

Treatment of Developmental Disabilities:

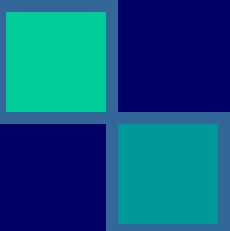

Ideas for Today and Tomorrow



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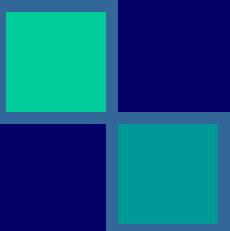



Background

- 
- Increased life expectancy
 - Medical, education, public health, and technology advances
 - If live past 30's, will survive to old age
- 




Background

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- Patients and caregivers of patients with developmental disabilities require treatment for a variety of medical and psychological
 - Monitoring the appropriateness of therapy issues is facilitated by networks of health care providers supporting the patient and the caregivers.
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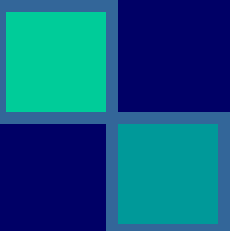



Outline

- Special Needs Clinic Lessons Learned
 - As DD patients age
 - Understanding of the changes in their body
 - Implications on their therapy and care needs
 - Drugs Interactions
 - Monitoring
 - Resources
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Case Break

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- 30 yo moderate MR, Bipolar depression, Hypothyroidism
 - Medications:
 - Lithium
 - Levothyroid
- 

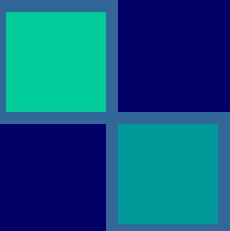



As we age

- Understand normal aging changes
 - How changes impact treatments
 - Additional health risks associated with developmental disabilities
 - Functional decline @ 50 yo
 - Mortality with severe impairments respiratory infections
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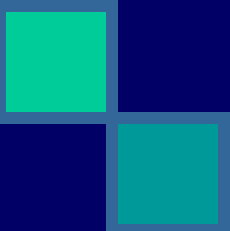



As we age – Renal Function

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- Declines with age at a consistent rate in two-thirds of all persons.
 - Assessment is directly related to lean muscle mass.
 - Drug Therapy
 - Excreted through the kidneys
 - Low therapeutic index
 - Lithium, Metformin, Diuretics
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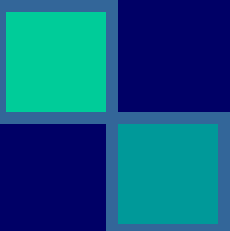



As We Age – Liver Function

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- Decline is more variable
 - No readily available or generalizable method of assessment
 - Many drugs are metabolized by the liver
 - Increase the duration of the therapeutic effect
 - Accumulation of the drug, or drug metabolites
 - Anticoagulants, anticonvulsants and benzodiazepines
- 




Case Break

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- 42 yo male with mental status alteration
 - PMH: severe MR and Lennox-Gastuat syndrome
 - Medication: Depakote
 - Normal liver function tests
 - Elevated ammonia level
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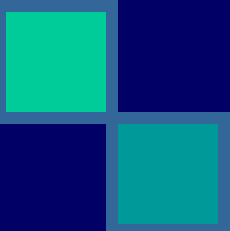



As We Age – CNS Function

- Significant, but idiosyncratic changes
 - Slowing movement
 - Reaction time
 - Interrupted sleep patterns
 - Increased sensitivity to the pharmacological effects
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As We Age – CNS Function


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- Parkinson's disease
 - Seizure disorders
 - Alzheimer's disease
 - Drugs with sedative effects
 - Increased risk for falls that result in fractures
 - Additive effects
 - Benzodiazepines, opioids, and non-steroidal anti-inflammatory medications (NSAIDs)
- 



Case Break



- Medications:

- Zyrtec
 - Haldol
 - Benztropine
 - Tylenol PM
 - Ranitidine
 - Senokot
 - Detrol
- 



As We Age – CNS Function



- Anticholinergic - Additive effects

- Wide variety of reactions:

- Dry mouth

- Relaxation of bladder smooth muscle

- Reduced outflow of aqueous humor

- Reduced ability to recall information

- Decreased intestinal motility and secretion of gastric acid and enzymes

- Decreased sweating


- Sedation

- Confusion



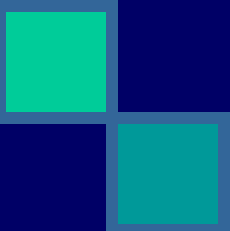



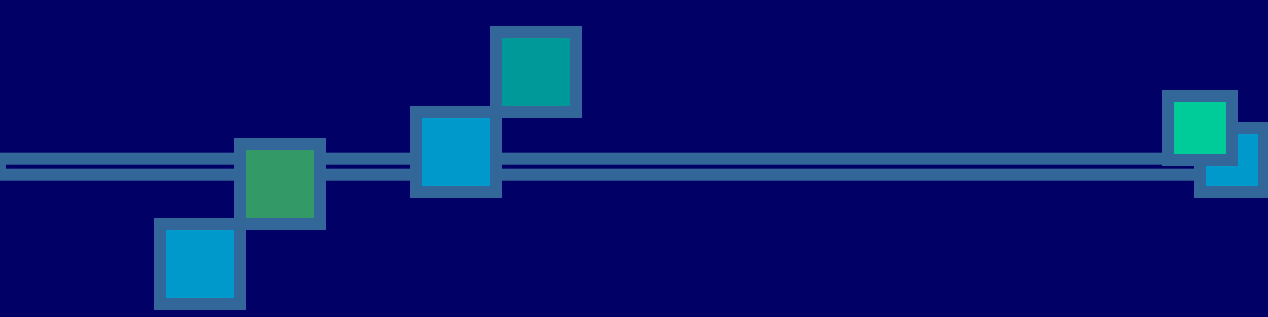
As We Age – CNS Function

- Examples of drugs with anticholinergic effects
 - Antihistamines
 - Tricyclic antidepressants
 - Antispasmodics
 - Antipsychotics
 - Muscle relaxants
- 




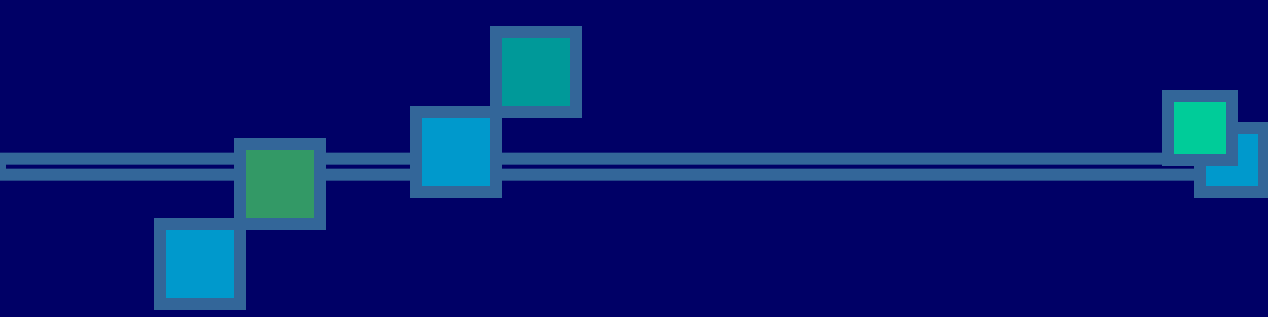
As We Age – CNS Function

- 
- Clinically significant depression often unrecognized.
 - Not often cognizant of depression
 - Lack of energy complaints
 - Development and progression of chronic disease are associated with untreated depression.
- 




As We Age – CV Function

- Decrease in the number of receptors able to be affected by a drug.
 - Beta receptors in the heart which mediate heart rate
 - Posture changes from sitting to standing
 - Blood moves away from the brain and toward the lower extremities
 - Dizziness, changes in vision, and falls can result
- 




As We Age – CV Function

- Drugs and conditions that reduce the intravascular fluid volume
 - Exacerbate the risk of mild dehydration
 - Diuretics lower intravascular volume
 - Vasodilators
 - High blood pressure
 - Heart disease
- 

