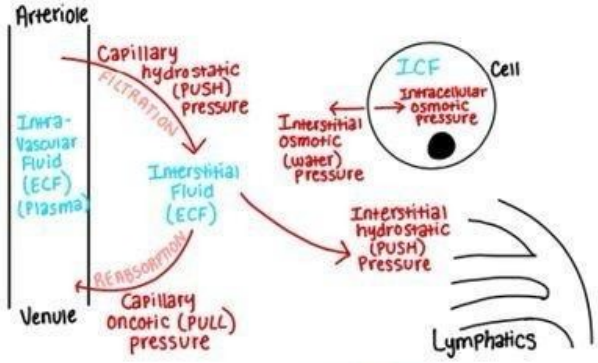
Movement of Fluid

- **Body Water Composition:**
  decreses with age due to
  - decreased muscle mass
  - decreased renal function
  - decreased thirst perception
    ↳ hypothalamus



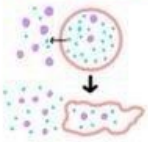
- **Solute** = salt or electrolyte
- **Solvent** = what the solute dissolves in
  ↳ water in the body

- **Osmosis**: WATER moves from high → low concentration

- **Osmolarity**: concentration of molecules per VOLUME of solution
  ↳ OUTSIDE body (urine)
- **Osmolality**: concentration of molecules per WEIGHT of water
  ↳ INSIDE body (blood)

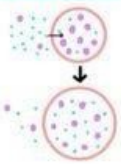
- Tonicity

HYPERtonic



- Solution = more solute particles than the cell
- Solution = hyperosmotic to cell

