Toward a Trauma-Informed Critical Care Model
A neuropsychiatric perspective

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TEACHING HOSPITAL

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Learning Points

1. Understand neurobiological principles underlying trauma and trauma informed practice

2. Understand the implications of trauma informed care for Critical Care settings

3. Understand the Implications of Post-ICU Syndrome in Critical Illness Survivors

Why Consider Trauma in Health Care?

Trauma is pervasive amongst **patients and staff**

Trauma has significant **health and mental health** effects.

Trauma greatly influences **how people access** and **experience** healthcare.

"I'm right there in the room, and no one even acknowledges me."

"I'm right there in the room, and no one even acknowledges me."

Without considering trauma:

Healthcare services can be re-traumatizing,

Treatments may not be effective

Patients may not be able to engage with you

The Trauma-Informed Approach

- ***Realizes*** the widespread impact of trauma and understands potential paths for recovery
- ***Recognizes*** how trauma affects all individuals involved in an organization, including its own workforce
- ***Responds*** by fully integrating knowledge about trauma into policies, procedures, and practices
- ***Resists*** re-traumatization

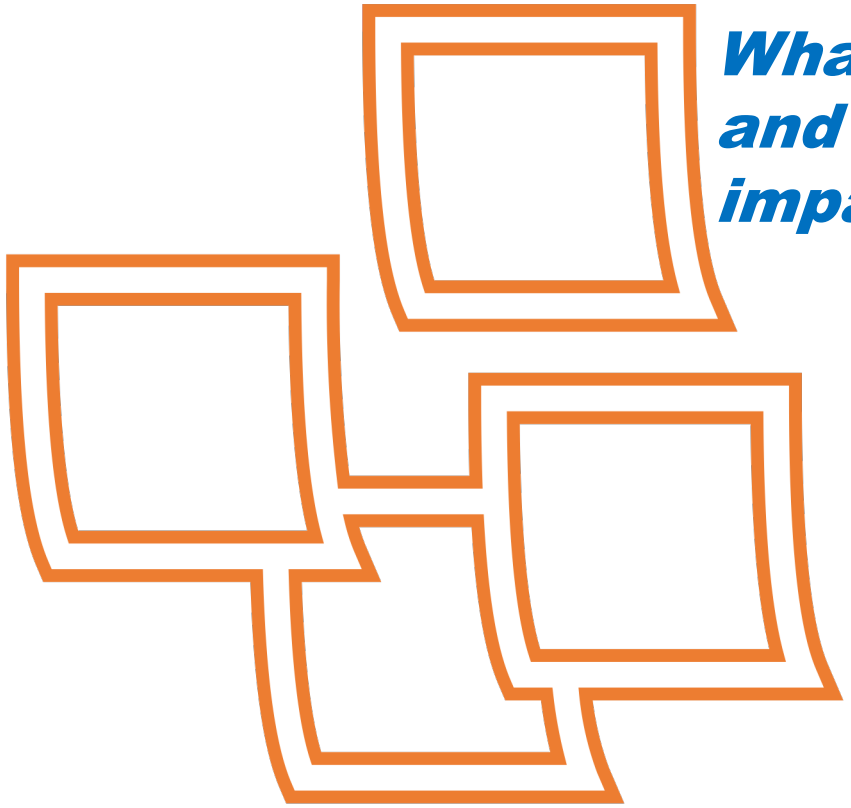
A TI approach refers to a change in ***organizational*** culture.

Trauma-Informed Care: 6 Principles

- Safety: Physical & psychological
- Trustworthiness & transparency
- Peer Support
- Collaboration & Mutuality
- Empowerment, Voice, Choice
- Cultural Humility and Responsiveness

www.samhsa.org/TIC

Paradigm Shift

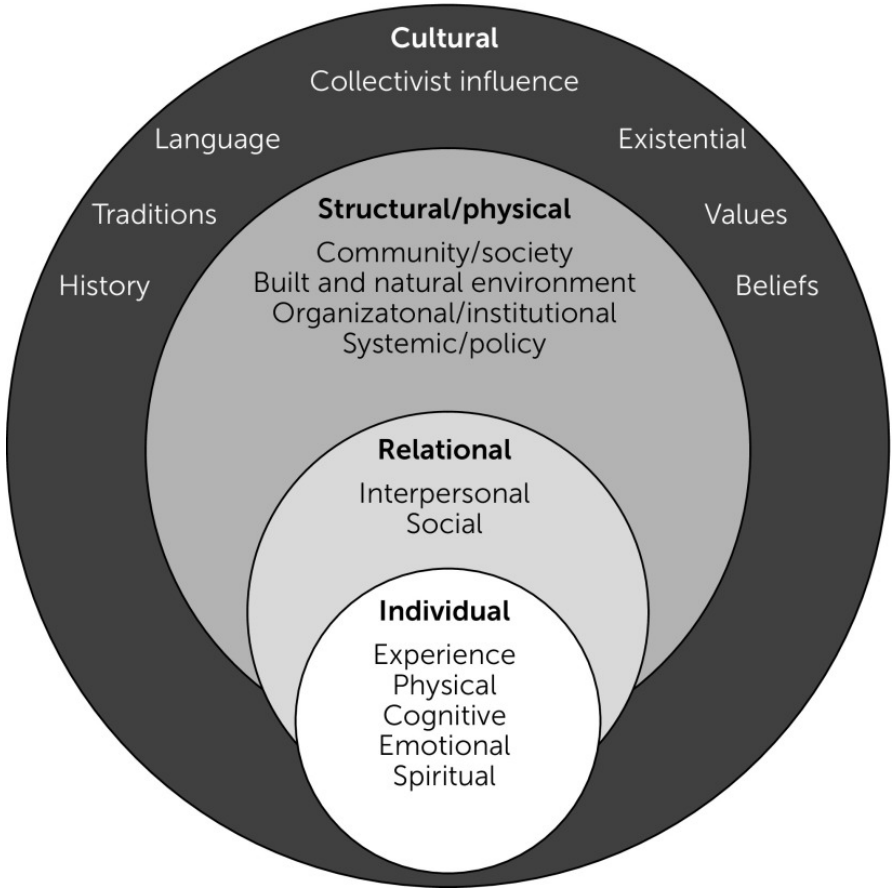


What happened to you, and how is that impacting your health?

