

# Brokenness and Polio

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General Physician  
October 2011

# A New and Further Chapter in the Polio Story

Reflections from a limited service  
provider in a regional centre.



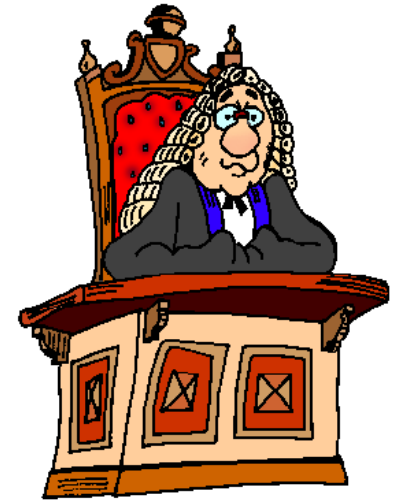
# The Fourteen Stations of Growing Old

A reflection on the purpose behind our care the disabled especially as they age



# I: Condemned to Grow Old

- ▶ No longer able to work
- ▶ Friends infirmed or deceased
- ▶ Limited finances
- ▶ Simple tasks like shopping become major undertakings
- ▶ People listen less to what I have to say



## II: Carrying the Cross of Age

- ▶ Constant pain from osteoarthritis and other comorbidities
- ▶ Nauseated from NSAIDs and other analgaesics
- ▶ Family concerns with divorce, division and dementia