HYPOtonic

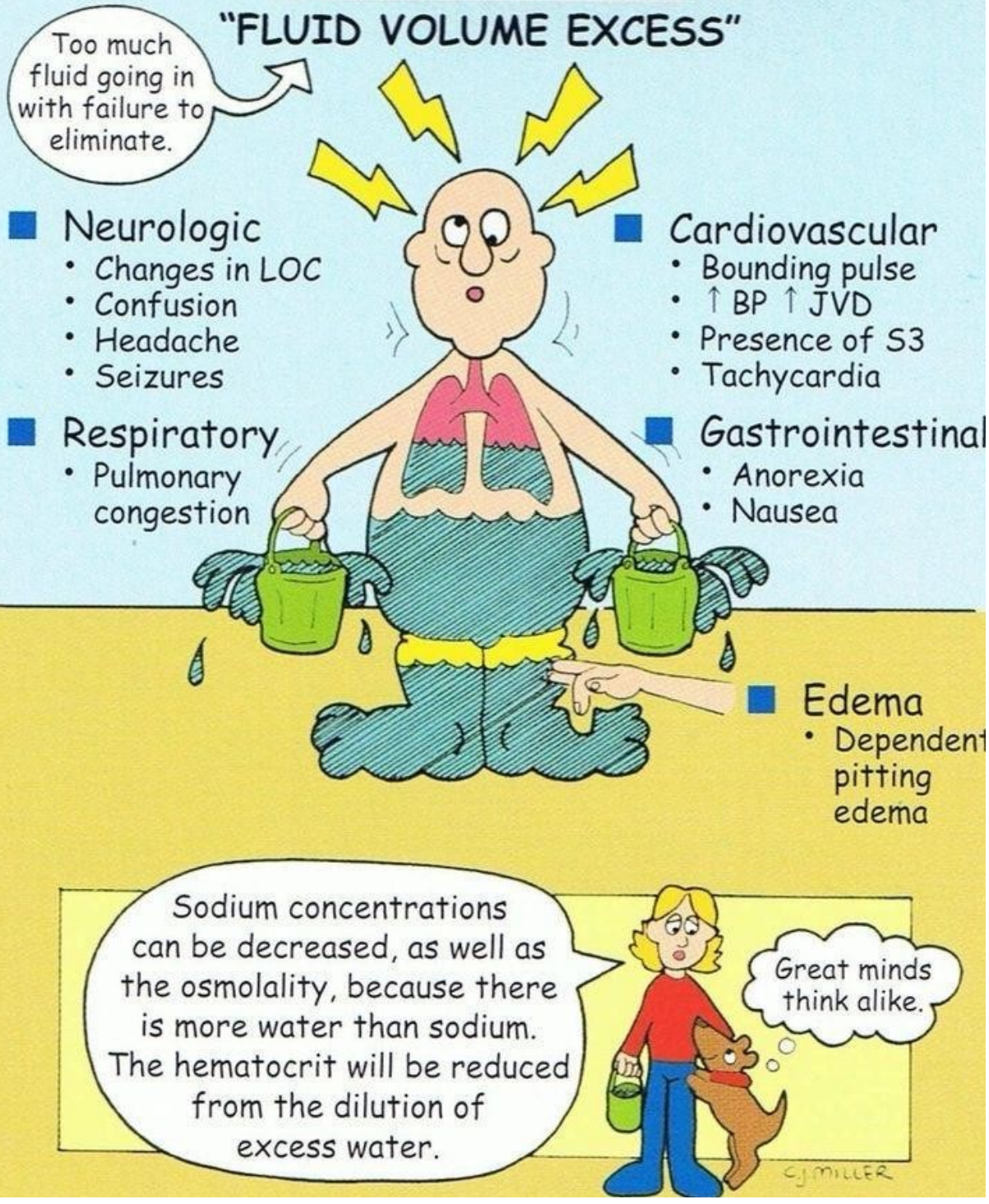


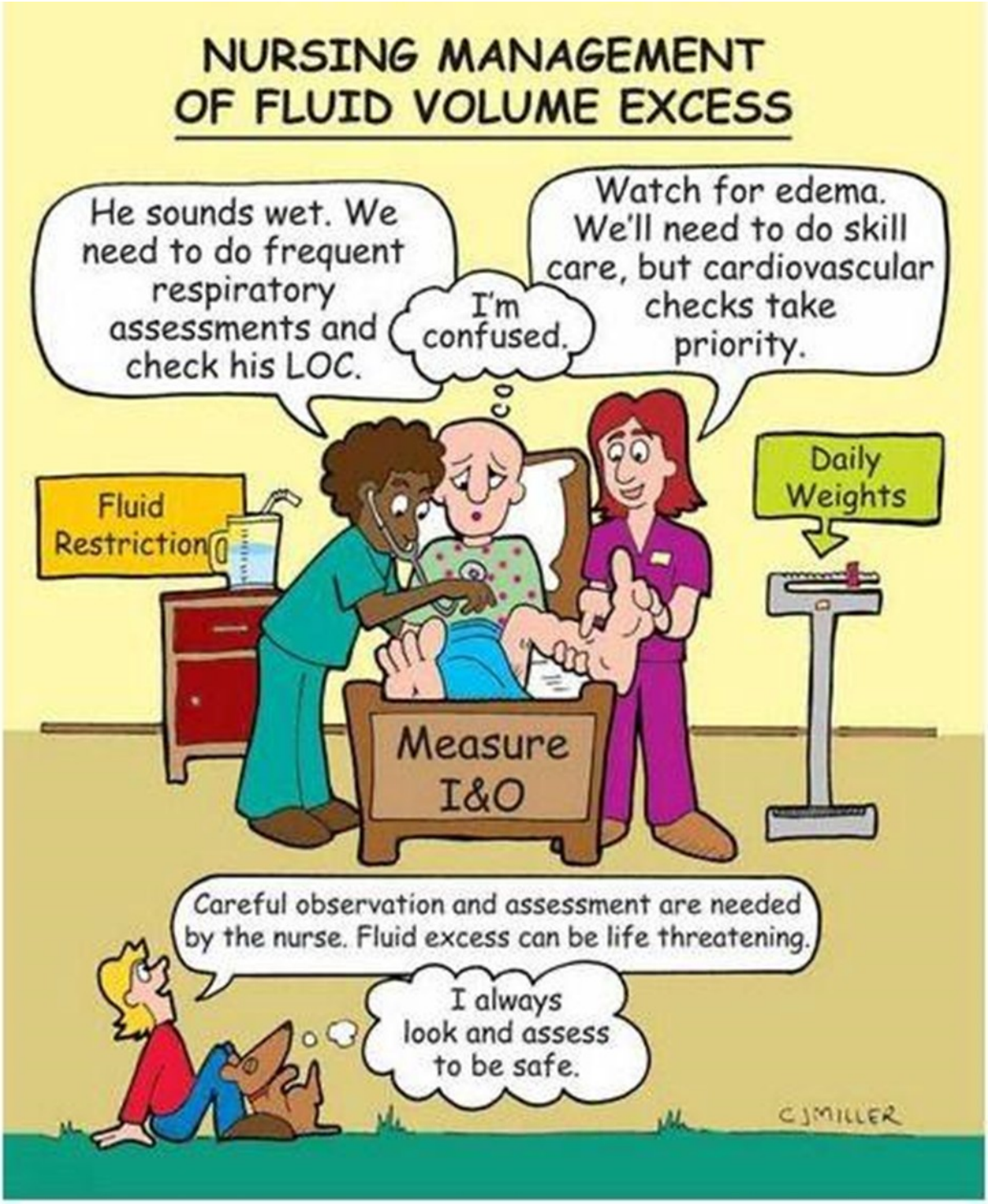
- Solution = less solute particles than the cell
- Solution = hypoosmotic to cell

