GERIATRIC MEDICINE

Dr. B. Goldlist
Michael Bloom and Diana Tamir, chapter editors
Harriette Van Spall, associate editor

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DEMOGRAPHICS

AGE PROFILE

- ❏ currently about 12% of the Canadian population is 65+ years of age
- ❏ by 2030, this age group will make up 25% of the population
- ❏ the 85+ age group is the fastest growing segment of the Canadian population, increasing at an average rate of about 4% per year

GENDER

- ❏ ratio of elderly females to males in Canada is 1.4:1
- ❏ this ratio increases to 2:1 for those age 85+

MARITAL STATUS

- ❏ widows outnumber widowers 5:1
- ❏ males over 65 are twice as likely to be married compared to females of the same age group

LIVING ARRANGEMENTS

- ❏ about 5% of the elderly population live in long-term care (LTC) institutions
- ❏ 1% of persons aged 65-74 live in LTC institutions
- ❏ 20% of persons aged 85 or older live in LTC institutions

HEALTH STATUS

- ❏ 64% of seniors rate their health as good, very good or excellent
- ❏ 92% of seniors say that they are “pretty happy” or “very happy”
- ❏ 51% of seniors report daily or frequent exercise
- ❏ 99% of seniors would have sex if a partner was available

CAUSES OF MORTALITY AND MORBIDITY AMONG THE ELDERLY

Table 1. Causes of Mortality and Morbidity among the Elderly

Mortality (in descending order)	Morbidity (in descending order)
1. Heart disease	1. Arthritis
2. Malignancy	2. Hypertension (HTN)
3. Stroke	3. Hearing impairment
4. Dementia	4. Heart disease
5. Chronic obstructive pulmonary disease (COPD)	5. Visual impairment
6. Pneumonia (usually secondary)	
7. Accidents	
8. Diabetes mellitus (DM)	

AGING CHANGES IN BODY SYSTEMS

IN GENERAL

- ❏ rule out disease processes before attributing changes to aging
- ❏ most physiological functions decline with age, with considerable variation among individuals
- ❏ elderly people generally have less reserve resulting in diminished ability to respond to stressors

Table 2. Aging Changes in Body Systems

System	Physiologic Changes	Pathologic Changes
Cardiovascular (CVS)	Increased: systolic and diastolic BP Decreased: HR, SV, CO, cardiac myocyte size and number, blood vessel elasticity	Increased: atherosclerosis, CAD, MI, CHF, hypertension, arrhythmias
Endocrine	Decreased: thyroid and adrenal corticosteroid secretion	Increased: diabetes mellitus, hypothyroidism, stress response
Gastrointestinal (GI)	Increased: intestinal villous atrophy Decreased: number of teeth, esophageal peristalsis, gastric acid intestinal secretion, protein synthesis and drug metabolism in liver	Increased: GI cancer, diverticulitis, constipation, fecal incontinence, hemorrhoids, intestinal obstruction
Integumentary	Increased: atrophy of sebaceous and sweat glands Decreased: epidermal and dermal thickness, dermal vascularity, melanocytes, collagen synthesis	Increased: lentigo, cherry hemangiomas, pruritus, seborrheic keratosis, herpes zoster, decubitus ulcers, skin cancer
Musculoskeletal (MSK)	Increased: calcium loss from bone Decreased: muscle mass, cartilage	Increased: arthritis, bursitis, osteoporosis, muscle cramps, polymyalgia rheumatica
Neurologic	Increased: wakefulness Decreased: number of neurons, brain mass, cerebral blood flow	Increased: insomnia, neurodegenerative disease (Alzheimer's, Parkinson's), CVAs Decreased: reflex response, autonomic response
Psychiatric		Increased: depression, dementia, delirium
Reproductive	Decreased: androgen and estrogen, sperm count, vaginal secretions, size of uterus, ovaries and breasts	Increased: breast and endometrial cancer, atrophic vaginitis, impotence
Respiratory	Increased: rigidity of tracheal and bronchial cartilage Decreased: lung and chest wall elasticity, ciliary activity, surface area for gas exchange	Increased: COPD, pneumonia, pulmonary embolism
Renal and Urologic (GU)	Increased: proteinuria, urinary frequency Decreased: renal mass, GFR, bladder capacity	Increased: urinary incontinence, nocturia, BPH, prostate cancer, pyelonephritis, nephrolithiasis, cystocele, rectocele
Special Senses	Increased: inclusion bodies in vitreous (floaters) Decreased: lacrimal gland secretions, lens transparency, dark adaptation, number of cochlear neurons, sense of taste and smell	Increased: presbyopia, blindness, glaucoma, cataracts, macular degeneration, presbycusis, tinnitus, deafness, vertigo, oral dryness

