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VIP PROJECT

- WHO: age ≥ 65 years
- patients ≥ 80 years, the oldest old
- The aim of the VIP project is knowledge about the very old (≥80 years) ICU patients

Current VIP study: the COVIP study 2022 extension

Corona Virus disease (COVID19) in Very Elderly Intensive care Patients (VIPs).
The COVIP-study is a multinational, prospective, observational study running from 2020 and into 2022.
Close to 4000 patients were recruited in 2020-2021 and the COVIP study is now starting a second recruitment period (the 2022-extension).
Please see the COVIP page for information.

COVIP 2022 extension status:

125 ICUs registered
(Updated: 15-12-2022 21:48)

16 countries participating
(Updated: 15-12-2022 21:48)

497 patients documented
(Updated: 15-12-2022 21:48)

COVIP 2020-2021 status:

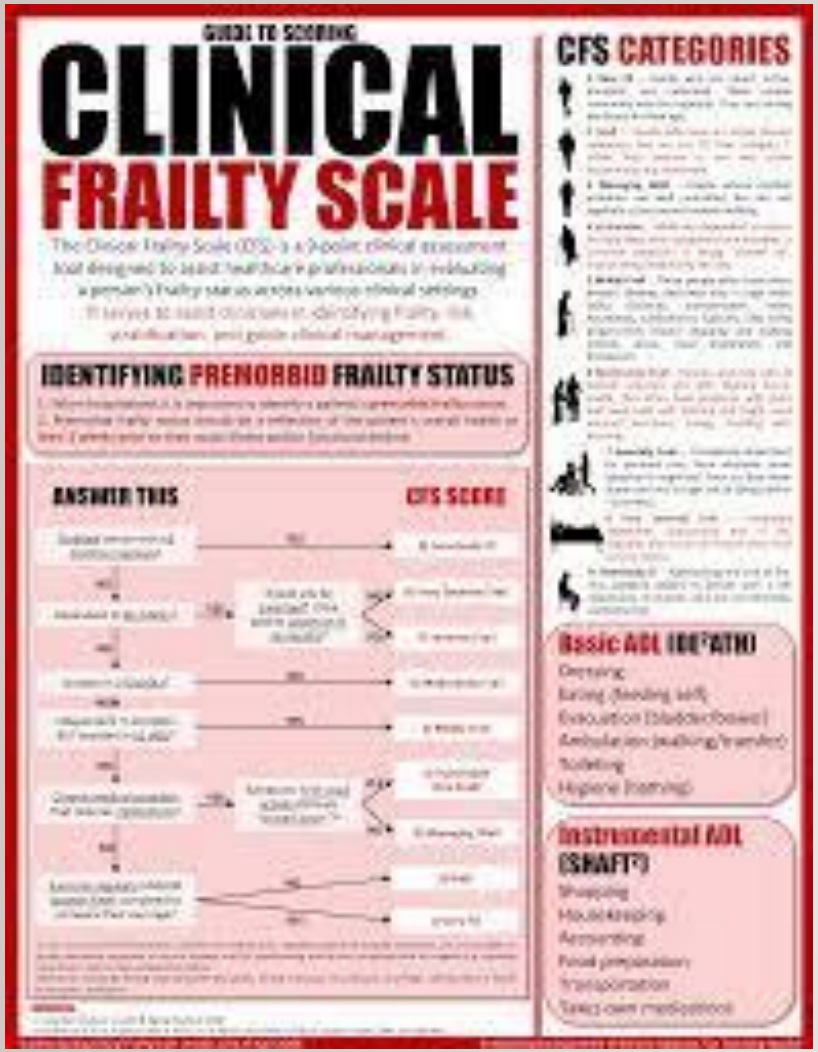
376 ICUs registered
(Updated: 24-02-2022 01:14)

44 countries participating
(Updated: 24-02-2022 01:14)

3978 patients documented
(Updated: 24-02-2022 01:14)