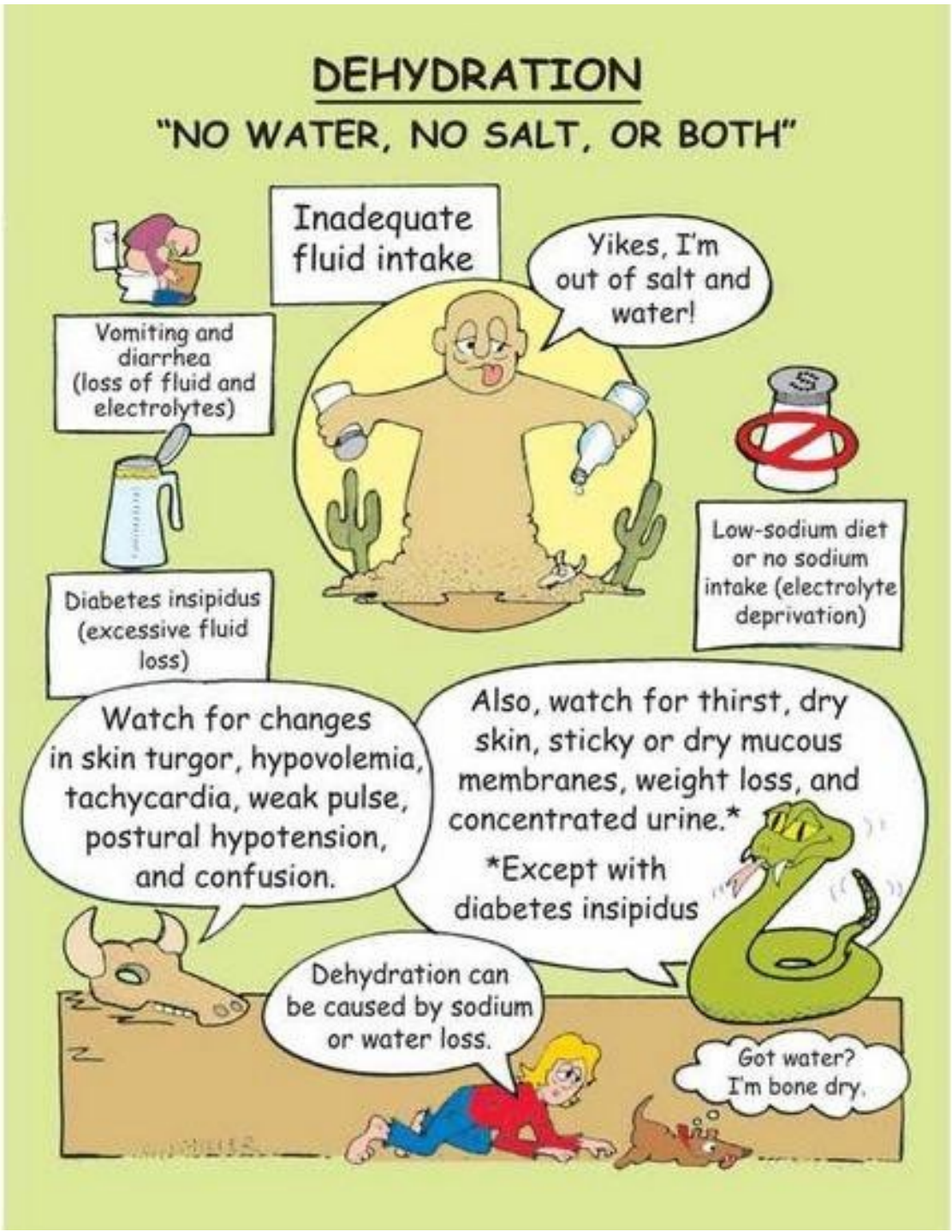
- **Hypoxia** → ↓ ATP = fluids & electrolytes affected