Source: Spence, 1995, *Biology of Human Aging, 2nd edition.*

BPH = benign prostatic hypertrophy
CAD = coronary artery disease
CHF = congestive heart failure
COPD - chronic obstructive pulmonary disease
CVA = cerebrovascular disease
GFR = glomerular filtration rate
GI = gastrointestinal

GERIATRIC ASSESSMENT

GOALS
❏ appraisal of health and social status
❏ focus on improving function
❏ generate management plan
- medical illness, risk factors, problem list, proposed interventions, prevention and health promotion strategies

COMPONENTS OF A GERIATRIC ASSESSMENT
❏ contains: history, complete physical exam, mental status exam (MSE)

HISTORY
❏ from patient and corroborative sources (e.g. family, friends, police, referral source)

History of Present Illness
❏ often multiple issues and non-specific symptoms
❏ one decompensating factor may have many manifestations
❏ determine impact on function

Past Medical History
❏ obtain past medical records for comparison
❏ note impact of past illnesses on patient's overall function
❏ screen for psychiatric illnesses such as depression, anxiety, psychosis

Medications
❏ over-the-counter drugs (OTC), herbal medications, borrowed drugs and out-of-date prescriptions should be included
❏ determine why drugs are being used and if they are effective
❏ a number of medications commonly prescribed for the elderly may cause depression, confusion, and/or delirium
❏ remove unused, outdated and ineffective drugs
❏ ask about vaccination status

Social History
❏ screen for social isolation, suitability and safety of home, substance abuse
❏ financial status, educational and occupational history (helps in the interpretation of cognitive tests)
❏ caregiver status
- primary caregiver's health and responsibilities
- assess for caregiver burnout and elder abuse

❏ note support structures and services

Functional Assessment
❏ ADL (Activities of Daily Living)
- self care: eating, dressing, grooming, toileting, bathing
- transfers: bed, bath, chair
- ambulating: stairs, in and out of house, use of aids

❏ IADL (Instrumental Activities of Daily Living): **SHAFT**
- **S:** Shopping
- **H:** Housekeeping
- **A:** Accounting/Ability to manage finances
- **F:** Food preparation
- **T:** Transportation: i.e. driving, public transportation

Geriatric Giants (see Common Medical Problems of the Elderly section)
❏ Falls
❏ Confusion
❏ Incontinence
❏ Polypharmacy

PHYSICAL EXAMINATION
❏ organize yourself so there is minimal repositioning of the patient
❏ general
- observe the patient's ability to undress and dress, transfer to the examining bed, and ambulate
- personal functional level (assess ADLs, ambulatory aids, etc.)
- may include assessment of home environment

❏ record weight and height (loss may indicate osteoporosis)
❏ vital signs (check for orthostatic changes in blood pressure)