THE VIP-1 STUDY

- relation between pre-morbid conditions, like frailty and age, in combination with other markers of severity like the sequential organ failure assessment (SOFA) score, on ICU and 30 days outcomes.
- Frailty was measured using the Clinical Frailty Scale (CFS)
- We found a near linear relationship between increasing frailty and 30-day mortality
- frailty to be the better predictor of mortality, even when compared with SOFA score for 30-day mortality.
- huge differences in outcomes between acute and planned ICU admissions in the very old ICU patients



CLINICAL FRAILTY SCALE

	1	VERY FIT	People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.
	2	FIT	People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g., seasonally.
	3	MANAGING WELL	People whose **medical problems are well controlled**, even if occasionally symptomatic, but often are **not regularly active** beyond routine walking.
	4	LIVING WITH VERY MILD FRAILTY	Previously "vulnerable," this category marks early transition from complete independence. While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being "slowed up" and/or being tired during the day.
	5	LIVING WITH MILD FRAILTY	People who often have **more evident slowing**, and need help with **high order instrumental activities of daily living** (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation, medications and begins to restrict light housework.
	6	LIVING WITH MODERATE FRAILTY	People who need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.
	7	LIVING WITH SEVERE FRAILTY	**Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6 months).
	8	LIVING WITH VERY SEVERE FRAILTY	Completely dependent for personal care and approaching end of life. Typically, they could not recover even from a minor illness.
	9	TERMINALLY ILL	Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise living with severe frailty.** (Many terminally ill people can still exercise until very close to death.)

SCORING FRAILTY IN PEOPLE WITH DEMENTIA

The degree of frailty generally corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

In **very severe dementia** they are often bedfast. Many are virtually mute.

DALHOUSIE UNIVERSITY

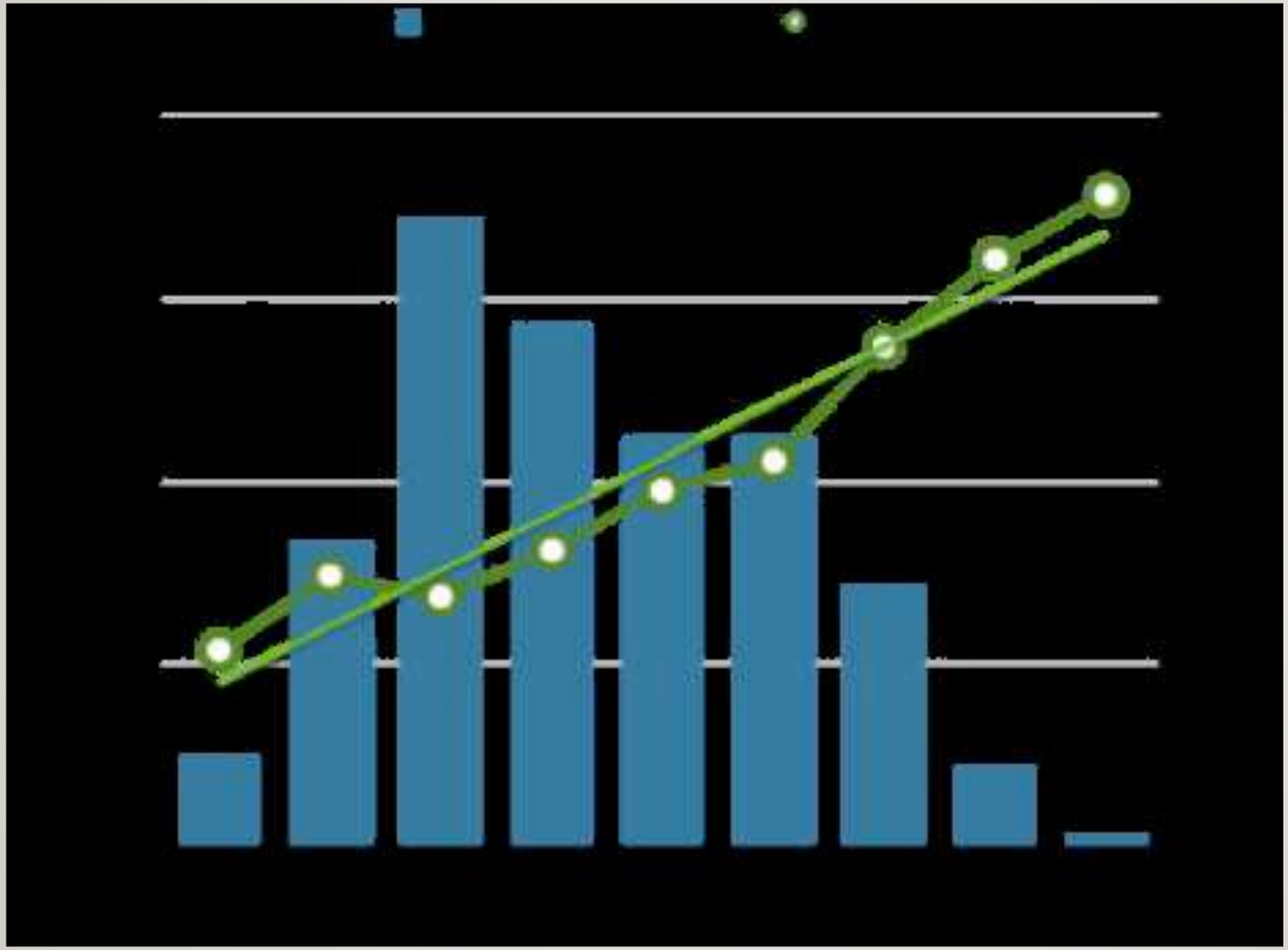
Rockwood K et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489–495.

