



Normal Aging & Age-Related Changes

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Outline (Part 1-Normal Age-Related Changes)

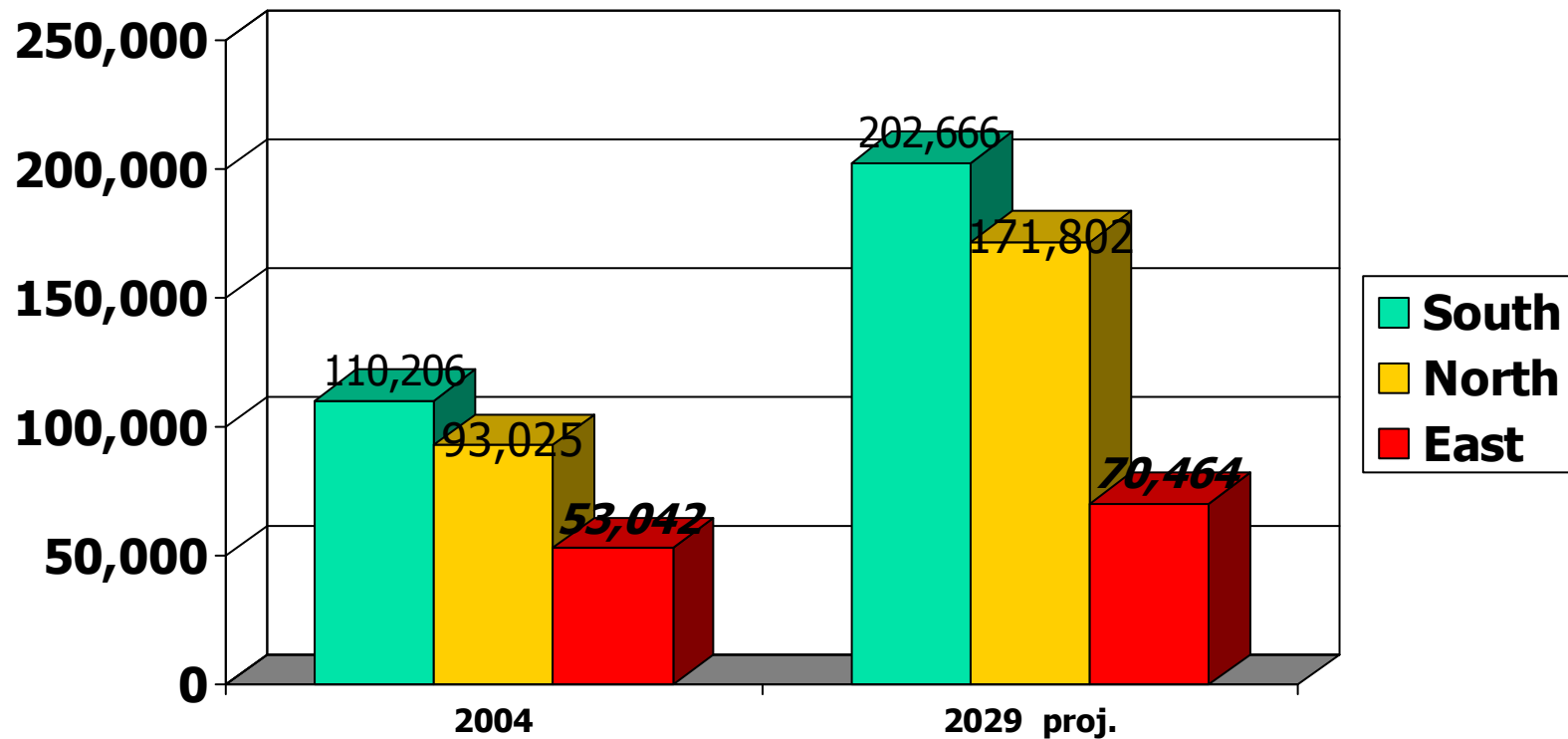
- Introductions
- Why focus on geriatrics?
- What is normal aging?
- What are the Geriatric Giants?
- What are the nursing implications?
- Evaluation – after Part 2



Why is geriatrics important to focus on?

- Largest patient group seen in acute care, residential, and community care
- Highest user of health care services, highest percentage of in-hospital days
- Greatest diversity/difference within a group
- Disease presentations are different in older adults than young (e.g. depression, UTI) leading to the identification of the “Geriatric Giants”

Population (2004) & projected (2029) of Older Adults in FH



Source: PEOPLE 29, BC Stats, BC Ministry of Health Services



Myths of Aging

- 10 questions to test your knowledge

True or False



Some terms & a little theory...

