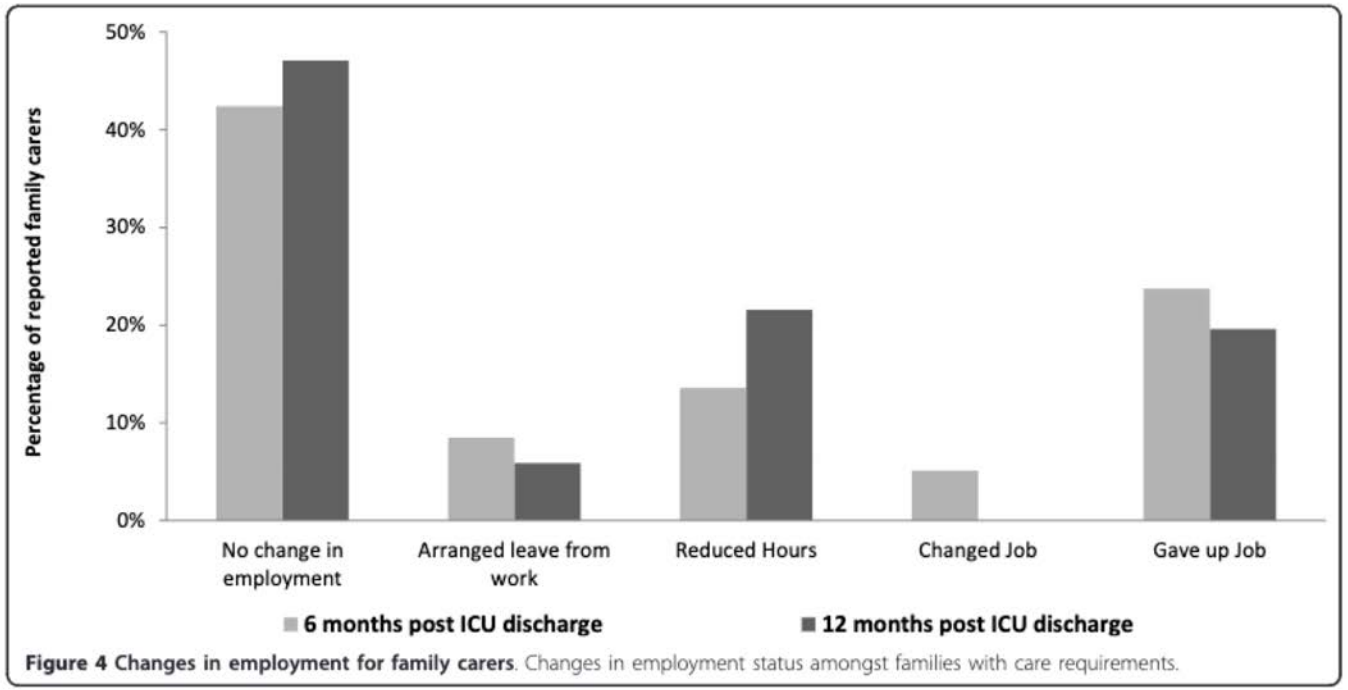



**Figure 4 Changes in employment for family carers**. Changes in employment status amongst families with care requirements.

Kamdar, AJRCCM, 2017
Griffiths, Crit Care, 2013

# PICS – family

**TABLE 2. IES SCORES AND RATE OF OCCURRENCE OF PTSR IN FAMILY MEMBERS OF ICU PATIENTS**

| | Patients *n* (%) | Median IES Score (25–75%) | Patients With PTSR *n* (%) |
|---|---|---|---|
| All family members | 284 (100) | 22 (11–34) | 94 (33.1) |
| Family members involved in patient care | 71 (25) | 20 (10–29) | 17 (24) |
| Family members of patients discharged alive from the ICU | 228 (80.3) | 21 (10–32) | 66 (28.9) |
| Family felt that not enough time was allowed for information | 43 (15.1) | 29 (20–39) | 20 (46.5) |
| Family felt that information was not easy to understand | 45 (15.8) | 33 (21–39) | 24 (53.3) |
| Family felt that information was incomplete | 95 (33.4) | 29 (15–37) | 46 (48.4) |
| Family members involved in everyday decisions about the patient | 69 (24.3) | 30 (15–36) | 33 (47.8) |
| Family members of patients who died in the ICU | 56 (19.7) | 30.5 (18–38) | 28 (50) |
| Family members of patients who died in the ICU after end-of-life decisions | 50 (17.6) | 33 (22–39) | 30 (60) |
| Family members involved in end-of-life decisions | 22 (7.7) | 35.5 (31–39) | 18 (81.8) |

*Definition of abbreviations*: ICU = intensive care unit; IES = Impact of Event Scale; PTSR = post-traumatic stress reaction.