THE VIP-2 STUDY

- VIP-2 study focussed only on emergency ICU admissions
- relations between several common geriatric syndromes: cognitive decline, Activity of daily life (ADL), comorbidity/polypharmacy and frailty
- Comorbidity/polypharmacy score surprisingly had no discrimination at all between survivors and non-survivors

THE COVIP STUDY

- age ≥ 70 years admitted to the ICU



COMPLICATIONS AND COMORBIDITIES OF AGEING ADULTS WITH COVID-19

- Up to 60% of senior patients with COVID-19 have at least one of the following comorbidities:
- hypertension
- Diabetes
- cardiovascular disease
- cerebrovascular disease
- dementia
- cancer
- chronic kidney disease
- chronic obstructive pulmonary disease (COPD)

FREQUENT
COMPLICATIONS OF THE ELDERLY WITH SEVERE COVID-19

- acute respiratory distress syndrome (ARDS)
- shock
- Delirium
- acute kidney injury (AKI)
- Myocarditis
- Acute myocardial infarction
- heart failure (including Takotsubo disease)
- arrhythmias and venous thrombosis

SPECIAL CONSIDERATIONS IN THE MANAGEMENT OF THE CRITICALLY ILL ELDERLY PATIENT DUE TO COVID-19

- Oxygen therapy should be initiated when a patient presents hypoxaemia manifested by clinical signs of respiratory failure and a peripheral oxygen saturation ≤92%
- in case conventional oxygen delivery devices (low-flow nasal cannulas, facial mask or oxygen reservoir bag) do not provide adequate oxygenation, another advanced type of ventilator support should be considered.
- Determining the appropriate time to perform intubation is a challenge in elderly patients with previous pulmonary pathologies like COPD or chronic cardiac failure and could excessively increase the breathing effort and generate fatigue of the inspiratory muscles rapidly compared to young adult patients
- High flow nasal cannula (HFNC)
- non-invasive mechanical ventilation (NVMI)
- prone position in nonintubated patient

SPECIAL CONSIDERATIONS IN THE MANAGEMENT OF THE CRITICALLY ILL ELDERLY PATIENT DUE TO COVID-19

- intubation should not be delayed if necessary
- ROX index useful to make the decision
- Protective mechanical ventilation is a cornerstone in the treatment of ARDS
- start with a tidal volume of 6 ml/kg of predicted weight
- maintain a plateau pressure <30 cm H2O.
- goal of oxygenation in patients with ARDS is 88 to 94% (SaO2)
- ischaemic heart disease: maintain oxygenation values above 90%.