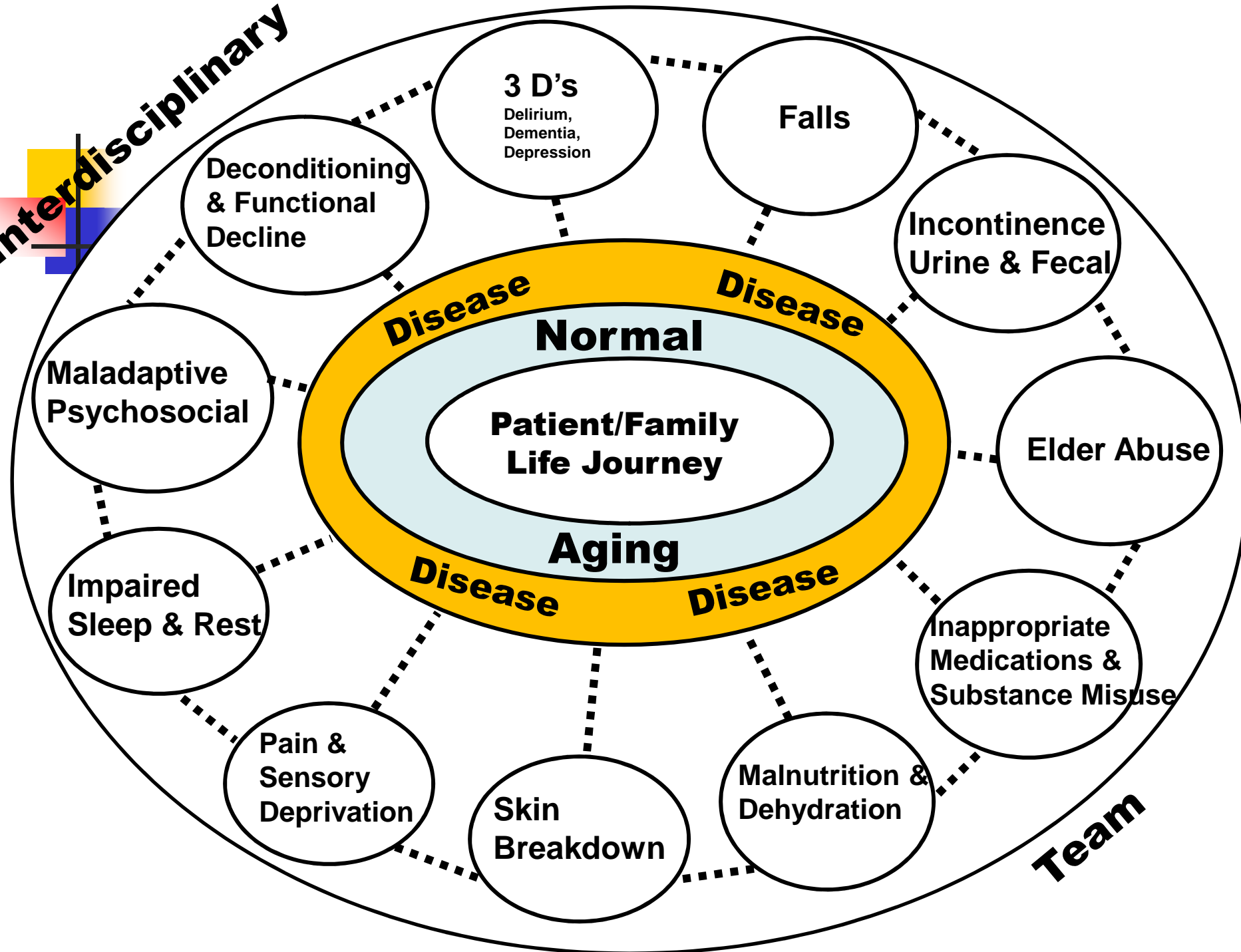
- Geriatric giants
- Vicious circles
- The "F" word...function
- Theories of aging



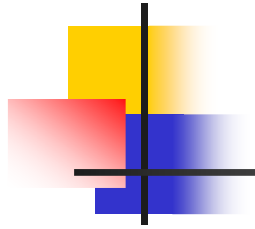
What are the Geriatric Giants?

- Major conditions/disorders/syndromes that can contribute to acceleration of biopsychosocial decline of older adults
- Frequently missed d/t pre-existing chronic conditions
- Predictable problems experienced by older adults which are often preventable