PTSR was defined as an IES score > 30, indicating a high risk of developing post-traumatic stress disorder. Family involvement in decisions about the patient included consent to research, decision to perform tracheotomy, discussions about the appropriate level of care, and discussions about the patient preferences and values and about the patient's quality of life.

Azoulay, AJRCCM, 2005

# COMMENT PRÉVENIR ? COMMENT DÉPISTER ?

Identifier les facteurs de risque

Eviter la survenue des complications

Dépister et traiter les séquelles

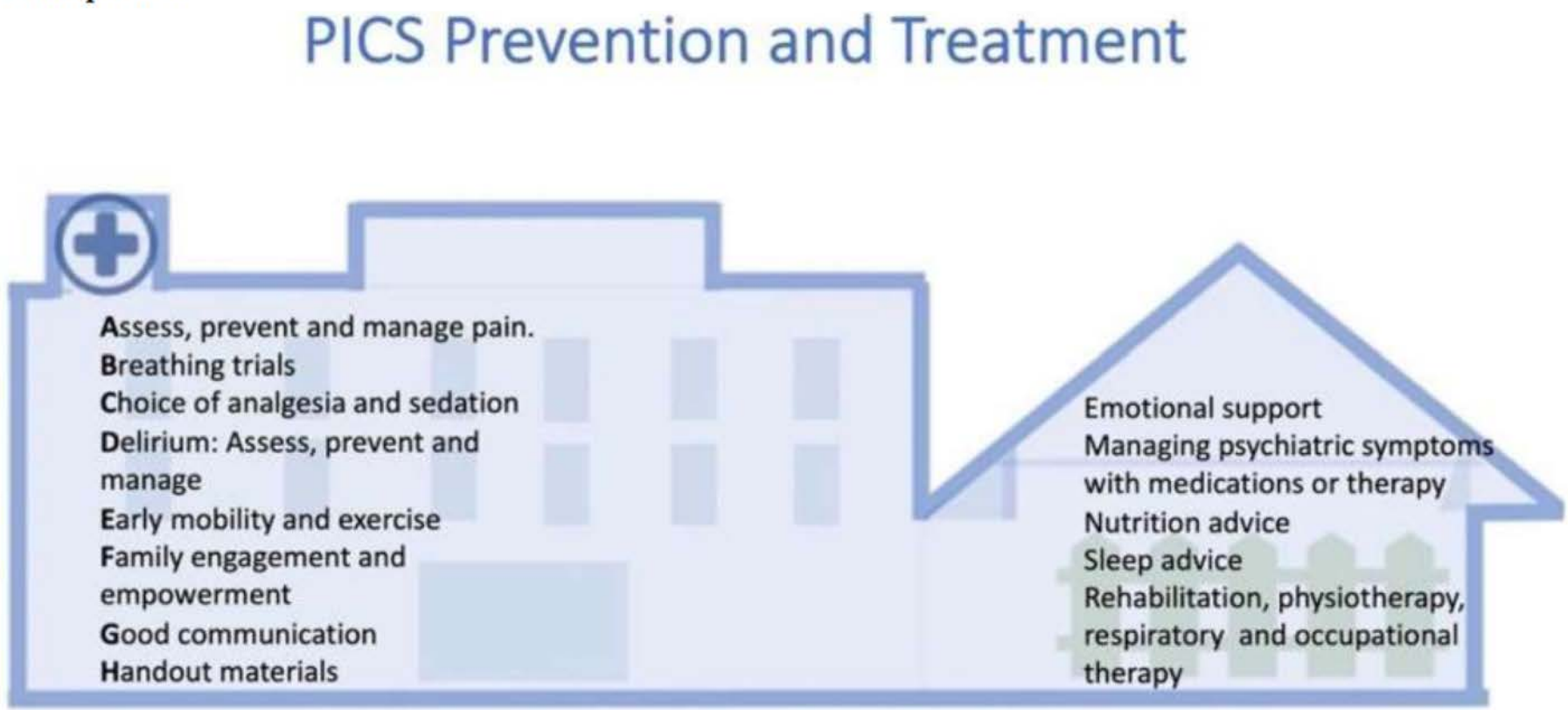
life

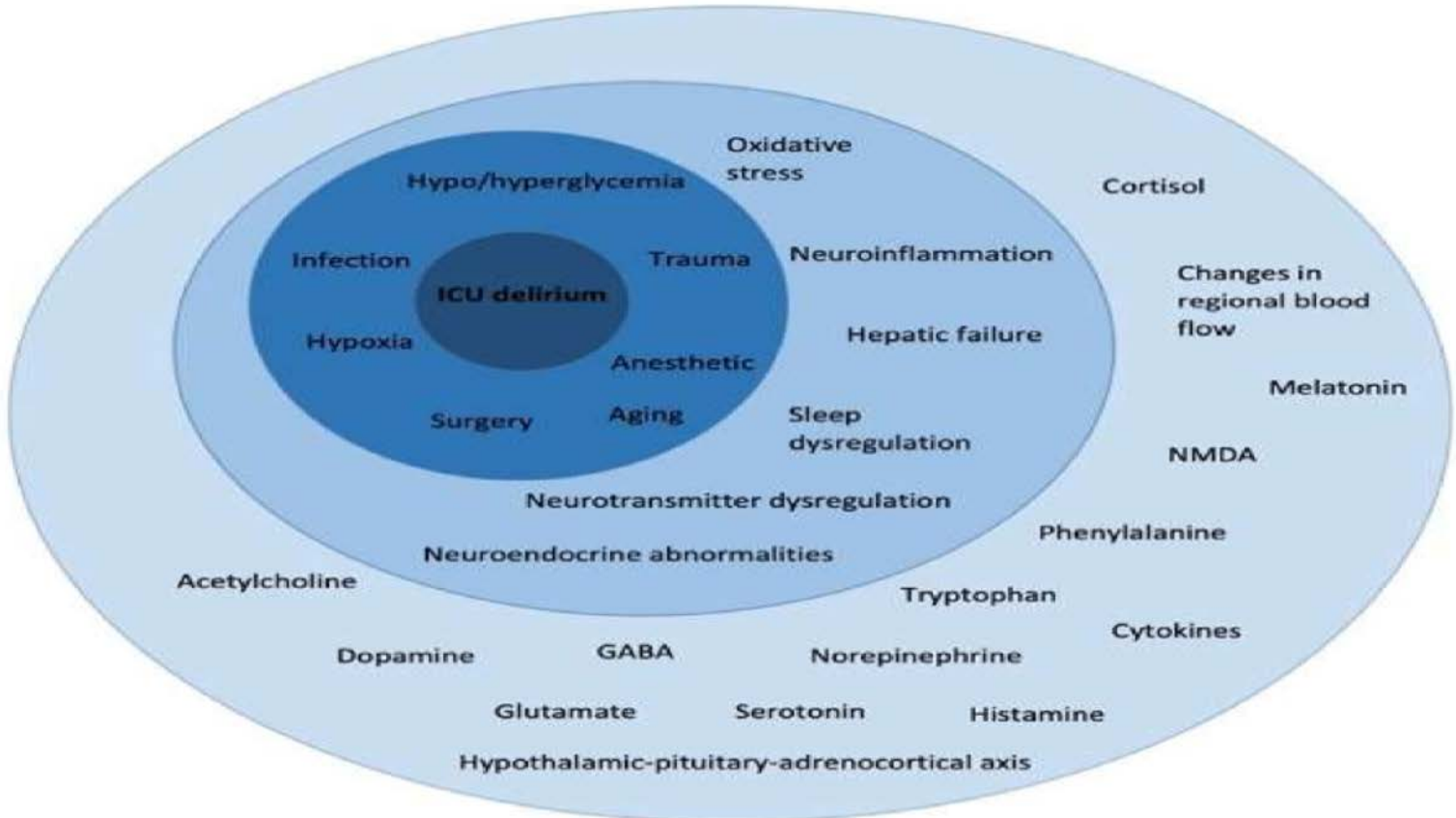
MDPI

*Review*

# Post-Intensive Care Syndrome in Survivors from Critical Illness including COVID-19 Patients: A Narrative Review

**Charikleia S. Vrettou *, Vassiliki Mantziou, Alice G. Vassiliou, Stylianos E. Orfanos, Anastasia Kotanidou and Ioanna Dimopoulou ***




Oxidative stress
Hypo/hyperglycemia
Cortisol
Infection
Trauma
Neuroinflammation
ICU delirium
Changes in regional blood flow
Hepatic failure
Hypoxia
Anesthetic
Melatonin
Surgery
Aging
Sleep dysregulation
NMDA
Neurotransmitter dysregulation
Phenylalanine
Neuroendocrine abnormalities
Acetylcholine
Tryptophan
Cytokines
Dopamine
GABA
Norepinephrine
Glutamate
Serotonin
Histamine
Hypothalamic-pituitary-adrenocortical axis