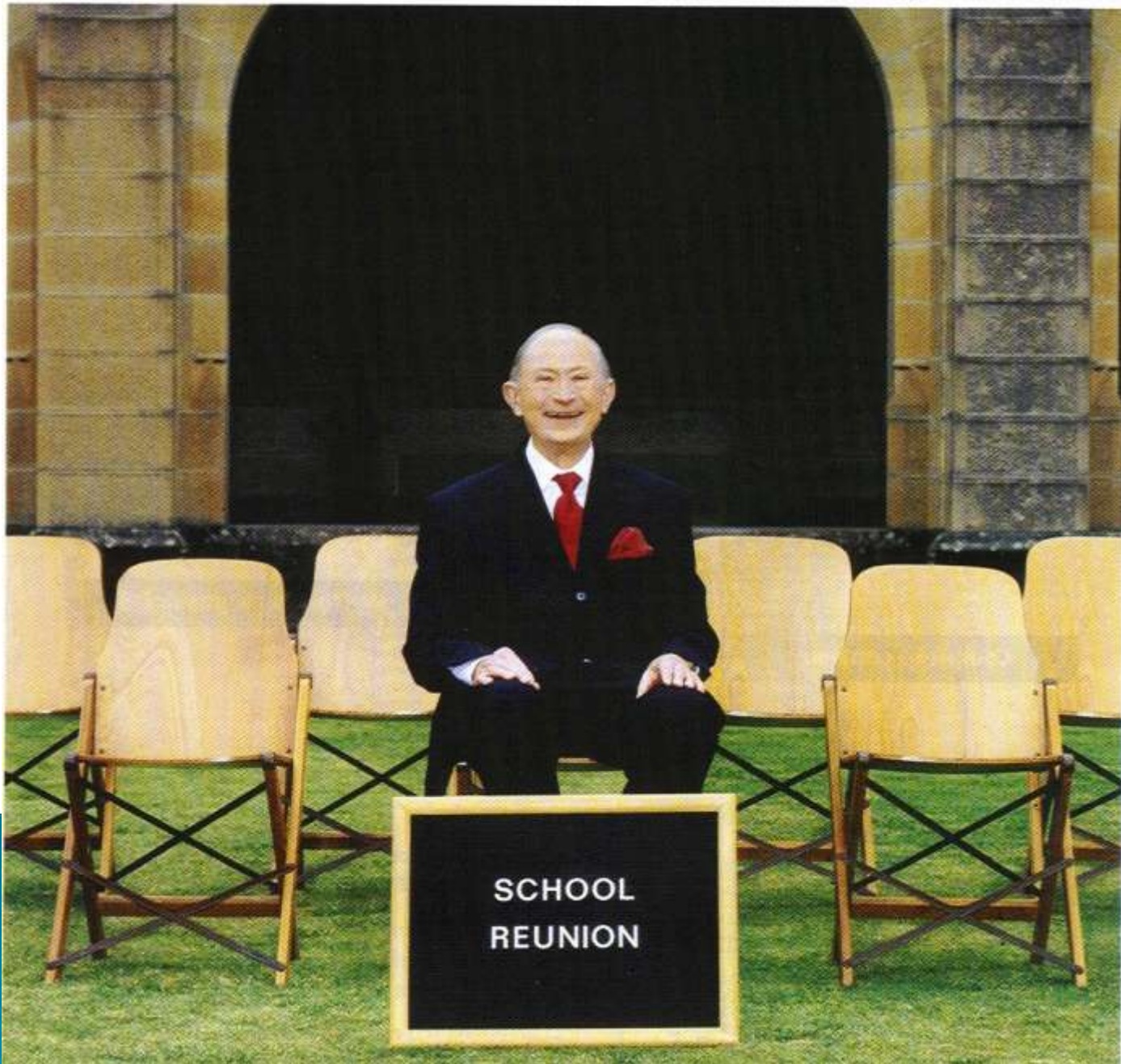


# III: I fall for the First Time

- ▶ Uncertain of stairs and inclines
- ▶ Bruised in the fall
- ▶ Housebound by fear of injury on public transport and in public places
- ▶ Extended family too busy to assist

# IV: Saying Goodbye to Old Friends

- ▶ Not many left of the old battalion at the Anzac Day march.
- ▶ Not as many of the other polio patients at the annual gathering.
- ▶ A daily reminder of life's end in the local paper obituaries
- ▶ Some Christmas cards never come again





# V: Someone Helps me Carry the Cross of Age

- ▶ Meals on Wheels
- ▶ Home nurses
- ▶ The neighbour starts to mow the lawn
- ▶ A church member drives me to my next doctors appointment
- ▶ Someone cares

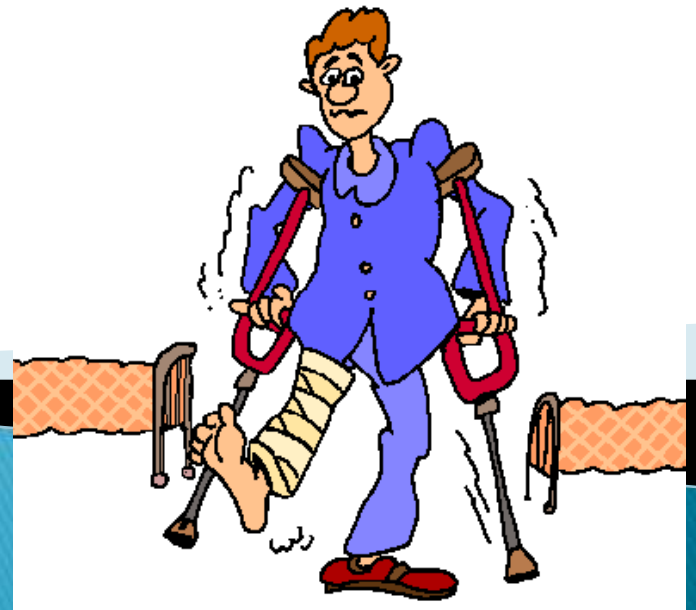


# VI: Someone wipes my face and tends to my wounds

- ▶ Loneliness hurts even more
- ▶ Someone , an old acquaintance, a nurse off duty , the bowls club sit and listen
- ▶ They look at the family album
- ▶ They weep as I weep, and though nothing changes I feel better

# VII: I Fall Again

- ▶ Fracture
- ▶ Fear
- ▶ Relocation
- ▶ Death?