- ❏ head and neck
  - visual acuity
  - screen for cataracts, macular degeneration, and glaucoma
  - assess hearing
  - look for ear wax (wax impaction can result in a 30% conductive hearing loss)
  - look for dryness, dental and periodontal problems, and oral cancers
  - Tip: Ask patient to remove dentures when examining the mouth
  - thyroid
- ❏ cardiorespiratory
  - auscultate for carotid bruits, murmurs (e.g. aortic sclerosis and aortic stenosis), extra heart sounds (valvular and myocardial pathology), and rhythm (e.g. atrial afibrillation, heart block)
  - chest configuration (kyphosis)
- ❏ abdomen
  - urinary retention
  - abdominal aortic aneurysm (AAA)
  - hernial orifices
  - rectal examination/prostate
- ❏ pelvic
  - cystocele, rectocele
  - atrophic vaginitis
- ❏ skin
  - rashes, pressure sores, leg ulcers/edema
- ❏ musculoskeletal
  - range of motion of joints, especially hips and shoulders
  - foot hygiene, deformity, assess need for chiropody
- ❏ neurologic
  - gait, balance, and transfers
  - position and vibration sense
  - primitive reflexes

MENTAL STATUS EXAM (see <u>Psychiatry</u> Chapter)

- ❏ Folstein Mini-Mental Status Exam (MMSE) (if scores < 25/30, suspect dementia)
- ❏ Geriatric Depression Scale, or screening question: "Do you often feel sad or depressed?"

INVESTIGATIONS

- ❏ the following yield a high proportion of abnormal results in an ambulatory clinic of elderly persons
  - CBC, glucose, BUN, creatinine
  - vitamin B_{12}, TSH

PROBLEM LIST

- ❏ include both short-term and long-term problems
- ❏ serves as a checklist for the physician to
  - monitor outcomes
  - re-evaluate medical/functional status
  - create up-to-date care plans

DRIVING COMPETENCY

REPORTING

- ❏ inform patient that they are unfit to drive —> report to Registrar of Motor Vehicles —> decision made by the Motor Vehicle Licensing Authority —> appeal
- ❏ objective comprehensive testing of driving ability at an Ontario Driver Testing Centre ($250-$500); not covered by OHIP but medical expense for income tax purposes

CONDITIONS THAT MAY IMPAIR DRIVING

Visual Impairment

- ❏ reduced night vision, cataracts, visual processing impairment
- ❏ visual processing involves the combination of visual sensory function, visual processing speed and visual attention skills
- ❏ recommended corrected visual acuity not less than (20/50 = 6/15) with both eyes examined together as well as an adequate continuous field of vision —> determined by ophthalmologist/optometrist

Hearing Loss

- ❏ use car mirror to compensate
- ❏ caution with hearing aids that can amplify ambient vehicle noise and block out other sounds
- ❏ patients with vestibular diseases should not drive

Cerebrovascular Conditions
- single syncopal episode not yet diagnosised (NYD) - no driving x 1 month except vasovagal syncope
- transient ischemic attack (TIA) - no driving until investigated and management
- completed stroke - no driving x 1 month, resume if minimal residual effects but require regular monitoring +/– comprehensive testing
- vascular dementia - changed alertness, decision-making ability or personality

Mental Deterioration
- MMSE < 24: no driving until complete neurologic assessment
- MMSE > 24 + poor judgment, abstract thinking, poor insight: evaluate for driving ability

Musculoskeletal (MSK)
- reduced coordination, muscle strength and limited ROM

Cardiovascular (CVS)
- undergo cardiac reassessment every two years
- NYHA IV (symptoms at rest), >/= 70% narrowing —> unfit to drive
- coronary angioplasty: no driving x 48 hours
- acute MI, unstable angina, CABG: no driving x 1 month
- stable angina pectoris, suspected asymptomatic CAD, HTN —> ok to drive

Drugs and Alcohol
- analgesics (codeine-containing, narcotics); ophthalmic preparations; antidepressants (TCA); sedatives, anxiolytics (barbiturates, BZD); antiemetics; skeletal muscle relaxants; antihistamines; antipsychotics etc.