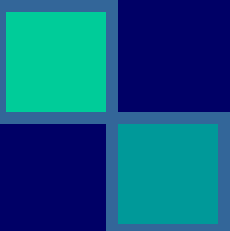



Case

- PMH: MR, Schizophrenia, COPD, CHF, DVT, Bladder dysfunction, Chronic tremor
 - Medications:
 - Clonazepam
 - Benzotropine
 - Risperidol
 - Sinemet
 - Lorazepam
 - Tegretol
 - Vanceril
 - Combivent
 - Albuterol
 - Lanoxin
 - Hytrin
 - Aldactone
 - K-Dur
 - Zestril
 - Lasix
 - Coumadin
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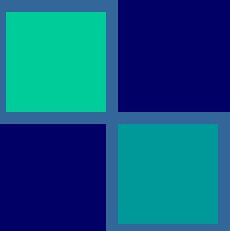



As We Age - Gastrointestinal

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- Decreased sensations of taste and smell
 - Difficulty swallowing
 - Esophagus thickening
 - Decreased production of saliva
 - Decreased acidity and quantity of gastric juices
 - Indigestion
 - Ulcers
- 




As We Age - Gastrointestinal

- Constipation
 - Drug induced
 - Gastroparesis
 - Hemorrhoids
 - Diverticulosis
- 
- 




Case Break

- PMH: OA, CP, Spinal stenosis, hearing impairment, peptic ulcer disease
 - Medications:
 - Prazosin
 - Prilosec
 - Reglan
 - Lomotil
 - Pepto-bismol
 - Darvocet
 - Vicodin
 - Tylenol
 - Celebrex
- 

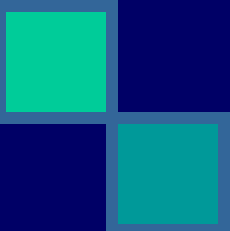



As We Age - Musculoskeletal

- Increased risk
 - Cerebral palsy
 - Metabolic disorders
 - Arthritis
 - Age related
 - Passive activity level
- 



As We Age - Musculoskeletal

- 
- Osteoporosis
 - Drug/Disease induced
 - Lack of prevention
 - Difficulties with treatment
- 



As We Age - Reproductive



- Males

- Testicular

- Prostate

- Females

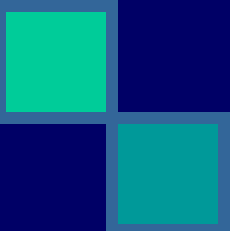

- Menses

- Menopause





As We Age - Vision


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- Common complaints
 - Colors at the lower spectrum
 - Farsightedness
 - Floaters, speck or tiny spots in vision
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As We Age - Vision




- Disorders

- Cataracts
 - Glaucoma
 - Macular degeneration
 - Retinopathy
 - Retinal detachment
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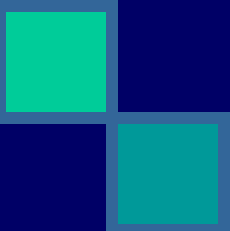



As We Age - Hearing

- Prominent in aging process
 - Hearing loss
 - High tones
 - Consonant sounds
 - Tinnitus
- 




Other Common Problems

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- Hypothyroidism
 - Obesity
 - Weight loss
 - Behavior
- 




Fragile X Syndrome

- Mitral valve prolapse
 - Musculoskeletal disorders
 - Early menopause
 - Epilepsy
 - Visual Impairments
- 




Down's Syndrome

- Longevity 10 – 20 years less than other individuals with developmental disabilities
 - Hypothyroidism
 - Infections
 - Dermatological
 - Vision
 - Hearing
 - Cardiac
 - Musculoskeletal
 - Epilepsy
- 




Lifestyles

- Tobacco and Substance abuse
 - Violent behavior
 - High risk sexual behavior
 - Passive
 - Obesity – related diseases
 - Coronary artery disease, hypertension, and diabetes mellitus
- 



Lifestyles


- Targeted for prevention
 - Longevity
 - Quality of life
 - Functional capacity
- 