# VIII: I Look Upon the Troubled World that does not Listen

- ▶ “Can the world afford , at the end of a century that has seen so much pain and suffering , to risk repeating the same mistakes and abuses of human rights again.”
- ▶ Nelson Mandela 6 May 1999

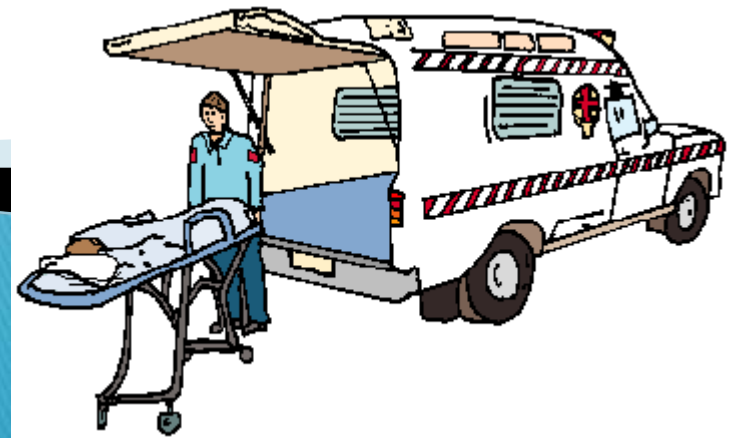
# IX: I Fall Again

- ▶ Too frail to resist the nursing home this time
- ▶ Too frail to really get up
- ▶ I stop going out
- ▶ Hardly anyone sees me now




# X: I am Stripped of my Clothes

- ▶ I cant bathe myself anymore
- ▶ I sit silently , naked , on the hard shower chair waiting my turn
- ▶ I hope Jean is there this morning ; at least she talks to me and is gentle



# XI: I am Nailed to the Cross

- ▶ Finally illness has come that I cannot escape
  - ▶ The needle of the drip that is changed each day hurts deeply as the doctor curses my decrepit skin
  - ▶ I know I am fading
- 

# XII: Death comes at Last

- ▶ Alone
- ▶ Quietly
- ▶ Unknown
- ▶ I die
- ▶ Why could you not just hold my hand?






# The Broken Body

By Jean Vanier

Do not be surprised at rejection by broken people.  
They have suffered a great deal  
At the hands  
Of the knowledgeable and the powerful—  
Doctors, psychologists, sociologists, social workers,  
politicians, the police and others.  
They have suffered so much from broken promises,  
From people wanting to learn from experiments  
Or to write a thesis  
And then, having gained what they wanted—\ votes,  
recognition. An impressive book or article—  
Going away and never coming back.

# Apology

- ▶ The task of assessment has been inadequate.
  - ▶ The process of evaluation has been limited.
  - ▶ The courage of your past and present has been undervalued.
  - ▶ The opportunities for treatment have been limited.
  - ▶ The future remains uncertain.
- 

# Albert Schweitzer

- ▶ The fellowship of those who bear the mark of pain.
  - “From the edge of the Primeval Forest”
  - AC Black, London

# 10 CHALLENGES IN Post- Polio CARE

CURRENT AND FUTURE ISSUES



# 10 Challenges in post-polio Care

- ▶ 1. Falls
- ▶ 2. Osteoporosis
- ▶ 3. Drugs
- ▶ 4. Comorbid disease
- ▶ 5. Delerium
- ▶ 6. Hospitalisation and Surgery
- ▶ 7. Dementia
- ▶ 8. Incontinence
- ▶ 9. The Law
- ▶ 10. Families



AUSTRALIA



PASSPORT

THIS PASSPORT CONTAINS  
32 PAGES.

CE PASSEPORT CONTIENT  
32 PAGES.

PASSPORT.  
PASSEPORT.

COMMONWEALTH OF AUSTRALIA.  
COMMONWEALTH D'AUSTRALIE.

NO. OF PASSPORT  
NO. DU PASSEPORT

**E 152788**

NAME OF BEARER  
NOM DU TITULAIRE

*Patrick ~~Alphons~~  
MOLAN*

ACCOMPANIED BY  
ACCOMPAGNE DE


CHILDREN  
ENFANTS

NATIONAL STATUS

NATIONALITE

Australian Citizen  
and  
a British Subject

# Background

- ▶ Aged care involves an increasing number of health care providers for complex co-morbidities in a variety of social settings.
  - ▶ Communication is the key to a patients “travel” through and between the various domains of health care.
  - ▶ Simplicity and utility of health care information are essential.
- 

## THE PATIENT HELD PASSPORT

- ❖ This portfolio is for patients and families.
- ❖ It is your personal record of your health care.
- ❖ You can include
  - Medication Lists
  - Doctors' Reports
  - Hospital Reports
  - Nurse Reports
  - Therapist Reports
- ❖ Please take it to **all** your medical appointments.
- ❖ Ask your Doctor to keep it up to date.
- ❖ If you ever need to come to Hospital, please make sure it is brought with you.