Diabetes Mellitus
- if type 2 and compliant —> ok to drive
- if type 1 and compliant and no alcohol/drug abuse or severe hypoglycemic episodes in last 6 months —> ok to drive
- if type 1 and noncompliant or unstable metabolic control —> no driving x 6 months

Postoperative
- conscious sedation, out patient —> no driving x 24 hours
- general anesthesia, out patient —> no driving at least several days

COMMON MEDICAL PROBLEMS OF THE ELDERLY

FALLS
- 1/3 of elderly in the community, 20% of hospitalized and 45% of elderly in long-term institutions
- most common cause of accidents and mortality due to injury in the elderly
- 15-50% mortality one year after admission to hospital for fall

Etiology
- extrinsic
  - environment: ground surfaces, lighting, stairs, furniture, footwear
  - medications: sedatives, anticholinergics, neuroleptics, antihypertensives, diuretics, alcohol, subtherapeutic levels of anti-convulsants
  - elder abuse
- intrinsic (see Cardiology Chapter, Syncope section)
  - cardiovascular: myocardial infarction (MI), arrhythmia, orthostatic hypotension
  - neurologic: sensory impairment (visual, auditory, vesticular and proprioceptive function), stroke, TIA, dementia, Parkinson's, seizures, cerebellar degeneration, vitamin B_{12} deficiency
  - gastrointestinal: bleeding, diarrhea, malnutrition
  - metabolic: hypoglycemia, anemia, dehydration, electrolyte imbalance
  - musculoskeletal: myositis, muscle weakness, arthritis
  - genitourinary: incontinence, micturition syncope
  - psychological: depression, anxiety

Complications of Falls
- head injury resulting in subdural hematoma
- fractures (hip, Colles' fracture, compression), especially in patients with osteoporosis
- soft tissue injuries with a decrease in function
- more falls
- anxiety about falling resulting in self-protective immobility (see Immobility section)
- poor perception of personal health
- decline in cognitive status

History
- ❏ location and activity at time of or near fall (e.g. coughing, urinating, straining), witnesses
- ❏ associated symptoms: dizziness/light headedness, palpitations, dyspnea, chest pain, weakness, confusion, loss of consciousness, preceding aura, incontinence, GI symptoms (bleeding, diarrhea, vomiting)
- ❏ injuries resulting from falls, including head injury
- ❏ previous falls, weight loss (malnutrition)
- ❏ past medical history (heart disease, diabetes, seizure disorder), medications, alcohol/drug use
- ❏ assessment of home environment – 50% of falls attributed to extrinsic factors
- ❏ functional status (ADLs)

Physical Examination
- ❏ complete physical exam with emphasis on
  - Vitals: orthostatic changes in heart rate and blood pressure, weight
  - Cardiac: jugular venous pressure (JVP), arrhythmias, murmurs, carotid bruits
  - Neurologic: level of consciousness, vision, hearing, cranial nerves, muscle power and symmetry, deep tendon reflexes, sensation, gait and balance, walking, turning, getting in/out of a chair, Romberg test and sternal push, cognitive screen (if appropriate)
  - Abdominal exam including digital rectal exam (DRE)
  - Musculoskeletal: assess for injury secondary to fall, degenerative joint disease, podiatric problems, poorly fitting shoes

Investigations
- ❏ directed by history and physical exam
- ❏ common tests
  - CBC, lytes, BUN, creatinine, blood glucose, calcium
  - TSH, vitamin B_{12}, ESR
  - Urinalysis
  - cardiac enzymes, ECG
  - stool for occult blood
  - CT head

Management
- ❏ most falls in the elderly have multiple causes, thus requiring multidisciplinary assessment and multiple therapeutic modalities
- ❏ social work, O.T. (occupational therapy) and P.T. (physiotherapy) referrals may be required
- ❏ treat underlying cause(s) and any known complications
- ❏ modify risk factors: reassess medications, need for mobility aids, environmental factors
- ❏ educate patient and family members about: nutrition, exercises to improve balance and gait

IMMOBILITY
- ❏ complications associated with immobility
  - deep vein thrombus (DVT), pulmonary embolus, pneumonia
  - pressure ulcers
  - muscle deconditioning and atrophy, contractures
  - loss of coordinated balance and righting reflexes
  - dehydration, malnutrition
  - constipation, fecal impaction, urinary incontinence
  - depression, delirium, loss of confidence