ANALGESIA AND SEDATION

- In mechanical ventilation (IMV), a target of sedation and analgesia: using RASS scale CPOT scale.
- Propofol and dexmedetomidine are recommended over the use of benzodiazepines.
- The use of opioids such as fentanyl as adjuvant treatment with paracetamol is recommended
- Long-term use of benzodiazepines and opioids can trigger delirium
- remove sedatives as soon as possible and implement daily sedation withdrawal strategies
- tramadol and antineuritic medications such as gabapentin may be considered.
- avoiding routinary use of NSAIDs :risk of AKI and gastrointestinal bleeding.

Critical Care Pain Observation Tool

Indicator	Description	Score	
Facial expression	No muscular tension observed	Relaxed, neutral	0
	Presence of frowning, brow lowering, orbit tightening, and levator contraction	Tense	1
	All of the above facial movements plus eyelid tightly closed	Grimacing	2
Body movements	Does not move at all (does not necessarily mean absence of pain)	Absence of movements	0
	Slow, cautious movements, touching or rubbing the pain site, seeking attention through movements	Protection	1
	Pulling tube, attempting to sit up, moving limbs/ thrashing, not following commands, striking at staff, trying to climb out of bed	Restlessness	2
Muscle tension Evaluation by passive flexion and extension of upper extremities	No resistance to passive movements	Relaxed	0
	Resistance to passive movements	Tense, rigid	1
	Strong resistance to passive movements, inability to complete them	Very tense or rigid	2
Compliance with the ventilator (intubated patients)	Alarms not activated, easy ventilation	Tolerating ventilator or movement	0
	Alarms stop spontaneously	Coughing but tolerating	1
	Asynchrony: blocking ventilation, alarms frequently activated	Fighting ventilator	2
OR			
Vocalization (extubated patients)	Talking in normal tone or no sound	Talking in normal tone or no sound	0
	Sighing, moaning	Sighing, moaning	1
	Crying out, sobbing	Crying out, sobbing	2

Richmond Agitation Sedation Scale (RASS)

Scale	Label	Description	
+4	Combative	Violent, immediate danger to staff	OBSERVATION
+3	Very agitated	Pulls or removes tube(s) or catheter(s); aggressive	
+2	Agitated	Frequent non-purposeful movement, fights ventilator	
+1	Restless	Anxious but movements not aggressive, vigorous	
0	Alert and calm	Spontaneously pays attention to care giver	
-1	Drowsy	Not fully alert, but has sustained awakening (eye-opening/eye contact) to voice (>10 seconds)	VOICE
-2	Light sedation	Briefly awakens with eye contact to voice (<10 seconds)	
-3	Moderate sedation	Movement or eye opening to voice (but no eye contact)	
-4	Deep sedation	No response to voice, but movement or eye opening to physical stimulation	TOUCH
-5	Unarousable	No response to voice or physical stimulation	

SPECIFIC THERAPIES

- Dexamethasone is recommended for COVID-19 patients who are hypoxaemic or under IMV.
- Special care must be taken with increases in blood glucose and weakness in the critically ill patients.
- Lopinavir-ritonavir, hydroxychloroquine with or without azithromycin are not recommended
- (RECOVERY 2020) due to greater predisposition to QT prolongation and arrhythmias in this group of patients.
- Tocilizumab is not recommended either (CONVACTA2020).
- Remdesivir and other antiviral drugs are still being tested in clinical trials.

PROPHYLAXIS FOR VENOUS THROMBOSIS AND ANTICOAGULATION

- use low molecular weight heparin, in all hospitalized patients
- facilitate early mobilization
- Doppler ultrasound for diagnosis.
- If venous thrombotic episode is confirmed, the anticoagulant dose should be increased.
- The dose should be adjusted based on renal function.
- Patients receiving oral anticoagulants should be switched to enoxaparin during their hospitalization

FLUID THERAPY

- large volumes of intravenous fluids in elderly patients, can lead to fluid overload,
  - increase hypoxaemia, contribute to AKI and other adverse effects.
- fluid restrictive therapy is recommended in patients with ARDS from COVID-19
- In case of hypotension and shock, dynamic fluid response manoeuvres are suggested
- Hydroxyethyl starches are not recommended due to the risk of AKI.