What's wrong with you?

What is Trauma?

Consider the Cultural-Ecological Model of Health



Individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically and emotionally harmful or threatening and that has lasting adverse effects on the individual's physical, social, emotional, or spiritual well-being. (15) - SAMSHA

Ranjbar N, Erb M, Mohammad O, Moreno FA. Trauma-Informed Care and Cultural Humility in the Mental Health Care of People From Minoritized Communities. Focus (Am Psychiatr Publ). 2020 Jan;18(1):8-15. doi: 10.1176/appi.focus.20190027. Epub 2020 Jan 24. PMID: 32047392; PMCID: PMC7011220

Figure 2

Social Determinants of Health

Economic Stability	Neighborhood and Physical Environment	Education	Food	Community and Social Context	Health Care System
Employment	Housing	Literacy	Hunger	Social integration	Health coverage
Income	Transportation	Language	Access to healthy options	Support systems	Provider availability
Expenses	Safety	Early childhood education		Community engagement	Provider linguistic and cultural competency
Debt	Parks	Vocational training		Discrimination	Quality of care
Medical bills	Playgrounds	Higher education			
Support	Walkability				

Health Outcomes
Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations

Ubiquity of Trauma Exposures

- World Mental Health Survey Consortium (2016) N=27 countries
  - Lifetime trauma exposure >70%; 30.5% >4
- Averse Childhood Experiences (ACE) Study (1998) N=17,377
  - 63% at least one trauma exposure, 20% >3

IMPACT OF CHILDHOOD TRAUMA

The CDC and Kaiser Permanente surveyed 17,000 of the health plan's members to ask whether they'd had adverse childhood experiences defined as:

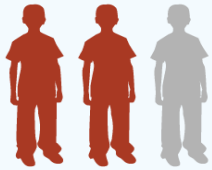
ABUSE	NEGLECT	HOUSEHOLD CHALLENGES
Psychological	Emotional	Family member experiencing:
Physical	Physical	Domestic abuse
Sexual		Mental illness
		Imprisonment

The landmark study found those with adverse childhood experiences were at higher risk for:

HEART, LUNG, AND LIVER DISEASE · OBESITY · DIABETES · DEPRESSION · SUBSTANCE ABUSE

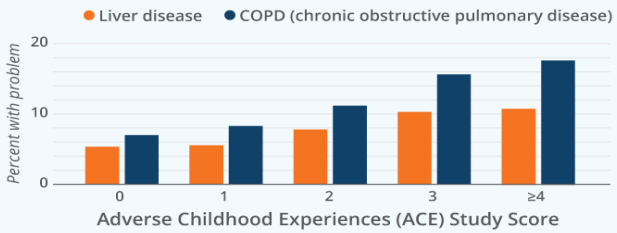
THE STUDY ALSO FOUND

NEARLY TWO THIRDS



of those surveyed experienced at least one event.

The higher the score on ACE survey, the more likely people were to be in poor health:



Sources: CDC ACE Study page https://www.cdc.gov/violenceprevention/acestudy/ and V. J. Felitti and R. F. Anda, "The Relationship of Adverse Childhood Experiences to Adult Health, Well Being, Social Function, and Health Care," from *The Impact of Early Life Trauma on Health and Disease: The Hidden Epidemic* (Cambridge, England: Cambridge University Press, September 2010).

Health Impact of ACEs on Adults- 2019 MMWR

BRFSS Survey 2015-2017 25 US states N=63,365

- 61% report at least 1 ACE
- 16% report 4+ ACEs
- Women, AI/AN, Black, and Other

more likely to report 4+ ACEs than Men and Whites

Adjusted Odds Ratio: 4+ vs 0 ACE exposures

Obesity 1.2	Stroke 2.1	Depression 5.3
Diabetes 1.4	Asthma 2.2	COPD 2.8
CHD 1.8	Heavy drinking 1.8	Smoking 3.1