HAUTE AUTORITÉ DE SANTÉ

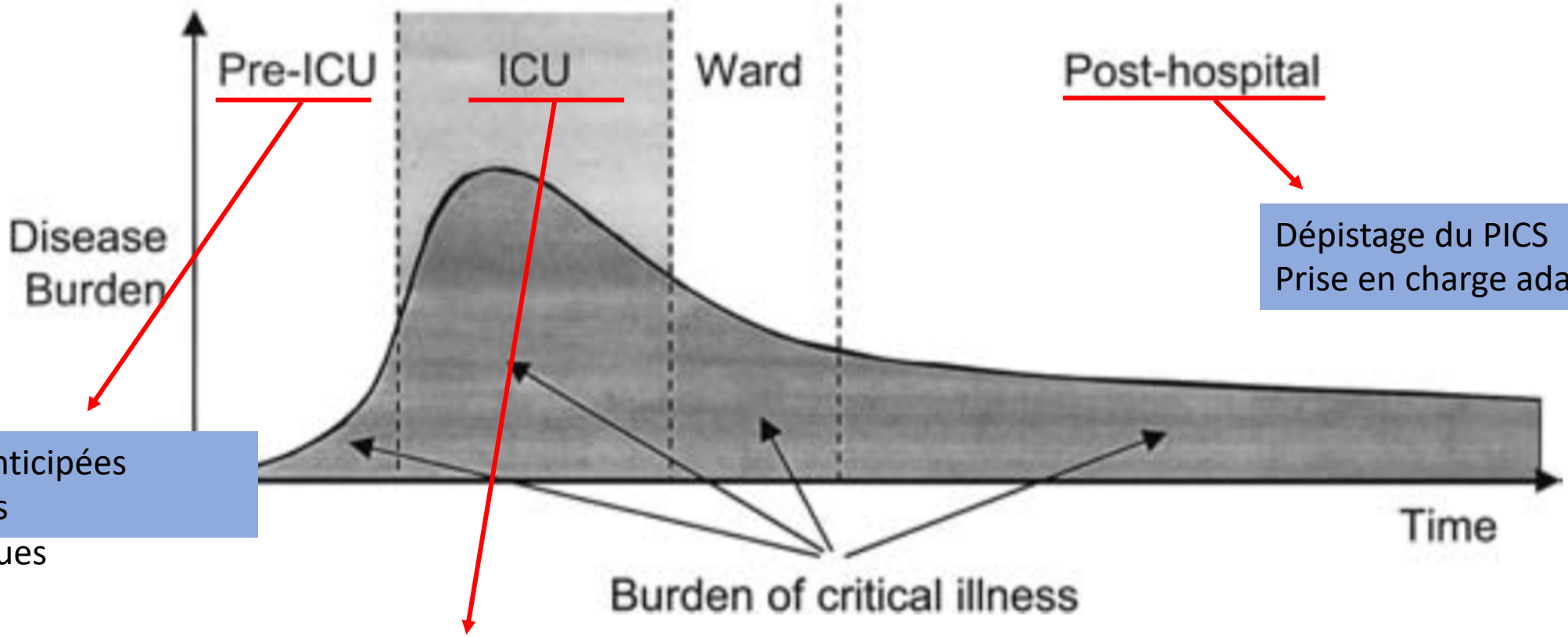
**RECOMMANDER** LES BONNES PRATIQUES

**NOTE DE CADRAGE**

# Diagnostic et prise en charge des patients avec un syndrome post réanimation (PICS) chez l'adulte

**Validée par le Collège le 19 janvier 2022**

# Implications pour LES ÉQUIPES DE RÉANIMATION

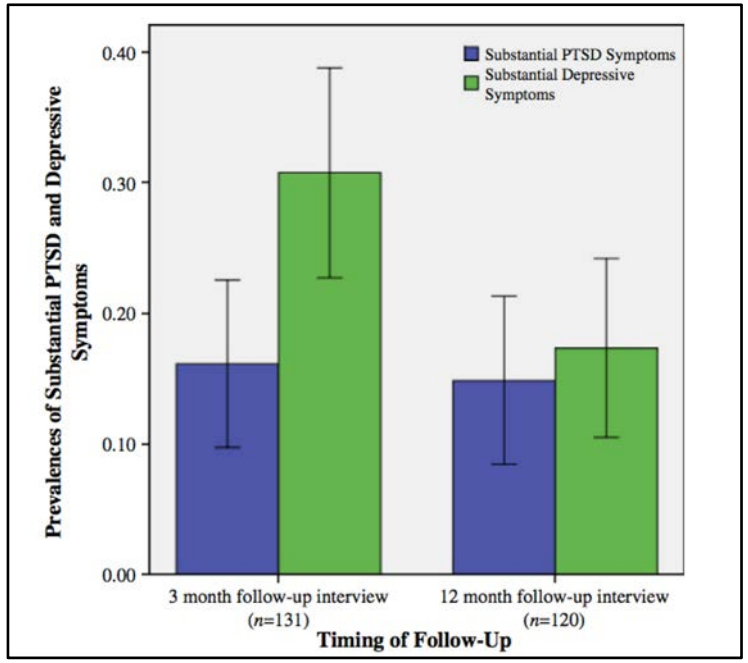



Directives anticipées
Intensité des thérapeutiques

Identification des facteurs de risque
Prévention de la survenue des complications