VASOPRESSORS, INOTROPES AND ADJUVANTS

- start norepinephrine early to rapidly
- target of mean arterial pressure (MAP) 65 mm Hg
- monitoring capillary refilling
- MAP close to 80 mm Hg can lead to atrial fibrillation in elderly patients
- Hydrocortisone and vasopressin is also justified given the suspicion of refractory vasodilation.
- inotropic drugs like dobutamine when cardiogenic shock in MI or septic cardiomyopathy
- Esmolol or ivabradine as adjuvant for refractory shock in event of suspected diastolic dysfunction

RENAL REPLACEMENT THERAPY

- Chronic kidney disease (CKD) is most associated with mortality in patients with COVID-19
- previously required renal replacement therapy (RRT) (dialysis or haemodialysis) or generates AKI refractory to medical treatment, a renal replacement strategy should be considered.
- Haemodynamically unstable patients is the use of continuous or intermittent slow therapies.
- Adverse events: thrombocytopaenia, hypocalcaemia

PREVENTION AND TREATMENT OF DELIRIUM

- Adapted room without conditions that predispose to delirium
- Adequate lighting during the day and darkness at night
- A visible clock, television, ambient sounds or music
- Communication tools for visual and digital communication with health personnel, mobile phone to have contact with family and physical therapy and occupational therapy.
- Avoid unnecessary invasive devices : catheters, urinary catheters and restrictions.
- Drugs associated with delirium (H2 antagonists, prokinetics such as metoclopramide, some antibiotics, sedatives, analgesics, etc.)
- Drugs such as olanzapine, quetiapine or risperidone
- Special caution should be exercised with the use of haloperidol

MALNUTRITION

- malnutrition affects approximately 23% of hospitalised and 23-34% of critically ill older adults
- adverse patient outcomes including
- longer hospital length of stay
- functional decline
- poor quality of life
- higher mortality
- all patients
- (regardless of age) with an admission greater than 48 hours be considered at risk of malnutrition

OBESITY

- The prevalence of obesity

  (body mass index [BMI] >30kg/ m2)

  is increasing in older adults,

- a European study reporting an increase from 17.5% in 2005 to 19.2% in 2013 in individuals aged 50
- A hypocaloric, high protein diet has been proposed for critically ill obese patients