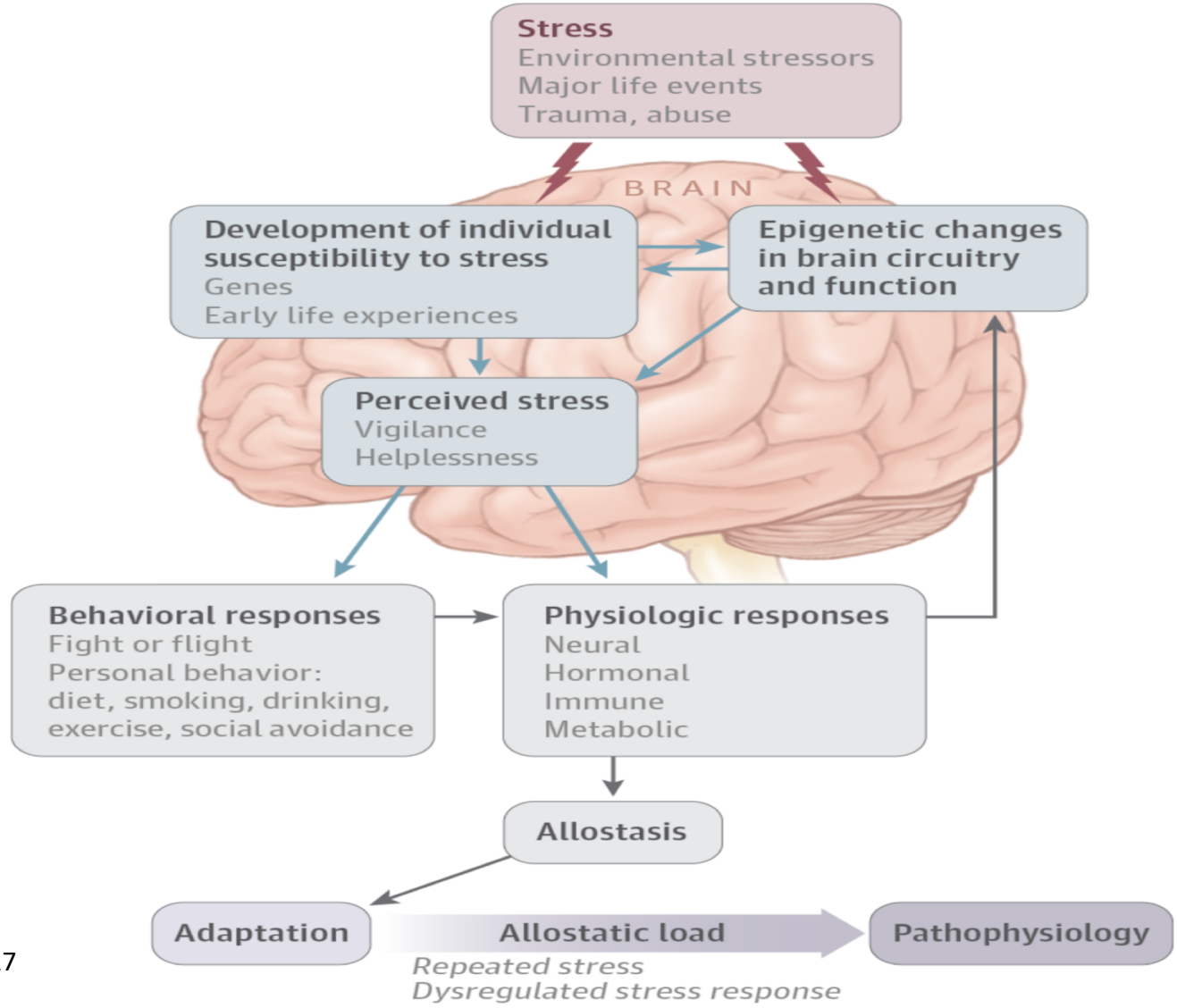
Merrick MT, Ford DC, Ports KA, et al. *Vital Signs:* Estimated Proportion of Adult Health Problems Attributable to Adverse Childhood Experiences and Implications for Prevention — 25 States, 2015–2017. MMWR Morb Mortal Wkly Rep 2019;68:999-1005. DOI: http://dx.doi.org/10.15585/mmwr.mm6844e1external icon.

Trauma-Informed Approach vs Trauma-Focused Treatment

- Focus on optimizing engagement [in health care]
- Universal precautions
- Universal framing
- Avoid retriggering
- Variability of role and context of care

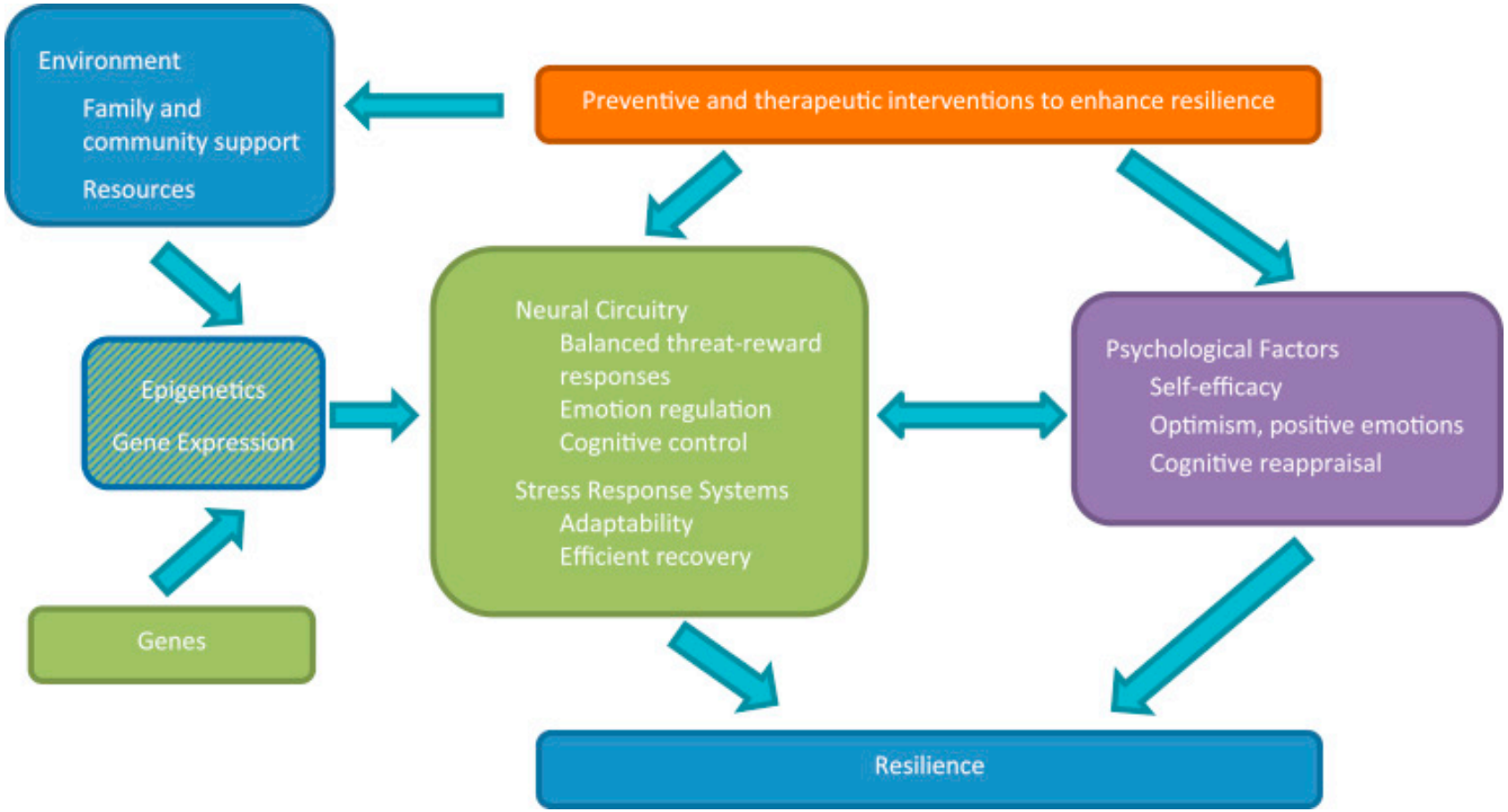
- Addressing trauma experience directly
- Treatment focused on resolution of trauma-related symptoms
- May require detailed trauma history as part of the treatment