Implications on Treatment

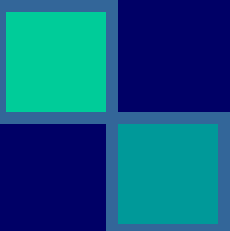



- Diagnosis

- Seizure - Alzheimers
 - Thyroid – Depression - UTI
 - Depression
- 




Implications on Treatment

- 
- Pharmacotherapy tailored to age – related vulnerabilities
 - Response time lengthens with age
 - Changes in environments increases stress
 - Pharmacokinetic changes
 - Provider/Caregiver adjustments
- 



Implications on Treatment

- Add or Change one medication at a time
 - Pharmacokinetic changes
 - Renal function
 - Monitor function
 - Check drug levels (Lithium)
 - Adjust dosage
 - Alternative therapy
- 




Implications on Treatment



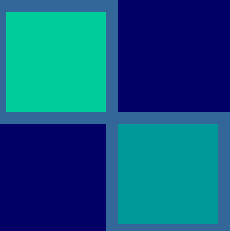
- Pharmacokinetic Changes

- Liver function

- Watch Cytochrome P450 drug interactions
 - Monitor ALT/AST, Ammonia
 - Check therapeutic drug levels
 - Dilantin
 - Depakote
- 




Case Break

- 
- PMH: Mild MR, Seizure disorder, Hypothyroidism
 - Medications:
 - Keppra
 - Carnitor
 - Fluoxetine
 - Levothyroid
 - Depakote
 - Diamox
 - Carbamazepine
- 

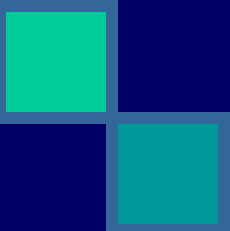



Implications on Treatment

- CNS function
 - Multiple drugs in variety of classes cross the blood-brain barrier
 - No easy measurements
 - Start low, go slow
 - Allow for the longer response time
- 




Implications on Treatment

- 
- CNS function
 - Watch for changes in behavior, dizziness, and falls
 - Keep alert and active
 - Sleep patterns
 - Avoid caffeine
- 




Implications on Treatment

- CV function
 - Edema
 - Blood Pressure
 - Dizziness
 - Heart Rate
 - Skin turgor
 - Fluid intake and output
- 




Implications on Treatment

- Cardiovascular
 - Limit salt intake
 - Decrease dietary fat
 - Increase fiber
 - Exercise
 - Limit caffeine and liquor
 - Stop smoking
- 




Implications on Treatment

- Gastrointestinal
 - Cautious use of NSAIDs
 - Appropriately administer bisphosphonates
 - Watch for drug interactions
 - Binding drugs
 - Acidity requirements
 - Gastric motility
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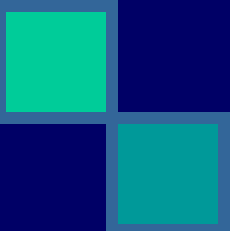



Implications on Treatment

- Compare dietary and therapeutic therapies
 - Fiber
 - Stimulant laxatives
 - Reglan, Bethanechol
 - Dicyclomine
 - Calcium and dairy products
 - Antacids
 - Citrus fruits, peppermint
- 



Implications on Treatment


- 
- If more than 3 GI meds needed, re-evaluate
 - Dental care
 - Smoking, alcohol, caffeine
 - Drink adequate fluids
- 



Implications on Treatment




- Musculoskeletal

- Exercise/Physical therapy
 - Body weight
 - Mattress
 - Calcium – dietary or supplemental
- 




Drug Interactions

- Increased with polypharmacy
 - Prescription, OTC, and herbal
 - Duplicate therapy
 - Pain
 - Gastrointestinal
 - Treatment of adverse effects
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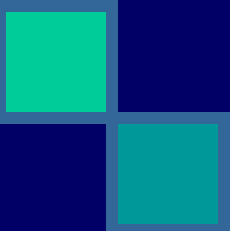


Drug Interactions

- Additive effects
 - Anticholinergics
 - Sedatives
 - Competitive metabolism or excretion
 - Antiepileptics
 - Antidepressants
 - Diuretics
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Drug Interactions Resources

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- PDR
 - Drug Information Handbooks
 - Natural Medicine Database
 - Epocrates
 - Lexi-comp
 - Micromedex
- 