Management
- ❏ prevention: reposition patient periodically, inspect the skin frequently, active and passive range of motion (ROM) exercises
- ❏ treat the underlying cause
- ❏ environmental factors: handrails, lower the bed, chairs at proper height with arms and skid guards, assistive devices
- ❏ to maintain and improve function and independence
- ❏ a multidisciplinary team sees patients either at home or on site

URINARY INCONTINENCE
- ❏ estimated prevalence 30% of community-dwelling and 75% of institutionalized seniors
- ❏ frequently accepted, under-reported and under-treated, can lead to isolation
- ❏ many causes of incontinence are treatable (see <u>Urology</u> Chapter)
- ❏ mnemonic: **DRIP**
  - **D:** Delirium/ Diabetes/ Drugs (long-acting sedatives, anticholinergics, diuretics)
  - **R:** Restricted mobility/ Retention (neurogenic detrusor impairment)
  - **I:** Infections (UTIs)/ Impaction of stool
  - **P:** Psychological/ Post-menopausal effects (prolapse)/ Prostate

DELIRIUM, DEPRESSION, AND DEMENTIA (see Psychiatry Chapter)

ELDER ABUSE

- 4% in Canada are victims of abuse or neglect
- only 15% of abuse is reported
- perpetrators are often individuals upon whom the older person is dependent

Risk Factors

- dependency
- lack of close family ties
- culture of family violence
- lack of financial resources
- lack of community support
- 5 types of elder abuse
  - physical
  - psychological
  - financial
  - neglect
  - sexual
- RED FLAGS for elder abuse
  1. history
     - conflicting history from patient and caregiver
     - denial or vague explanation of injuries
     - long delay between injury and seeking treatment
     - "accident-prone"
  2. physical examination
     - unusual trauma
     - signs of hair pulling/human bites
- insufficient evidence to include/exclude screening for elder abuse as part of Periodic Health Exam (C recommendation)

FAILURE TO COPE

Definition

- a loss of energy, weight, strength, and the ability to perform personal and instrumental activities of daily living

Contributing Factors

- medical
  - cancer
  - endocrine (e.g. diabetes mellitus, hypothyroidism)
  - organ failure (e.g. cardiac, respiratory, hepatic, renal)
  - gastrointestinal (swallowing problems, malabsorption)
  - chronic infections
  - inflammation (e.g. arthritis)
  - iatrogenic (adverse effects of drugs)
- psychological
  - depression
  - dementia (difficult to obtain or prepare food)
  - psychosis
  - grief
- functional
  - immobility
  - neurologic (e.g. stroke or parkinsonism)
  - deafness
  - blindness
  - dental problems
- social
  - isolation (e.g. widows, widowers, no family or friends)
  - poverty
  - caregiver fatigue
  - neglect
  - abuse

History

- gastrointestinal (swallowing, vomiting, digestion, constipation, diarrhea)
- change in residence
- poverty
- ADLs and IADLs
- abuse
- MMSE

Physical Examination
- ❏ calculate body mass index (BMI)
- ❏ complete examination of all organ systems

Investigations
- ❏ conduct appropriate work-up to confirm or rule out any of the above medical etiologies

Management
- ❏ directly treat medical causes
- ❏ improve body composition by exercise and appropriate food intake
- ❏ food supplement or external feeding
- ❏ appetite stimulants and flavour enhancers
- ❏ physiotherapy, occupational therapy, and aids for functional deficits
- ❏ counselling, social services (e.g. Meals-on-Wheels), and nursing homes

MALNUTRITION
- ❏ be concerned with involuntary weight loss of 10% in last 6 months

Risk Factors
- ❏ sensory decline
- ❏ poor oral hygiene
- ❏ disease
- ❏ medications: polypharmacy, drug-nutrient interactions
- ❏ social isolation
- ❏ poverty
- ❏ substance abuse (EtOH)