Interdisciplinary



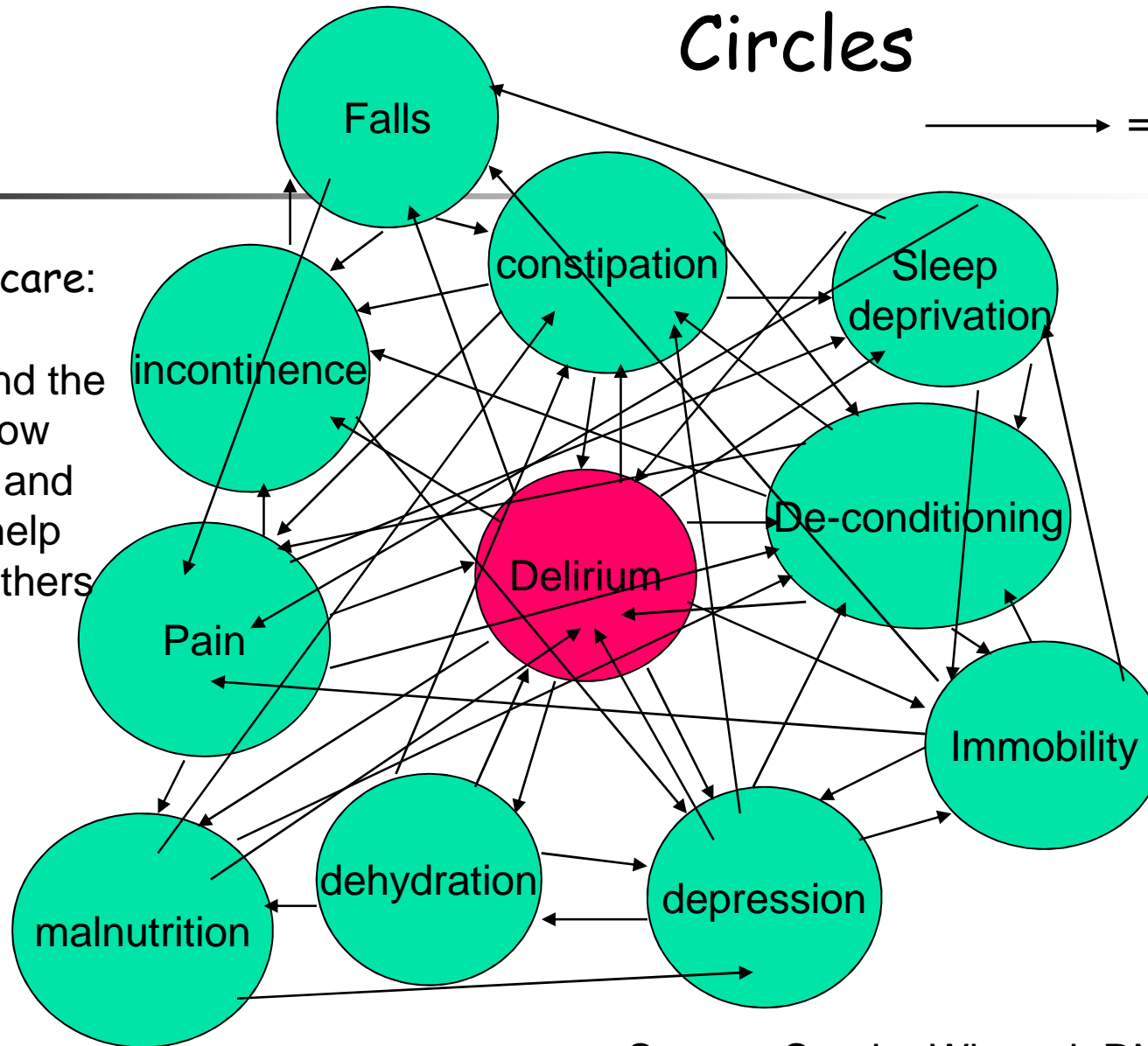
Geriatric Vicious Circles



→ = causes

Principles of care:

- Leave one unattended and the others will follow
- Manage one and you will also help manage the others



Source: Sandra Whytock RN MSN



Who is at risk to experience a giant?

- Dependence on others for care
- Decreased Quality of Life
- Pain/suffering
- Restrained/falling
- Skin breakdown
- Malnourished and dehydrated