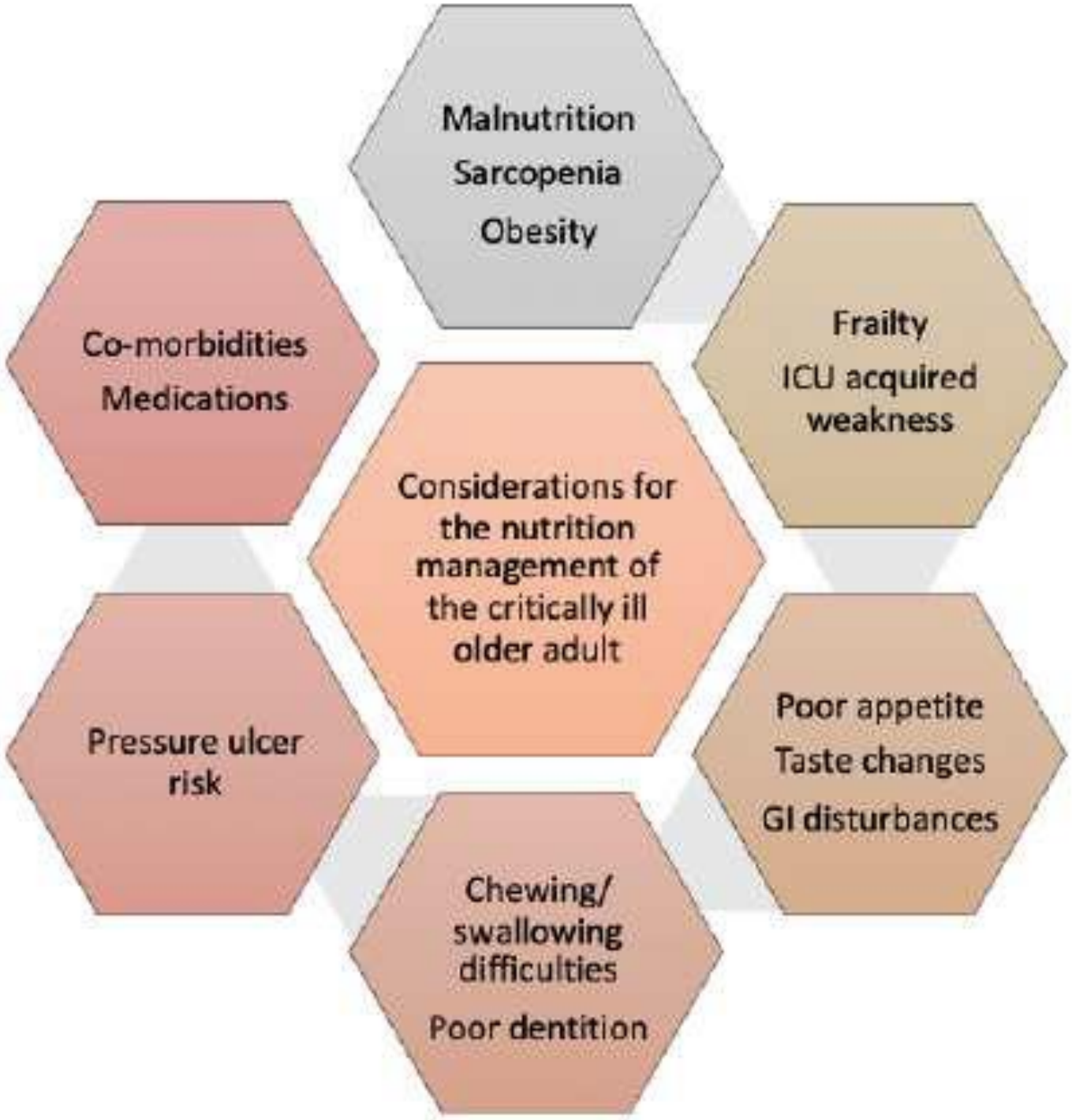
SARCOPENIA

- generalized loss of:
  - skeletal muscle mass,
  - strength and function,

  occurring

  primarily due to Ageing,

  secondary due to disease, inactivity and malnutrition


Malnutrition
Sarcopenia
Obesity
Co-morbidities
Medications
Frailty
ICU acquired weakness
Considerations for the nutrition management of the critically ill older adult
Pressure ulcer risk
Poor appetite
Taste changes
GI disturbances
Chewing/ swallowing difficulties
Poor dentition