Stress response: seeking allostasis

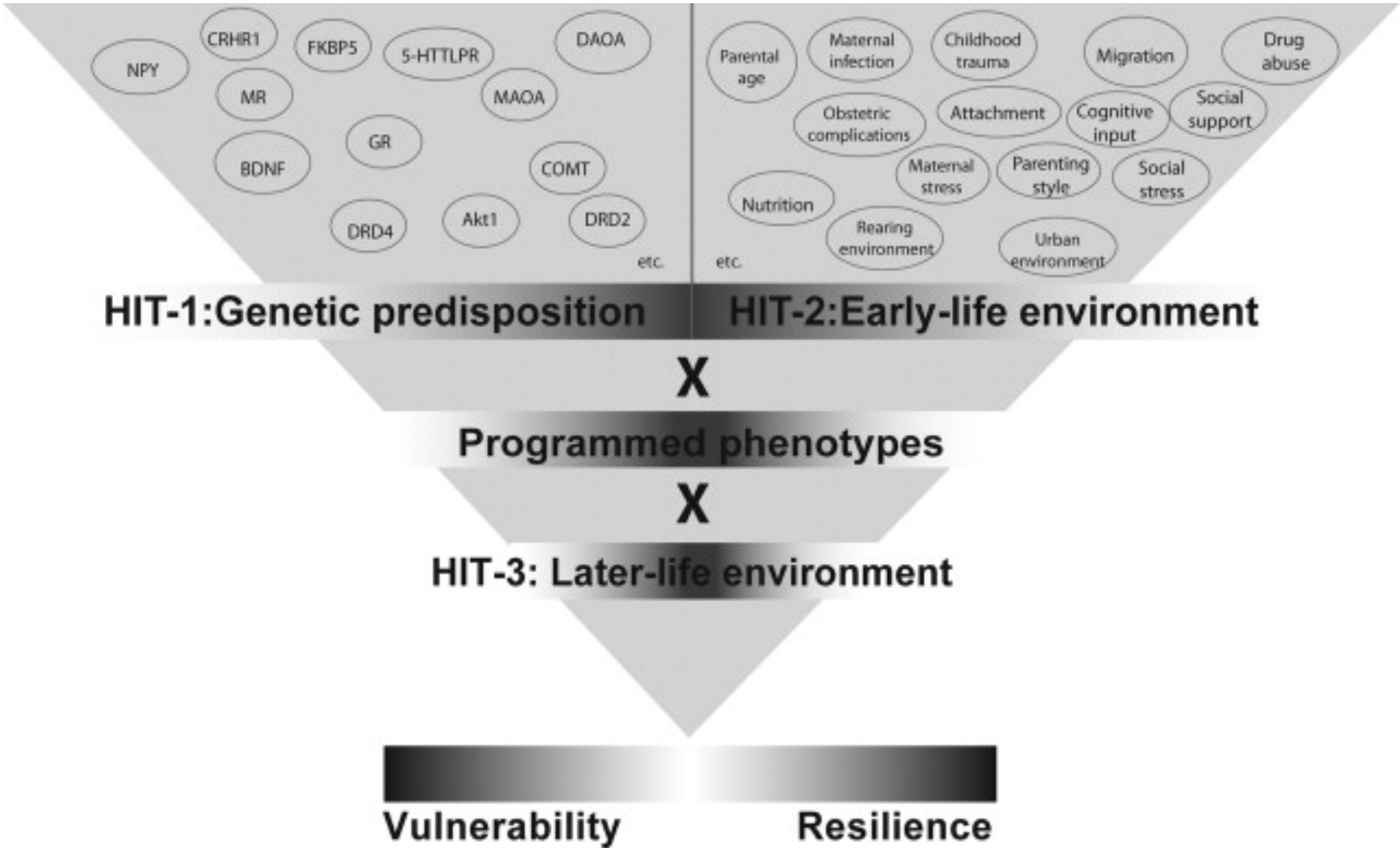


McEwen, JAMA Psychiatry 2017

Resilience

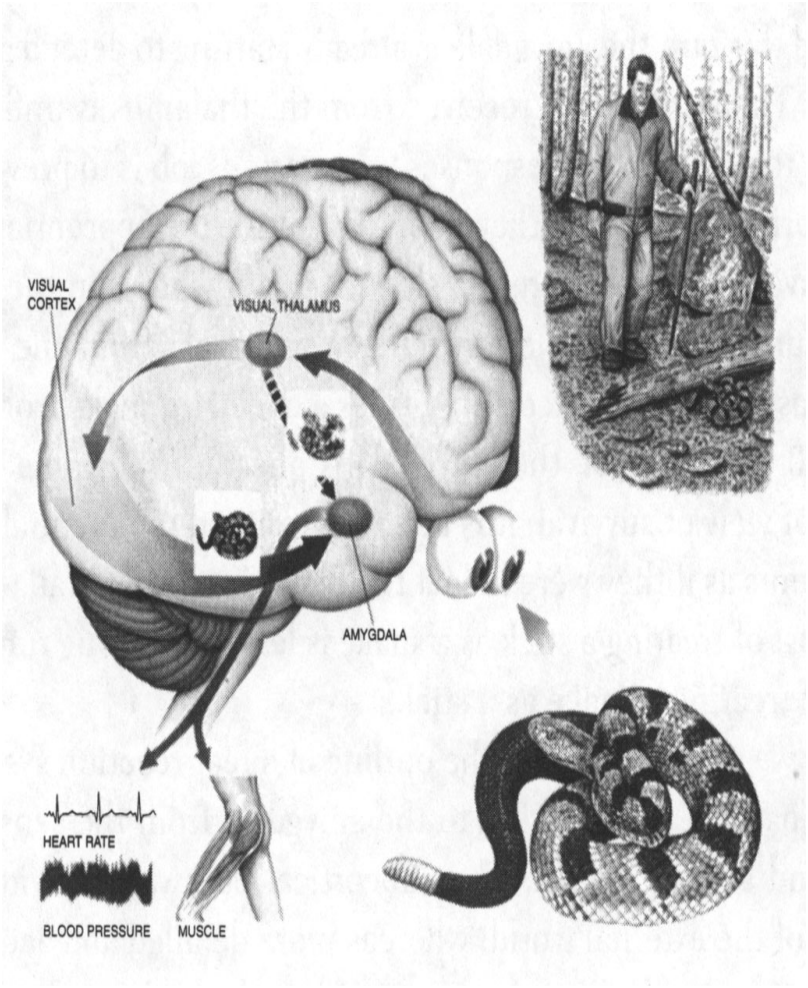


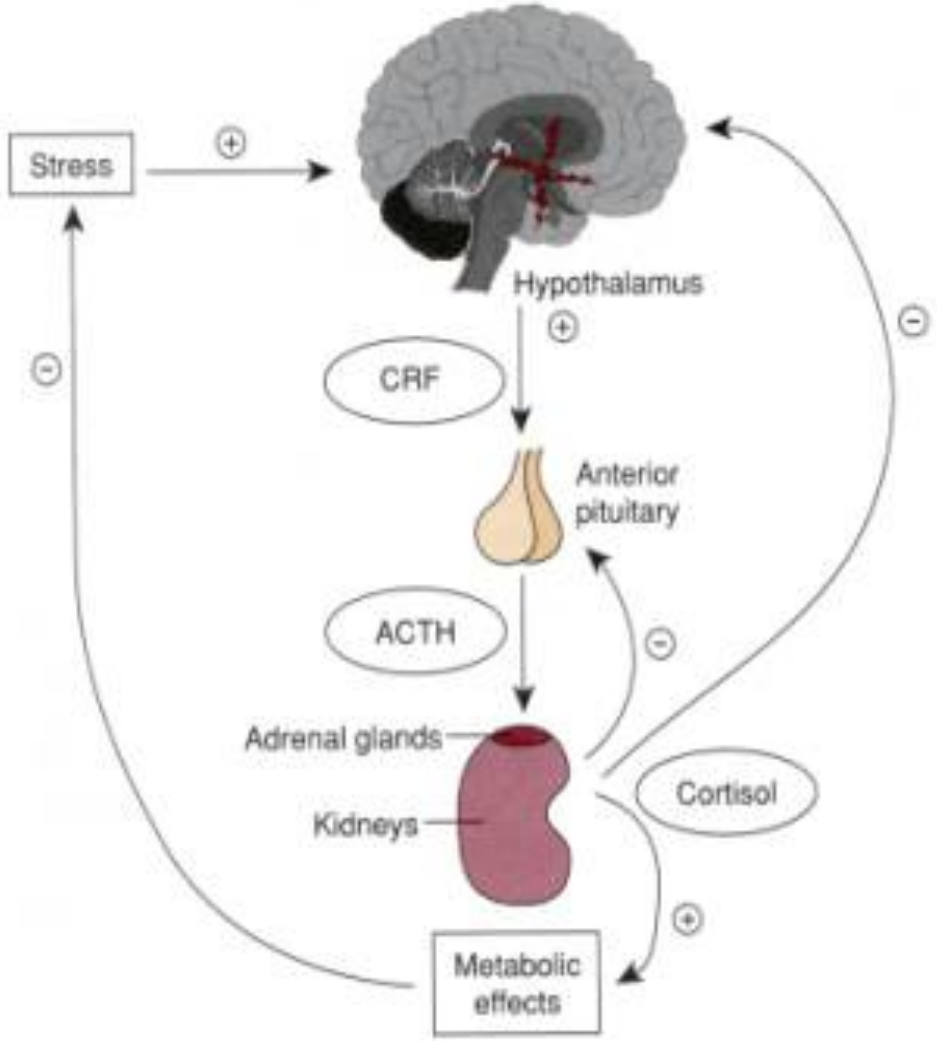
Feder A, Fred-Torres S, Southwick SM, Charney DS. The Biology of Human Resilience: Opportunities for Enhancing Resilience Across the Life Span. Biol Psychiatry. 2019 Sep 15;86(6):443-453. doi: 10.1016/j.biopsych.2019.07.012. Epub 2019 Jul 24. PMID: 31466561.