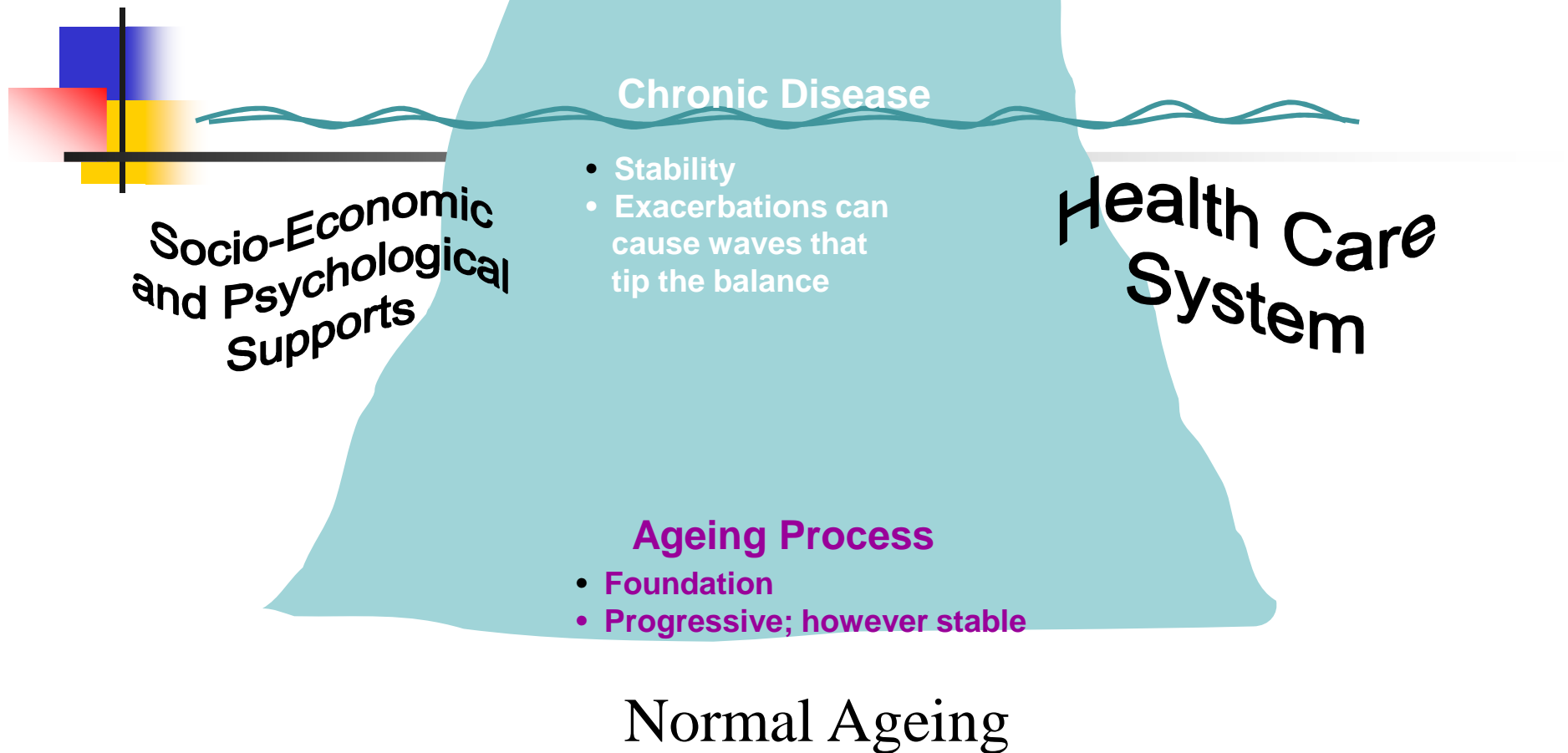
What happens...the older adult has no reserve to draw on to face these geriatric giants, then begins the slippery slope to death if the circles are not treated.



Geriatric Giants (cont)

- Are interrelated and interdependent on each other
- If we provide proactive care for one giant it will impact & change the course of the other giants by implementing the following:
 - preventive action & minimize problems
 - early detection
 - evidence-based management
 - monitoring & evaluation of progress

The Iceberg Just Floating Along



Crisis begins to tip over the Iceberg

Iatrogenic Contributors

**Acute Episodic
Event/Illness**

- **CRISIS!!!**
- the episodic illness that tips the independent/functional balance