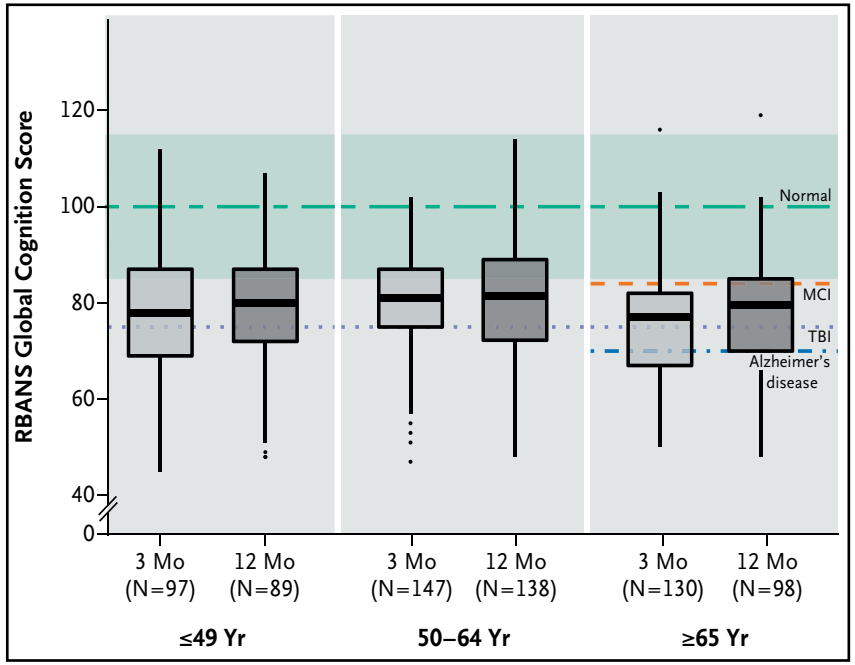
Dépistage du PICS
Prise en charge adaptée

## Mental health



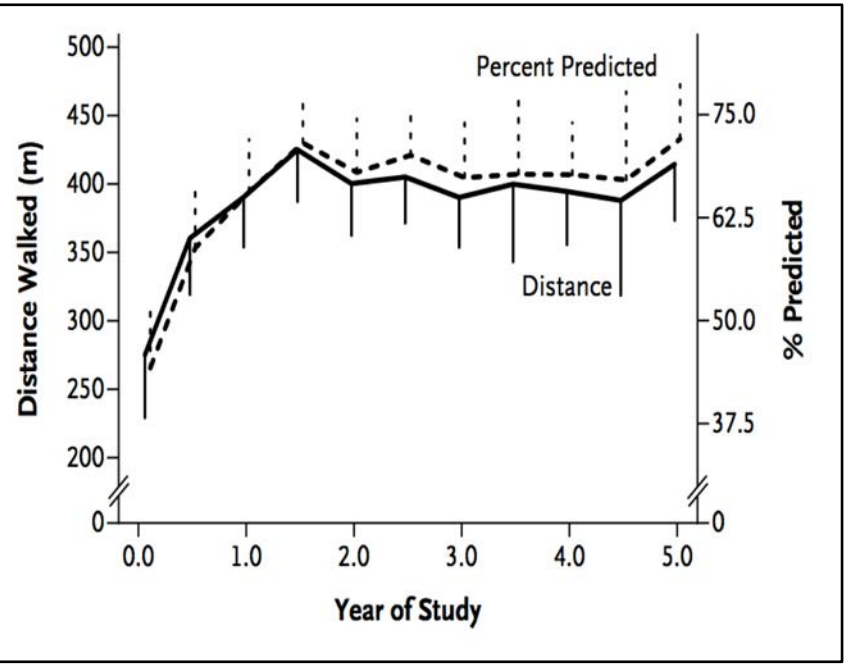

Davydow, Gen Hosp Psychiatry, 2013

## Cognitive impairment




Pandharipande, N Engl J Med, 2013

## Physical impairment




Herridge, N Engl J Med, 2011

Altération de l'autonomie - Augmentation de la dépendance

Altération de la qualité de vie

Augmentation de la consommation des soins

Augmentation de la mortalité

- ICU n’est pas anodine
  - Savoir ne pas faire
  - Amélioration des technique des réanimation ECMO pourvoyeuses de plus de complication
  - Amélioration de prise en charge en réa
  - Culture de la prise en charge post réanimation
  - La réanimation est une maladie grave