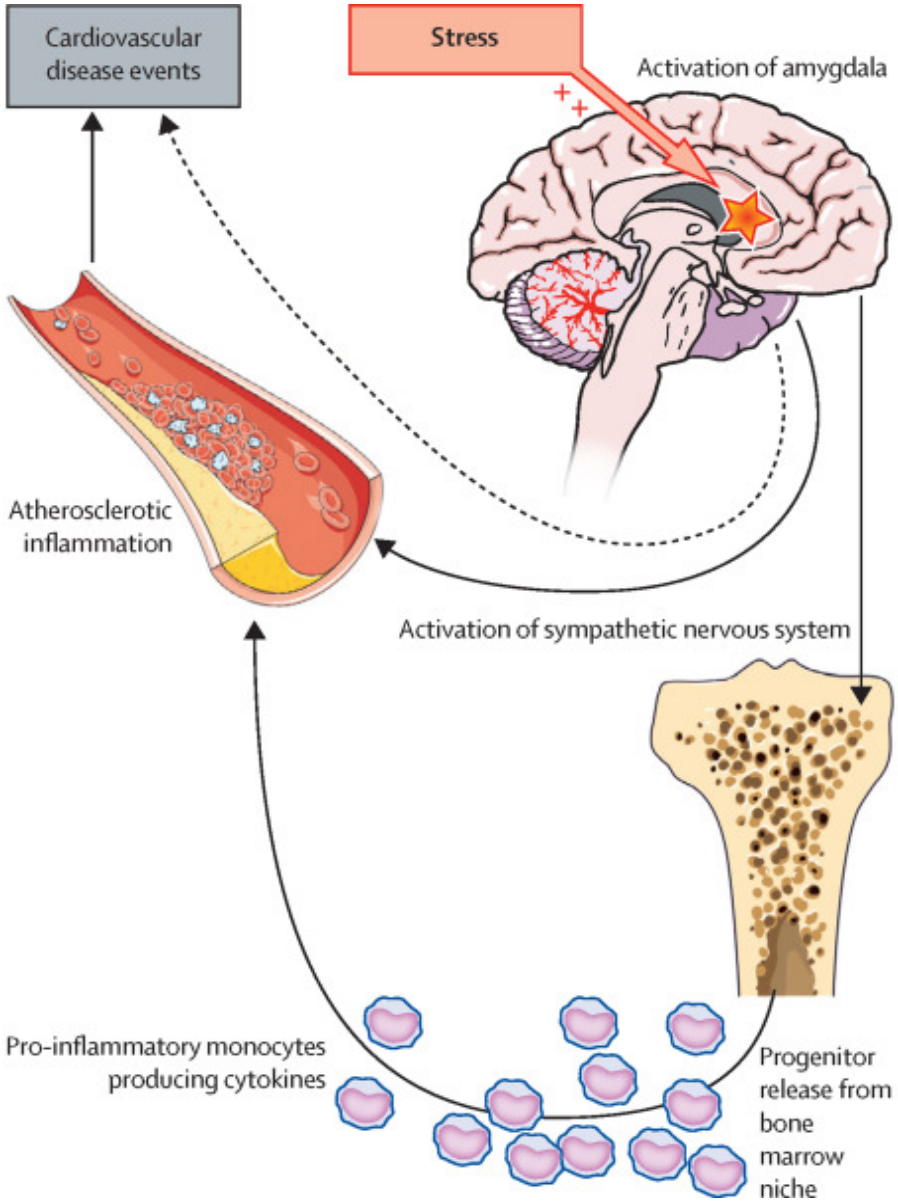


Daskalakis et al 2013

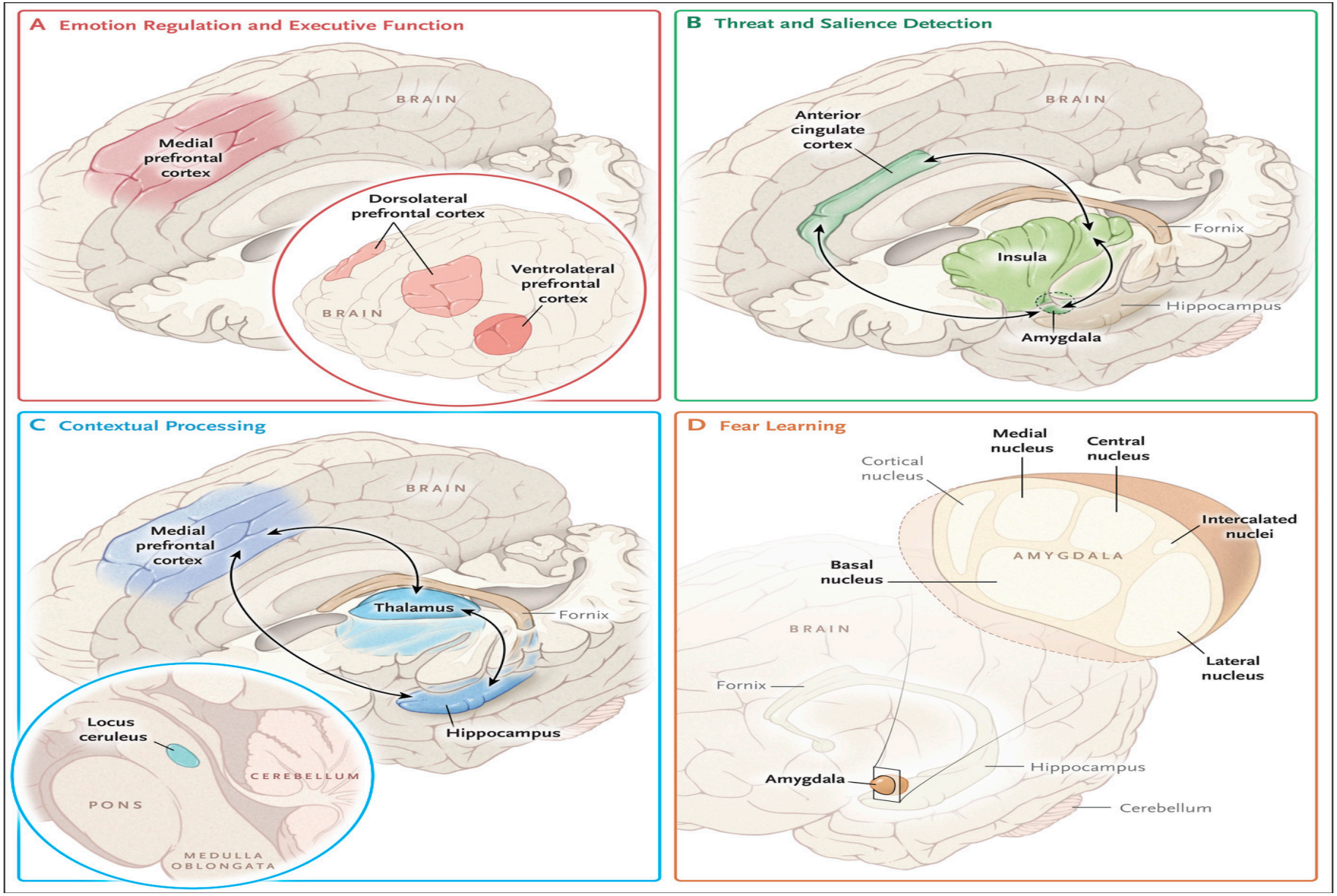
Neurobiopsychosocial perspective (or, sympatho-adrenergic stress responses)







Tawakol, et al (2017)



Shalev A et al. N Engl J Med 2017;376:2459-2469.