Chronic Disease

- Instability
- Exacerbations cause waves that tip the balance even more

Ageing Process

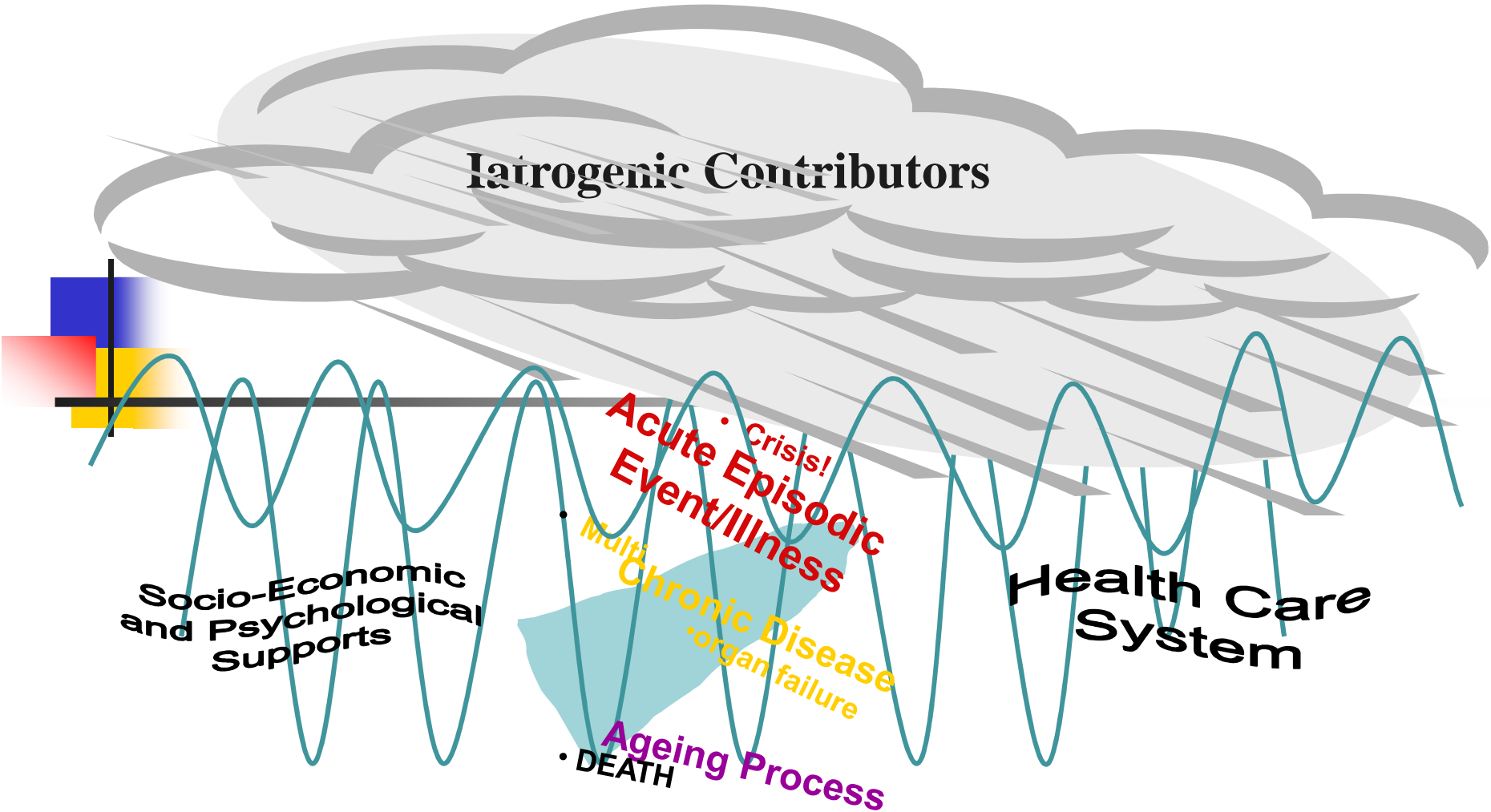
- Foundation eroding
- Fewer reserves

**Socio-Economic
and Psychological
Supports**

**Health Care
System**

Effects of Illness on Normal Aging

The Iceberg Has Tipped Over and Melting



Effects of Illness on Older Adults



3 Main Theories of Aging – No single well accepted theory

- Stochastic (Random Error)
 - Accumulation of random damage to important molecules leading to decline
- Developmental-Genetic or Programmed
 - On a continuum of development & maturation, & maximum lifespan
- Evolutionary
 - Risk of mortality increases with time after reproduction



What is normal aging?

- Gradual loss of/deterioration of the bodies reserve, affecting all body systems
- Lifestyle choices & environment also affect how we age
- Presenting symptoms are usually present in the system with the least reserve rather than where the pathology lies (e.g. MI presents as delirium)
- System with least reserve is usually the Central Nervous System (brain leading to delirium)

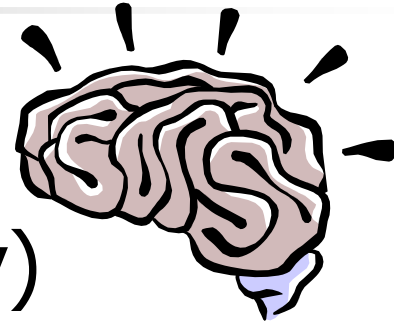
Implications for Care:

- Need to look closer/investigate
- Don't assume the illness is d/t aging
- Ask yourself what is the older persons weakest "system"?



Central Nervous System changes:

- Loss of brain/nerve cells
(brain shrinks in size-atrophy)
- Mild memory changes (benign forgetfulness)
- Increased sensitivity to change
- Increased response time
- Sleep pattern changes: awake early, not as deep





Implications for Care:

- Give older adult more time to respond to questions & environmental dangers
- When teaching new procedures, etc. give them more time and repeated exposure to learn the new procedures
- Special care needs to be considered with head trauma
- Need quieter environment to promote sleep

Sensory changes (Visual):



- Clouding of lens, changes in curvature, weakening of ciliary muscle, decreased tear production, decreased pupil size
- Impact: dry eyes (need artificial tears), presbyopia (far sightedness), sensitivity to glare, decreased perception of colors (green, blue, violet, & browns), need more light, pupils react slower to light

Sensory changes (Auditory):



- Thickening of tympanic membrane (ear drum), stiffening of ear structures & increased production of cerumen (ear wax)
- Implications: loss of high frequency sounds, hearing loss, ear wax impaction, increased incidence of dizziness/vertigo

Sensory changes: (taste, smell, & touch)