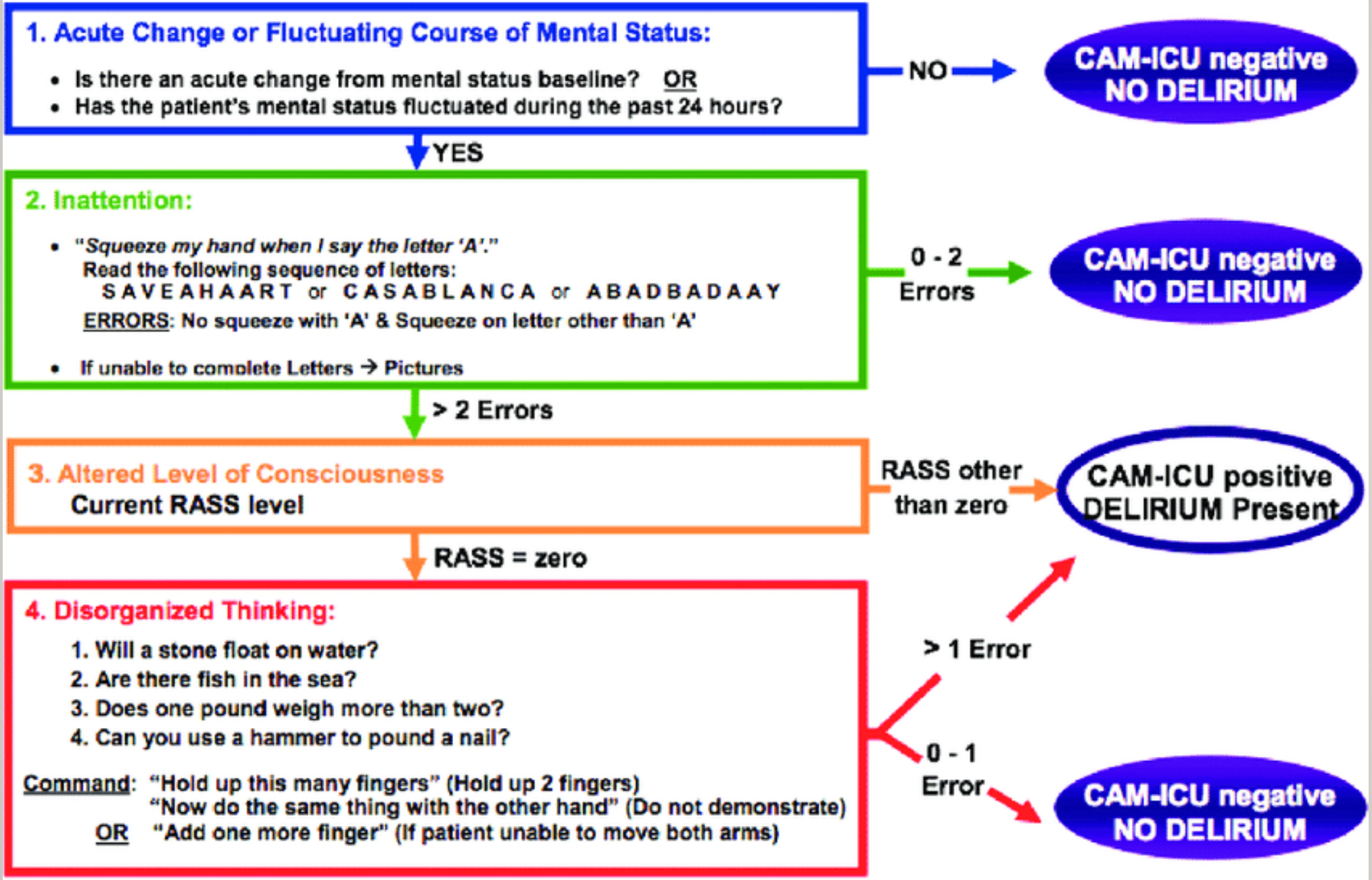
NUTRITIONAL REQUIREMENTS FOR THE OLDER ADULT IN ICU

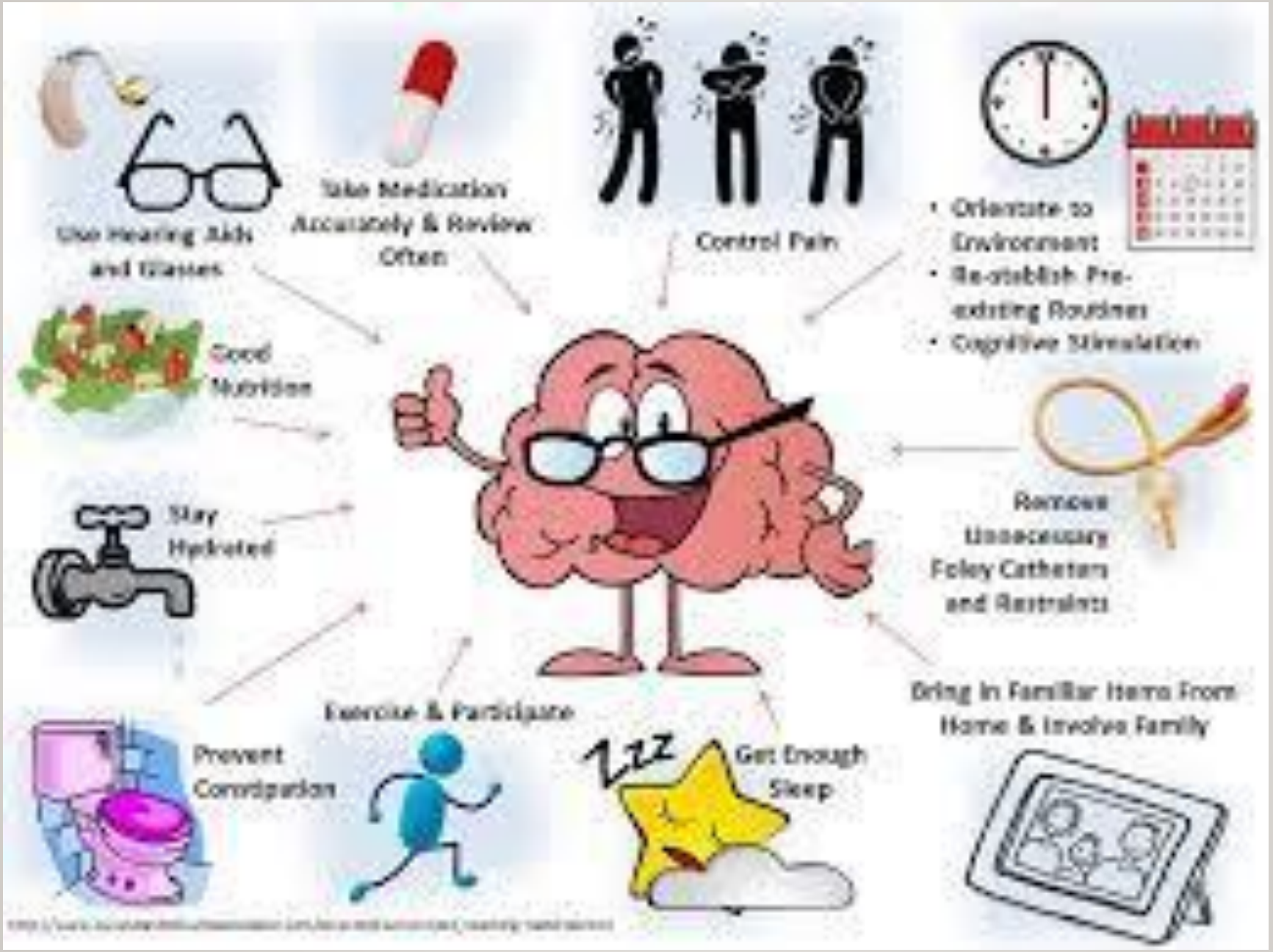
- indirect calorimetry
- oxygen consumption [VO2]
- carbon dioxide production [VCO2]
- Hypocaloric nutrition, with adequate protein provision and progression to isocaloric nutrition
- protein intakes up to 2.5 g/ kg/day have been proposed for critically ill older adults in severe catabolic states, such as patients with severe trauma and burns

DELIRIUM, DEMENTIA, DEPRESSION

- Delirium affects a third of hospitalized older adults
- best treatment :treat the underlying cause and to provide good supportive care
- possible exception of dexmedetomidine in the ICU setting there is little evidence that pharmacological interventions are effective at aiding the resolution of delirium
- CAM ICU

Confusion Assessment Method for the ICU (CAM-ICU) Flowsheet




Use Hearing Aids and Glasses
Take Medication Accurately & Review Often
Control Pain
• Orientate to Environment
• Re-establish Pre-existing Routines
• Cognitive Stimulation
Good Nutrition
Remove Unnecessary Foley Catheters and Restraints
Stay Hydrated
Bring in Familiar Items From Home & Involve Family
Exercise & Participate
Prevent Constipation
Zzz
Get Enough Sleep