Trauma and Stress-Related Disorders

- 4 categories of symptoms
  - Intrusion symptoms
  - Avoidance
  - Negative alterations in cognitions and mood
  - Alterations in arousal and reactivity (incl sleep disturbance)
- Time frames
  - Acute <3 months
  - Chronic >3 months
  - Delayed onset - >6 months after stressor
- Functional impact
- Heterogeneity: 636,120 ways to have PTSD

DSM-V, Galatzer-Levy and Bryant 2013

Delirium, Memory, and the ICU

- Factors contributing to altered memory in ICU patients
  - Life-threatening nature of illness, medical comorbidities
  - Treatments (sedatives, benzodiazepines, opiates)
  - Sleep disturbances

- ICU patients with delirium may clearly remember hallucinations and nightmares, but have difficulty remembering actual events
  - paranoid delusions, ie mistrust of staff or family
  - participation in treatment during admission
  - impact the patient's future physical and mental health

PTSD in Critical Illness Survivors

- PTSD prevalence 1-6 months post-ICU: 25-44%
- PTSD prevalence 7-12 months post-ICU: 17-44%

ICU risk factors for PTSD:

- Impaired Recall
- Post-ICU memories of frightening ICU experiences
- Benzodiazepine administration

Impact

- Decreased quality of life, increased risk of mortality, LOS, discharge to SNF/Rehab

Bolton et al 2021, Righy et al 2019, Prince et al 201, 8arker, Sricharoenchai et al 2015

Psychiatric symptoms after delirium

- Langan et al (2017)
  - Prevalence of depressive symptoms 3x greater in patients with vs without delirium (22.2% vs 8%)
  - No significant difference in prevalence of anxiety symptoms
  - Prevalence of PTSD symptoms inconclusive
- Shima et al (2020) – 12 month prevalence
  - Anxiety 33%
  - Depression 39%
  - PTSD 21%

Langan, Sarode et al *Psychogeriatrics* 2017

Post Intensive Care Syndrome (PICS)

- Impairments in cognitive, psychiatric and physical function that plague patients after an ICU stay
  - 60% Survivors of Critical Illness have at least one symptom of PICS
- Prevention includes coordination of care, communication among disciplines, maintaining good nutrition and sleep
- Family members may also be affected during and after the patient's ICU hospitalization (PICS-F)
  - Risk factors: poor communication with staff, decision making role, lower education level, or patient being close to death
  - Sleep deprivation, anxiety, depression, complicated grief and PTSD

Shima et al 2020
Needham DM, Davidson J, Cohen H, et al. Improving long-term outcomes after discharge from intensive care unit: report from a stakeholders' conference. Crit Care Med. 2012;40(2):502-509.
Rawal G, Yadav S, Kumar R. Post-Intensive Care Syndrome: an Overview. Journal of Translational Internal Med. 2007. June; 5(2): 90-92.
Ahmad & Teo, 2021

PICS: Functional Outcome and Survival

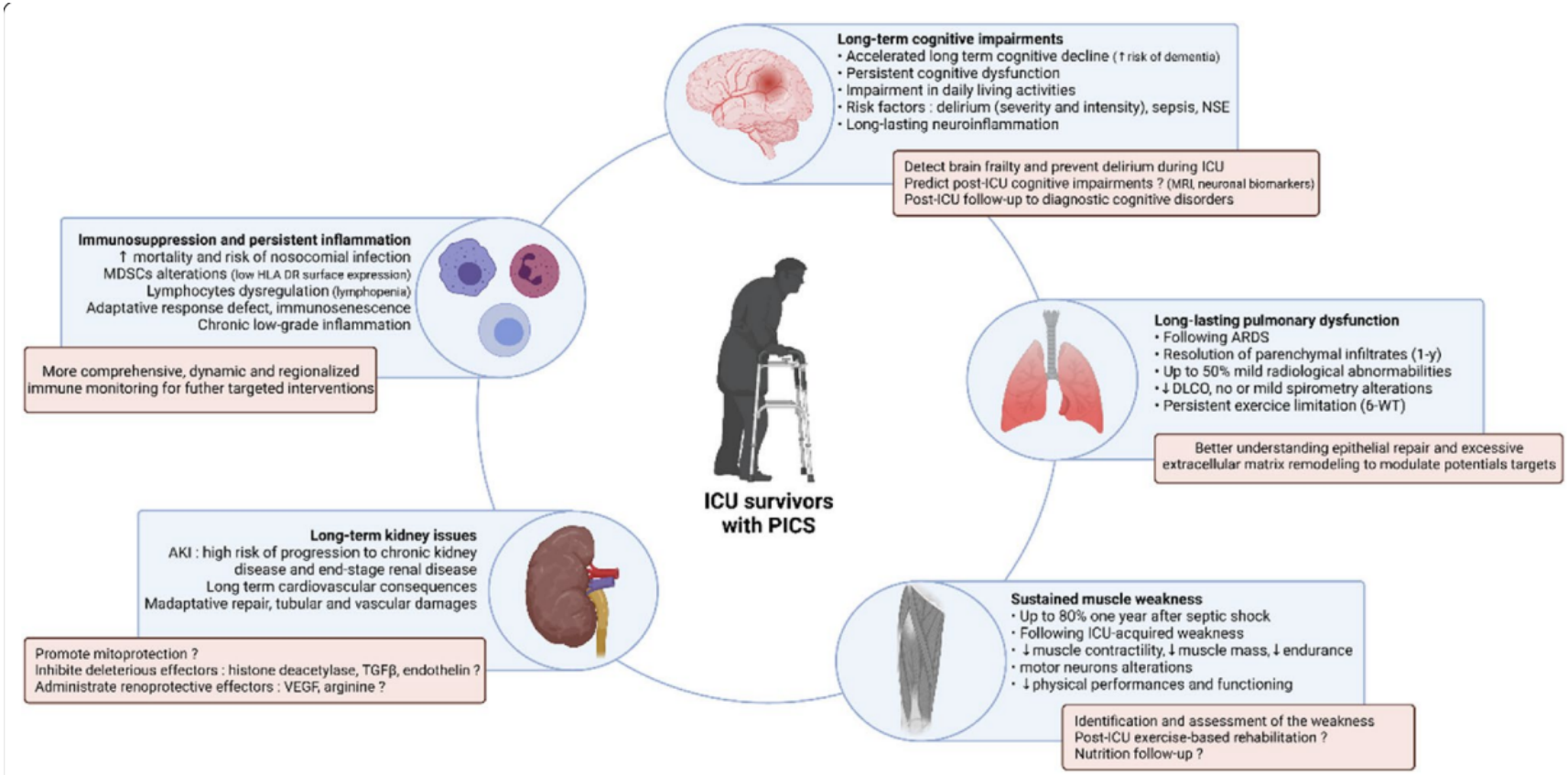


Fig. 1 ICU survivors with post-intensive care syndrome. Clinical characteristics and consequences, and futures research directions for each long-lasting sub-syndrome after ICU stay