OVERHYDRATION

"FLUID VOLUME EXCESS"




NURSING MANAGEMENT OF FLUID VOLUME EXCESS
He sounds wet. We need to do frequent respiratory assessments and check his LOC.
I'm confused.
Watch for edema. We'll need to do skill care, but cardiovascular checks take priority.
Fluid Restriction
Daily Weights
Measure I&O
Careful observation and assessment are needed by the nurse. Fluid excess can be life threatening.
I always look and assess to be safe.
C J MILLER


DEHYDRATION
"NO WATER, NO SALT, OR BOTH"
Inadequate fluid intake
Yikes, I'm out of salt and water!
Vomiting and diarrhea (loss of fluid and electrolytes)
Diabetes insipidus (excessive fluid loss)
Low-sodium diet or no sodium intake (electrolyte deprivation)
Watch for changes in skin turgor, hypovolemia, tachycardia, weak pulse, postural hypotension, and confusion.
Also, watch for thirst, dry skin, sticky or dry mucous membranes, weight loss, and concentrated urine.*
*Except with diabetes insipidus
Dehydration can be caused by sodium or water loss.
Got water? I'm bone dry.

IV FLUIDS CHEAT SHEET

BEAUTIFUL NURSING LLC

0.45% NS

hypOtonic

Fluid goes **INTO** cells to expand ○ cell to ⬆ total body fluid volume.

Uses: We need to **DIG** fluids into the cells.

- D — DKA
- I — Increased Total Fluid
- G — Gastric Fluid Loss

0.9% NS

Isotonic

Fluid replenishes cells from fluid losses without changing shape.

Uses: **BAD** Situations

- B — Burns or Blood Loss
- A — Anaphylaxis/Sepsis
- D — Dehydration

3% NS

hypErtonic

Fluid goes **OUT** of cells to shrink cells and ⬇ fluid levels (dEhydrate).

Uses: I need to get the fluid out of my soaked **SOCK**.

- S — Severe Hyponatremia
- O — Overload of Fluid
- C — Cerebral Edema
- K — Ketosis

Note: ⬇ Gauge = ⬆ Needle

GREEN
18 G
-Rapid Fluid Replacement
-Trauma
-Rapid Blood Transfusion

PINK
20 G
-Most Infusions
-Rapid Fluid Replacement
-Trauma
-Routine Blood Transfusions

BLUE
22 G
-Most Infusions
-Neonate
-Pediatric
-Older Adults

YELLOW
24 G
-Most Infusions
-Neonate
-Pediatric
-Older Adults
-Pediatric Blood Transfusions

PURPLE
26 G
-Pediatrics
-Neonate