Management
- ❏ monitor height and weight
- ❏ reassess medications
- ❏ community services: Meals-on-Wheels, home care, congregate dining
- ❏ dietitian, social work, occupational therapy

HAZARDS OF HOSPITALIZATION
- ❏ end result of hospitalization of many elderly patients is nursing home placement

Table 3. Hazards of Hospitalization

Environment	Hazard	Sequelae
High Bed and Rails	Immobilization Unfamiliar environment	Deconditioning, falls, dependency for daily functions Urinary incontinence (may lead to catheter use and family rejection)
Bed Rest	Reduced plasma volume Accelerated bone loss Immobilization Being moved up in bed	Syncope, dizziness, falls and fracture Increased fracture risk Pressure sores, infection High shearing forces on fragile skin
Isolation	Decreased sensory input	Delirium (or false labelling, leading to physical or chemical restraints)
Eating in Hospital	Unappealing therapeutic diets Difficulty eating in bed Misplaced dentures	Malnutrition, dehydration

- ❏ recommendations
  - encourage ambulation (low beds without rails)
  - reality orientation (clocks, calendars)
  - increased sensory stimulation (proper lighting, eyeglasses and hearing aids)
  - team management, early discharge planning

POLYPHARMACY

- ❑ greater burden of chronic illnesses leads to more drug utilization
- ❑ Adverse Drug Reactions (ADRs)
  - the elderly hospitalized are given an average of 10 drugs over admission
  - important age-associated complications
    - upper GI bleeding secondary to NSAIDs
    - hip fracture after falling secondary to psychotropic drugs
  - 90% of ADRs from the following: ASA, other analgesics, digoxin, anticoagulants, diuretics, antimicrobials, steroids, antineoplastics, hypoglycemics
- ❑ drug interactions
  - drug-drug, drug-disease, drug-nutrient risk factors
    - multiple drugs: adverse reaction rate is 5% for fewer than 6 drugs but > 40% with over 15 drugs
    - changes in pharmacokinetics and pharmacodynamics
  - especially watch for drugs that act on or are acted upon by P450 enzymes
- ❑ non-compliance
  - risk is not as age-related as it is drug-related (number, dosing frequency)
  - compliance with one drug up to 80% but only 25% with four drugs
  - high risk because of multiple:
    - physicians
    - drugs and doses
    - diseases (especially congestive heart failure, hypertension, diabetes mellitus, renal disease)
  - important consequences
    - disease relapse
    - adverse effects
    - increased hospitalizations and medical costs
  - bubble packs or dosette systems can improve proper drug use

Optimal Pharmacotherapy

- ❑ be informed of
  - presenting symptoms
  - detailed and updated medication history and allergies
  - patient's financial situation/drug benefit coverage
  - patient's views on taking medication
  - history of dysphagia
- ❑ medication information needed
  - clinical pharmacology and side effects of the drug
- ❑ other principles
  - educate the patient and the caregiver about the medication
  - have a simple treatment regimen
  - prescribe liquid formulations when necessary
  - review medications regularly (discontinue if unnecessary)
  - new symptoms and illnesses may be caused by a drug
- ❑ NB: not only are the elderly sometimes given too many drugs, they are also often undertreated (e.g. beta blockers, ASA, thrombolytics, coumadin)

GERIATRIC PHARMACOLOGY

- ❑ see Clinical Pharmacology Chapter
- ❑ physiologic changes associated with aging affect pharmacodynamics and pharmacokinetics

PHARMACOKINETICS

Absorption

- ❑ unaltered in patients with an intact gastric mucosa

Distribution

- ❑ decreased body water content
  - increased serum concentration + longer activity of water soluble drugs
- ❑ increased body fat
  - longer pharmacological activity of highly lipid soluble drugs
- ❑ decreased serum albumin
  - more free drug available with highly protein bound drugs
- ❑ increased α1glycoprotein (an acute phase reactant)
  - enhanced binding of basic drugs (lidocaine)