Voiriot G, Oualha M, Pierre A, Salmon-Gandonnière C, Gaudet A, Jouan Y, Kallel H, Radermacher P, Vodovar D, Sarton B, Stiel L, Bréchot N, Préau S, Joffre J; la CRT de la SRLF. Chronic critical illness and post-intensive care syndrome: from pathophysiology to clinical challenges. Ann Intensive Care. 2022 Jul 2;12(1):58. doi: 10.1186/s13613-022-01038-0. PMID: 35779142; PMCID: PMC9250584.

ICU liberation: pain, agitation, and delirium guidelines and the concept of the ABCDEF bundle – in context of TIC 6 sprinciples

SYMPTOMS PAD/PADIS Guidelines	MONITORING Tools	CARE ABCDEF Bundle
Pain	Critical Care Pain Observation Tool Behavioral Pain Scale	Assess/Prevent/ Manage Pain Both SATs and SBTs
Agitation	Richmond-Agitation Sedation Scale (RASS) Riker Sedation-Agitation Scale (SAS)	Choice of Analgesia and Sedation Delirium – Assess, Prevent, and Manage
Delirium	Confusion Assessment Method in the Intensive Care Unit (CAM-ICU) Intensive Care Delirium Screening Checklist	Early Mobility and Exercise Family Engagement and Empowerment

Safety	**Voice, Choice, Empowerment**
Transparency & Trustworthiness	Peer Support
Collaboration & Mutuality	Cultural Humility & Responsiveness

Matthew F Mart et al. Respir Care 2019;64:1561-1573

From bench to bedside

Machtinger, Davis, Kimberg, Khanna, Cuca, Dawson-Rose, Shumway, Campbell, Lewis-O'Connor, Blake, Blanch, McGaw, 2019. Women's Health Issues

Universal Framing

what you will do *before* you do

Of course I'm listening to your expression of spiritual suffering. Don't you see me making eye contact, striking an open posture, leaning towards you and nodding empathetically?

don't forget, we spend a heck of a lot, too.

Explain:

- **What** will be done
- **How** it will be done
- **Why** it is necessary

"What can I do to help you be more comfortable?"

"If you want me to pause or stop, please ask or signal me."

Implications for the Clinical Encounter: critical awareness of role and context

- Screening
- Evaluation
- Prevention/prophylaxis
- Treatment
- Treatment referrals

The bedside exam

- **Trauma Informed Approach**
  - Knock on door[frame] and introduce oneself/others prior to entering
  - When applicable, see if there is a chair(s) – if none, bring one in for interview if pt not intubated
  - Ask about preference of door open or closed

- **Consider starting with cognitive testing**
  - "I'm going to start with a 2-minute exam of memory and concentration, if that's ok; then we can move on to hearing more about your experience"
  - If non-verbal, do CAM-ICU to get a sense of whether yes/no is reliable (ie when answering questions about pain) and SAVEAHAART to get a sense of how much they're attune to environment regardless of ability to demonstrate engagement. Can also ask basic commands.

The bedside interview

- Review of Systems
  - Can start with basics of pain, nausea, SOB, thirst, hunger, etc to create normalizing frame and also framework for understanding nature of psych symptoms
- If patient has adequate mental status for more of an interview, still avoid re-asking history
  - "I've reviewed your chart and don't want you to have to repeat all the history you've already shared."
  - "Is there anything that hasn't come up yet that you might want to add?"
  - "There are a few details I wanted to clarify to make sure we're offering as personalized a treatment as we can"

The bedside interview - 2

- Identify sources of resilience – supporting mature/adaptive defenses during period of vulnerability
- Consider risk for Post-ICU Syndrome (PICS) and provide context for mobilization efforts
- During the interview, keep an eye on the monitor – baseline and changes in HR? BP? O2 saturation?

Psychopharm considerations in ICU

- If psychiatric meds are listed as pre-admission, explore adherence prior to admission to avoid pitfalls including
  - Restarting medication at therapeutic dose when patient hasn't taken it for months (ie venlafaxine 225mg daily, lamotrigine 150mg BID, etc)
  - Restarting multiple medications when pt had been cross-tapered to one
  - Having a medication on which patient had been stable for a long period drop off medication list because they have no enteric access at time of admission

- Anticipating issues
  - Insomnia while on steroids
  - Difficulty weaning from propofol if long history of benzo use until introduce lorazepam as standing vs prn
  - Role for class-switching pain meds if have been on fentanyl or dilaudid for many days without evidence of adequate pain control
  - Consider role for neurology, physical medicine & rehabilitation (PM&R), palliative care

- Trauma-informed medication review with patient

- Permission to reach out to outpatient clinicians (mental health and/or primary care)

Psychopharm in the ICU some additional considerations

- Risk/benefit considerations for continuing vs holding meds
  - Massive GIB: consider holding SSRI and VPA given potential contribution to bleeding risk
  - Risk of withdrawal symptoms with SNRIs
    - Consider fluoxetine liquid to temporize depending on dose of SNRI, prior history of withdrawal, etc
  - Pt on chronic neuroleptic – consider utilizing more of that med if agitation vs shorter-acting agent like haloperidol/quetiapine
    - Limit use of multiple neuroleptics
    - CL Psychiatry consultation

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TIC in Critical Care Recovery	BWH Dept Psychiatry	RWJF Clinical Scholars
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	Jordan Rosen	
	Katherine Kosman	
	Jennifer Grimes, RA	
Stepping Strong & FORTE		V-Day & beyond
Eric Goralnick	Go Team(s)!	Jeffrey Katz & team
Adil Haider		Mardi Chadwick Balcom
Deepika Nehra		Wanda McClain

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