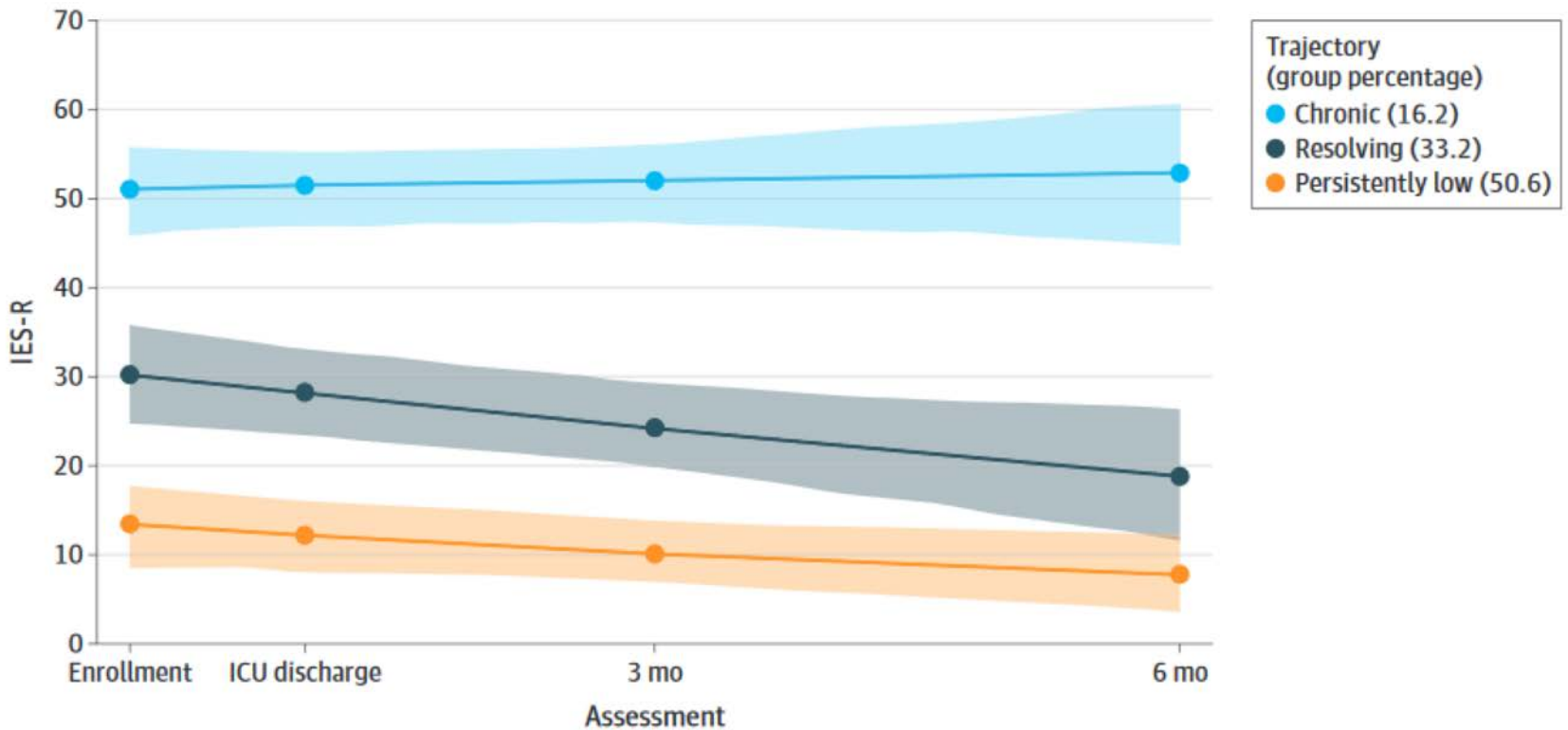
# Merci de votre attention


JAMA Network Open™

Original Investigation | Critical Care Medicine

# Posttraumatic Stress Symptom Trajectories in Family Caregivers of Patients With Acute Cardiorespiratory Failure

Blair Wendlandt, MD, MSc; Liam Pongracz, BA; Feng-Chang Lin, PhD; Mark Toles, PhD; Bradley N. Gaynes, MD; Laura C. Hanson, MD; Shannon S. Carson, MD



**IES-R version française**

***Nom patient :*** ***Date passation :***

***Instructions***. Voici une liste de difficultés que les gens éprouvent parfois à la suite d'un événement stressant. Veuillez lire chaque item et indiquer à quel point vous avez été bouleversé(e) par chacune de ces difficultés *au cours des 7 derniers jours* en ce qui concerne l'événement :

.....