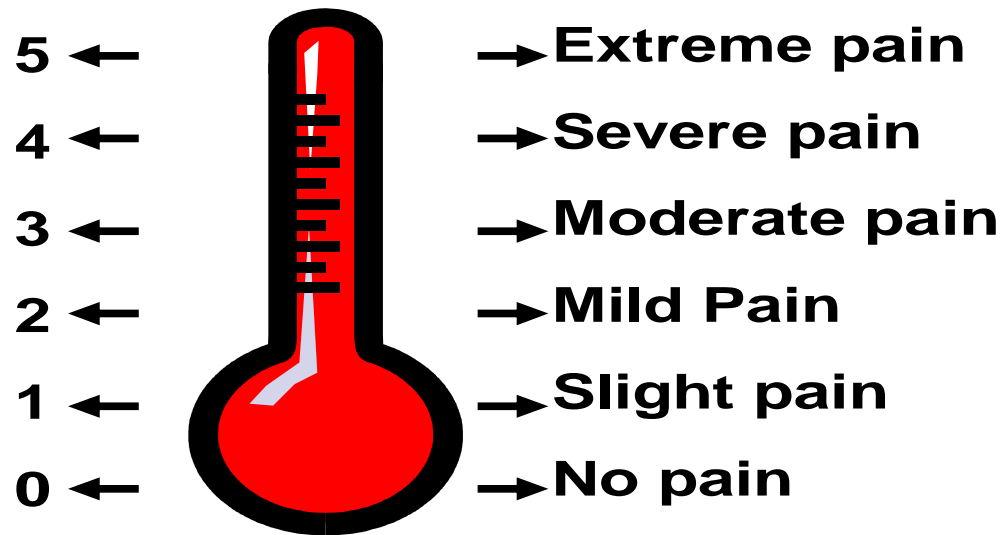
- Decreased number of taste buds
- Decreased sense of smell
- Nerve conduction changes affect sensitivity to pain, heat, & pressure
- Diminished ability to distinguish items by touch
- Decreased number of nerve endings in fingertips, palms of hands and lower extremities



Implications:

- ↓ taste/smell - ↓ appetite, wt loss, ↑ risk of food poisoning, & ↓ smoke recognition
- ↓ awareness of dehydration
- Potential to increase use of spices including salt (watch cardiac pts)
- Have difficulty describing pain because they do not feel it the same way
- Increased risk of injury (falls, burns, pressure ulcers)

Pain Scale: thermometer &/or 0-5 scale



Cardiovascular changes:



- ↓ max. heart rate & takes longer to get back to baseline
- ↓ number of pacer cells in the heart which initiate the heart beat
- Stiffening of cardiac valves
- Arteries are stiffening
- Veins are thicker, less elastic, & dilated

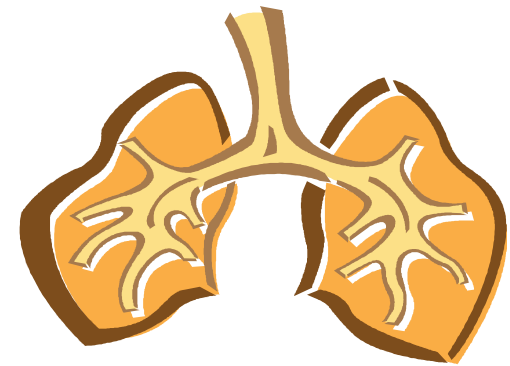


Implications for Care:

- ↑ susceptibility to arrhythmias
- Hypo or hypervolemia will contribute to cardiac failure
- ↓ ability to increase heart beat rate in response to infection
- Look for atypical presentations for an MI (e.g. delirium, SOB, indigestion)
- TIAs are a warning to CVA

Respiratory changes:

- ↓ exchange of oxygen and carbon dioxide d/t ↓ pulmonary circulation and alveoli changes
- Chest wall stiffness
- ↓ vital and functional lung capacities
- Muscle weakening of pharynx and larynx
- ↓ muco-cilial transport in lungs with ↑ mucous production





Implications of care:

- ↓ efficacy of gas exchange – raise HOB to 30-45
- ↓ exercise tolerance – frequent rest periods
- ↑ work to breath, e.g. expiration which is normally passive, now requires work and additional energy
- ↓ ability to cough up secretions (give extra fluids to ensure hydrated & loosen secretions)
- Increased risk of infection (get flu shot)

Genitourinary Changes:

- kidneys less able to concentrate urine
- ↓ bladder capacity
- urine output at night equal or more than day
- Bladder wall muscle instability
- ↓ production of male/female hormones
- Prostate enlargement



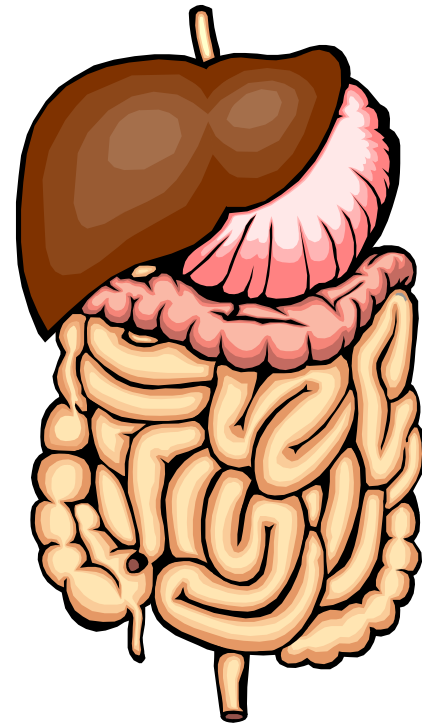
Implications for Care:

- 80% incontinence is treatable
- Caution when on diuretics d/t urgency & frequency
- Asking on a regular basis if they need to use the toilet, especially at night
- Do not assume that they are incontinent on admission
- Avoid foley catheters, use bladder scanner, I&O catheter



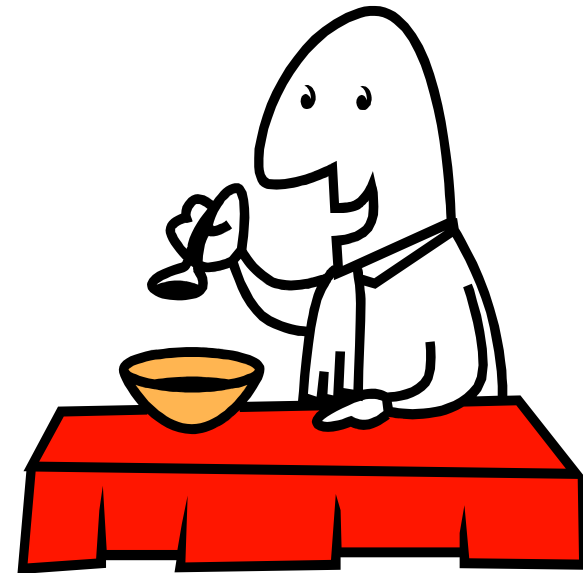
Gastrointestinal Changes:

- ↓ saliva production
- ↓ number of taste buds
- ↓ thirst mechanism
- ↓ motility throughout GI system (e.g., GERD, constipation, bowel obstructions)
- Liver less efficient to metabolize drugs



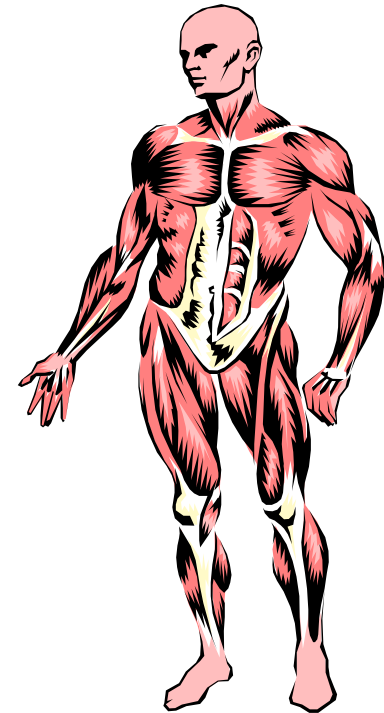
Implications for care:

- Balance hydration needs
- Feed them small frequent meals
- ORAL hygiene: teeth and gums BID
- Check that they are swallowing okay
- Constipation: r/o acute abdomen



Musculoskeletal Changes:

- ↓ height (average 2 inches)
- ↓ muscle mass, strength & tone
- Joints are stiffer (joint & cartilage erosion)
- ↓ strength & endurance
- ↓ bone density - Calcium removed from the bones making them more brittle and easier to break



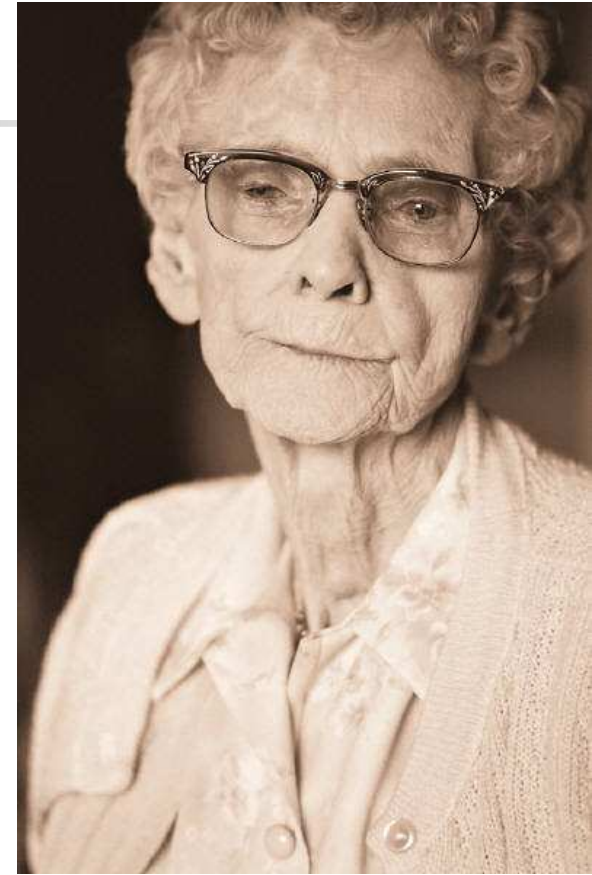
Implications for Care:

- Need to keep moving all muscles: flexibility, strength, tone, resistance, and balance
- Supplements: Calcium & Vit D
- Podiatry – proper foot care & footwear



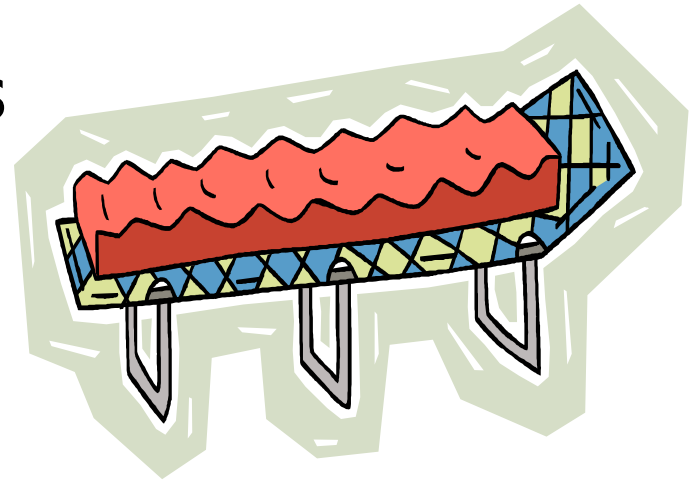
Skin changes:

- Less elasticity with wrinkles, sags, dryness and extra folds
- loss of underlying subcutaneous fat tissue
- reduction in oil production
- Thickened, yellow, ridged nails



Implications for Care:

- Use water-based moisturizers
- Assess skin q shift & PRN (e.g. Braden Scale)
- Pressure relief mattress
- Prevent shearing or friction when moving older adults
- Poorer thermo-regulation system with ↓ insulation
- More fragile & slower to heal





Psycho-social changes:

- Increased stress from multiple losses (e.g. spouse, friends, family, income, health, home, independence)
- Examine their own mortality
- Evaluate & reminisce about their lives, quality of life, & life goals
- Depression is not a normal part of aging



Implications for Care:

- Do not make assumptions, re: life or death choices; it should not be based upon age, health, or illness
- Individual choices & decisions warrant respect
- Do not assume somebody is making decisions for the older adult, ask them first
- Reinforce and encourage life review story telling & reminiscing



Handouts

- Normal Changes of Aging - body
- Age-related Changes – man & dog
- Normal Age-related changes with Nursing Interventions (NI)
- Aging, Disuse & Disease – functional area identified then look at continuum from biological aging to age-associated disease
- Typical vs Atypical presentation in Older Adults



Activity

- In pairs, identify & discuss which age-related changes you would find:
 - Most difficult to accept & why?
 - Easiest to accept & why?
 - What can you do to prevent this?
 - What can you do to decreasing the negative consequences (adapt)?
- Report back to group on 1 age-related change



Summary: “Complexity”

- Aging increases complexity
- Underlying chronic illnesses adds to the complexity
- Knowing about the normal age-related changes, the consequences of chronic illness, & the iatrogenic factors are essential when caring for the older adult



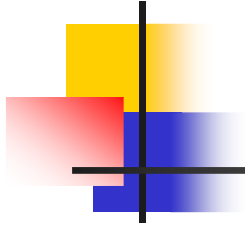
Post test (5 questions)

- See handout



References

- BC STATS (2006). Population extrapolation for organization planning with less error, run cycle 29 (P.E.O.P.L.E.29). Extracted from Health Data Warehouse, BC Ministry of Health Planning and BC Ministry of Health Services.
- Blanchetti & Trabucchi (2001), Special Issue on Alzheimer's Disease, Aging clinical and experimental research, 13(3), 221-230.
- Carr, M. (Ed.). (2006). BC Acute Care Geriatric Nurses Network Geriatric Giants Quick reference to Common Conditions and Syndromes observed in Older Adults, (Available from BC Acute Care Geriatric Nurses Network website: www.acgnn.ca)
- CPG (2002). CPG for the management of osteoporosis in Canada, CMAJ, 167, S1-34.
- Ebersole & Hess (2001). Geriatric Nursing & Healthy Aging. Mosby: St. Louis.
- Forciea, Schwab, Raziano, & Lavizzo (2003). Geriatric Secrets 3rd edition.
- Fraser Health (2006, August). Geriatric Emergency Network Initiative (GENI). Workshop conducted in Delta, BC.
- Gillis, A. & MacDonald, B. (2005). Deconditioning in the Hospitalized Elderly, Cdn Nurse, 101(6), 16-20.



Thank you!

Any questions/comments??