Metabolism

- ❑ function of the microsomal mixed-function oxidative system declines with age, resulting in decreased metabolism of drugs
- ❑ conjugative processes do not appear to be altered
- ❑ decreased hepatic size and blood flow may reduce drug metabolism even if LFTs are normal

Elimination

- ❏ beginning in the fourth decade of life, there is a 6-10% reduction in GFR and in renal blood flow (RBF) every 10 years
- ❏ a decline in creatinine due to a decline in muscle mass may mask the reduction in GFR
- ❏ reduced tubular excretion
- ❏ hypertension is common and can reduce renal function
- ❏ drugs eliminated primarily by renal excretion should be dosed differently: for every X% clearance reduction, dose often decreased by X% and interval increased by X%
- ❏ common drugs eliminated primarily by the kidneys
  - digoxin, beta-blockers, ACE inhibitors
  - aminoglycoside antibiotics, lithium
  - NSAIDs, H_2-blockers

PHARMACODYNAMICS

- ❏ increased tissue sensitivity to drugs acting on the CNS (such as sedative hypnotics and oralgesics), anticholinergics, and warfarin
- ❏ decreased beta-receptor sensitivity to agonists and antagonists

END OF LIFE CARE

- ❏ team approach including physician, patient, family, nurse, volunteers, chaplains, social workers, etc.

DECISION MAKING

- ❏ issues to consider:
  - symptoms, function, and prognosis for survival
  - patient's values, concerns, and preferences
  - alternative approaches, their advantages and disadvantages
  - capacity of patient to decide, and identification of power of attorney
- ❏ preference to End Life – DNR (Do Not Resuscitate) order:
  - no artificial resuscitation including chest compressions, intubation, placement in intensive care unit (ICU)
  - yes to comfort measures including antibiotics, analgesics
  - ideally discuss these issues and the outcomes with patient in advance of significant decline in cognitive status
  - ask patient to involve next of kin in decision making process

SITE OF CARE

- ❏ hospitals are the most common site of death
- ❏ other options include inpatient palliative care unit, or at home with home care assistance

PALLIATIVE CARE

- ❏ the combination of active and compassionate therapies intended to comfort and support individuals and families who are dying from a progressive life-threatening illness
- ❏ should meet the physical, psychological, social and spiritual needs of patients and families

SYMPTOM MANAGEMENT

- ❏ functional issues: ambulatory aids and physiotherapy to enhance mobility, shower chairs and other equipment to aid with bathing
- ❏ pain: most feared symptom – acetaminophen, NSAIDs for mild pain, narcotic analgesics for more severe pain (see Table 4)
- ❏ dyspnea: oxygen – morphine for chronic dyspnea
- ❏ psychiatric symptoms: anxiety, depression, confusion, dementia
- ❏ gastrointestinal symptoms: nausea/vomiting, constipation, diarrhea
- ❏ anorexia: encourage oral intake to enhance strength and sense of well being, treat mouth pain, odynophagia and dysphagia

Table 4. Selected Opioid Analgesics Used in End of Life Care

Medication	Route	Starting dose	Length of action (hrs)
Codeine	PO	30-60 mg	3-4
Oxycodone	PO	5-10 mg	3-5
Hydromorphone	PO	1-2 mg	3-4
	PR	3 mg	4-6
Morphine	SL	5-10 mg	2-4
	sustained release PO	15-30 mg	8-12
	immediate release PO	10 mg	2-4
	solution (SL or PO)	10 mg/5 mL	2-4
	SC/IM/IV	2-10 mg	2-4
	PR	5-20 mg	2-4
Fentanyl	Transdermal	25 µg	72
Levorphanol	PO	1-2 mg	4-6

Meperidine (Demerol) is not included for the elderly because of its unpredictable length of action, active metabolites, high anticholinergic activity. Causes more delirium than other narcotics. It is still ordered despite being contraindicated.

BEREAVEMENT

- physician should participate in bereavement activities – telephone call or letter to family
- family should be made aware of bereavement programs available to them

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