Dans quelle mesure avez-vous été affecté(e) ou bouleversé(e) par ces difficultés ?

| | Pas du tout | Un peu | Moyen-nement | Passa-blement | Extrême -ment |
|---|---|---|---|---|---|
| 1. Tout rappel de l'événement ravivait mes sentiments face à l'événement | 0 | 1 | 2 | 3 | 4 |
| 2. Je me réveillais la nuit | 0 | 1 | 2 | 3 | 4 |
| 3. Différentes choses m'y faisait penser | 0 | 1 | 2 | 3 | 4 |
| 4. Je me sentais irritable et en colère | 0 | 1 | 2 | 3 | 4 |
| 5. Quand j'y repensais ou qu'on me le rappelait, j'évitais de me laisser bouleverser | 0 | 1 | 2 | 3 | 4 |
| 6. Sans le vouloir, j'y repensais | 0 | 1 | 2 | 3 | 4 |
| 7. J'ai eu l'impression que l'événement n'était jamais arrivé ou n'était pas réel | 0 | 1 | 2 | 3 | 4 |
| 8. Je me suis tenu loin de ce qui m'y faisait penser | 0 | 1 | 2 | 3 | 4 |
| 9. Des images de l'événement surgissaient dans ma tête | 0 | 1 | 2 | 3 | 4 |
| 10. J'étais nerveux (nerveuse) et je sursautais facilement | 0 | 1 | 2 | 3 | 4 |
| 11. J'essayais de ne pas y penser | 0 | 1 | 2 | 3 | 4 |
| 12. J'étais conscient(e) d'avoir encore beaucoup d'émotions à propos de l'événement, mais je n'y ai pas fait face | 0 | 1 | 2 | 3 | 4 |
| 13. Mes sentiments à propos de l'événement étaient comme figés | 0 | 1 | 2 | 3 | 4 |
| 14. Je me sentais et je réagissais comme si j'étais encore dans l'événement | 0 | 1 | 2 | 3 | 4 |
| 15. J'avais du mal à m'endormir | 0 | 1 | 2 | 3 | 4 |
| 16. J'ai ressenti des vagues de sentiments intenses à propos de l'événement | 0 | 1 | 2 | 3 | 4 |
| 17. J'ai essayé de l'effacer de ma mémoire | 0 | 1 | 2 | 3 | 4 |
| 18. J'avais du mal à me concentrer | 0 | 1 | 2 | 3 | 4 |
| 19. Ce qui me rappelait l'événement me causait des réactions physiques telles que des sueurs, des difficultés à respirer, des nausées ou des palpitations | 0 | 1 | 2 | 3 | 4 |
| 20. J'ai rêvé à l'événement | 0 | 1 | 2 | 3 | 4 |
| 21. J'étais aux aguets et sur mes gardes | 0 | 1 | 2 | 3 | 4 |
| 22. J'ai essayé de ne pas en parler | 0 | 1 | 2 | 3 | 4 |

## Conclusions

In conclusion, we identified 3 distinct PTSS trajectories among ICU caregivers and found that 16% of caregivers experienced chronic PTSSs over the 6 months following a patient's ICU stay. These individuals had diminished quality of life and reduced effectiveness at work. The chronic trajectory was identified by a combination of low baseline caregiver resilience, prior caregiver history of trauma,

*JAMA Network Open*. 2023;6(4):e237448. doi:10.1001/jamanetworkopen.2023.7448





higher patient severity of illness, and higher baseline patient functional status. Future interventions for ICU caregivers should include early screening for PTSSs and incorporate therapeutic components tailored toward caregivers with low resilience and a history of trauma.

# 1-year outcomes in hospital survivors with COVID-19: a longitudinal cohort study

*Lixue Huang*, Qun Yao*, Xiaoying Gu*, Qiongya Wang*, Lili Ren*, Yeming Wang*, Ping Hu*, Li Guo*, Min Liu, Jiuyang Xu, Xueyang Zhang, Yali Qu, Yanqing Fan, Xia Li, Caihong Li, Ting Yu, Jiaan Xia, Ming Wei, Li Chen, Yanping Li, Fan Xiao, Dan Liu, Jianwei Wang†, Xianguang Wang†, Bin Cao†*

**Lancet 2021; 398: 747–58**

1276 Patients

| | | | | Scale 3: not requiring supplemental oxygen (n=318) | | | Scale 4: requiring supplemental oxygen (n=864) | | | Scale 5–6: requiring HFNC, NIV, or IMV (n=94) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6 month | 12 month | p value | 6 month | 12 month | p value | 6 month | 12 month | p value | 6 month | 12 month | p value |
| Sequelae symptom | | | | | | | | | | | | |
| Any one of the following symptoms | 831/1227 (68%) | 620/1272 (49%) | <0·0001 | 211/307 (69%) | 151 (47%) | <0·0001 | 543/828 (66%) | 420/860 (49%) | <0·0001 | 77/92 (84%) | 49 (52%) | <0·0001 |
| Fatigue or muscle weakness | 636/1230 (52%) | 255/1272 (20%) | <0·0001 | 158/307 (51%) | 65 (20%) | <0·0001 | 410/831 (49%) | 169/860 (20%) | <0·0001 | 68/92 (74%) | 21 (22%) | <0·0001 |
| Sleep difficulties | 335/1230 (27%) | 215/1272 (17%) | <0·0001 | 84/307 (27%) | 49 (15%) | <0·0001 | 217/831 (26%) | 152/860 (18%) | <0·0001 | 34/92 (37%) | 14 (15%) | 0·0002 |
| Hair loss | 268/1230 (22%) | 135/1272 (11%) | <0·0001 | 68/307 (22%) | 29 (9%) | <0·0001 | 177/831 (21%) | 98/860 (11%) | <0·0001 | 23/92 (25%) | 8 (9%) | 0·0003 |
| Palpitations | 118/1230 (10%) | 117/1272 (9%) | 0·88 | 32/307 (10%) | 23 (7%) | 0·12 | 72/831 (9%) | 87/860 (10%) | 0·17 | 14/92 (15%) | 7 (7%) | 0·09 |
| Joint pain | 132/1225 (11%) | 157/1272 (12%) | 0·13 | 42/308 (14%) | 37 (12%) | 0·49 | 74/826 (9%) | 103/860 (12%) | 0·018 | 16/91 (18%) | 17 (18%) | 1·00 |
| Decreased appetite | 97/1230 (8%) | 37/1272 (3%) | <0·0001 | 28/307 (9%) | 6 (2%) | <0·0001 | 58/831 (7%) | 27/860 (3%) | 0·0003 | 11/92 (12%) | 4 (4%) | 0·05 |
| Taste disorder | 89/1230 (7%) | 37/1272 (3%) | <0·0001 | 22/307 (7%) | 6 (2%) | 0·0007 | 59/831 (7%) | 31/860 (4%) | 0·0007 | 8/92 (9%) | 0 | 0·0047 |
| Dizziness | 69/1230 (6%) | 65/1272 (5%) | 0·56 | 22/307 (7%) | 16 (5%) | 0·24 | 41/831 (5%) | 40/860 (5%) | 0·71 | 6/92 (7%) | 9 (10%) | 0·41 |
| Nausea or vomiting | 17/1229 (1%) | 11/1272 (1%) | 0·26 | 8/307 (3%) | 5 (2%) | 0·41 | 9/830 (1%) | 4/860 (0%) | 0·17 | 0/92 (0%) | 2 (2%) | 0·16 |
| Chest pain | 57/1225 (5%) | 92/1272 (7%) | 0·0023 | 17/308 (6%) | 25 (8%) | 0·14 | 36/826 (4%) | 63/860 (7%) | 0·0055 | 4/91 (4%) | 4 (4%) | 1·00 |
| Sore throat or difficult to swallow | 47/1230 (4%) | 44/1272 (3%) | 0·57 | 19/307 (6%) | 11 (3%) | 0·08 | 24/831 (3%) | 29/860 (3%) | 0·55 | 4/92 (4%) | 4 (4%) | 1·00 |
| Skin rash | 39/1230 (3%) | 55/1272 (4%) | 0·10 | 12/307 (4%) | 15 (5%) | 0·53 | 23/831 (3%) | 38/860 (4%) | 0·05 | 4/92 (4%) | 2 (2%) | 0·41 |
| Myalgia | 33/1225 (3%) | 54/1272 (4%) | 0·013 | 10/308 (3%) | 12 (4%) | 0·64 | 20/826 (2%) | 36/860 (4%) | 0·018 | 3/91 (3%) | 6 (6%) | 0·26 |
| Headache | 25/1225 (2%) | 61/1272 (5%) | 0·0001 | 7/308 (2%) | 16 (5%) | 0·050 | 15/826 (2%) | 40/860 (5%) | 0·0010 | 3/91 (3%) | 5 (5%) | 0·48 |