.....  
**THIS IS A JOINT PROJECT OF THE  
TOOWOOMBA HEALTH DISTRICT AGED CARE MANAGEMENT TEAM.**  
.....

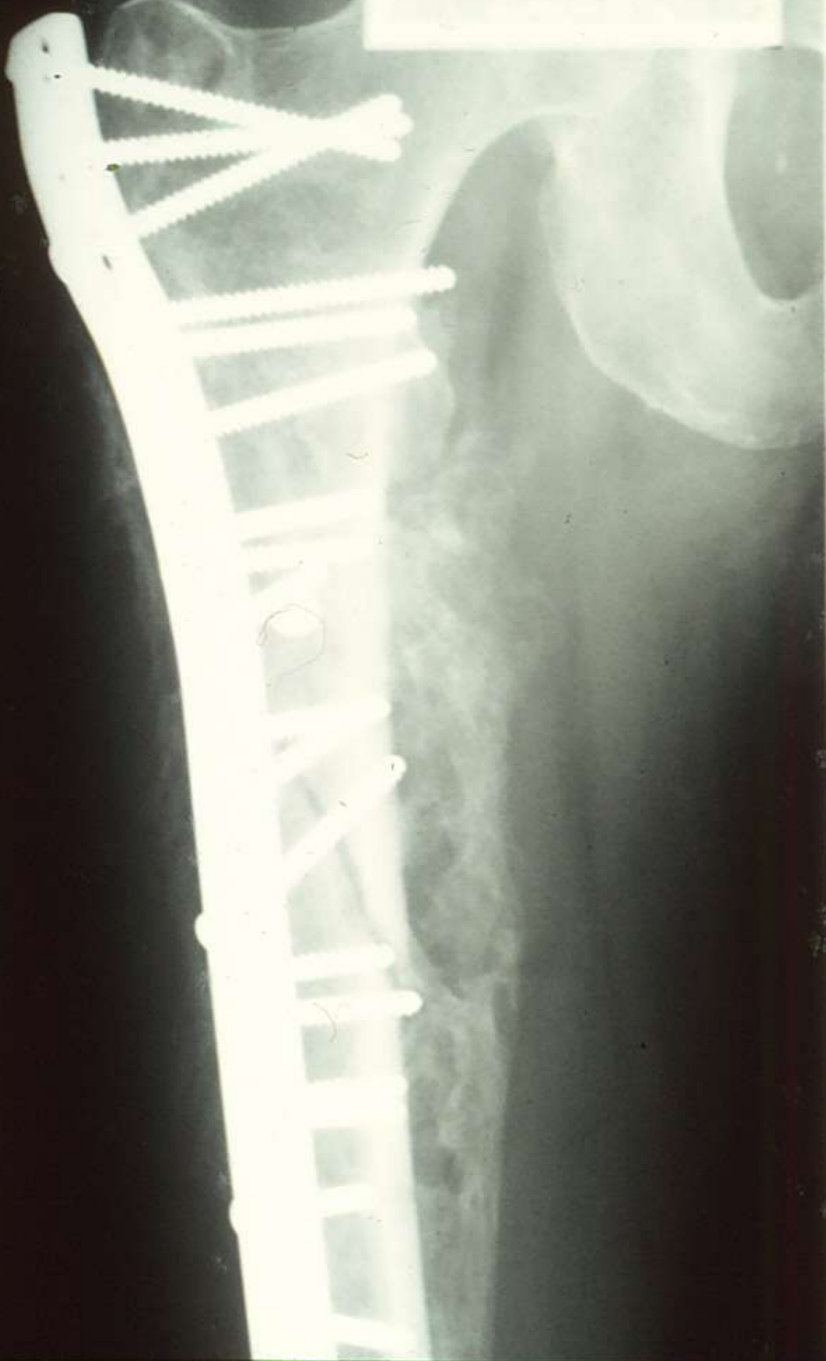


# Falls!









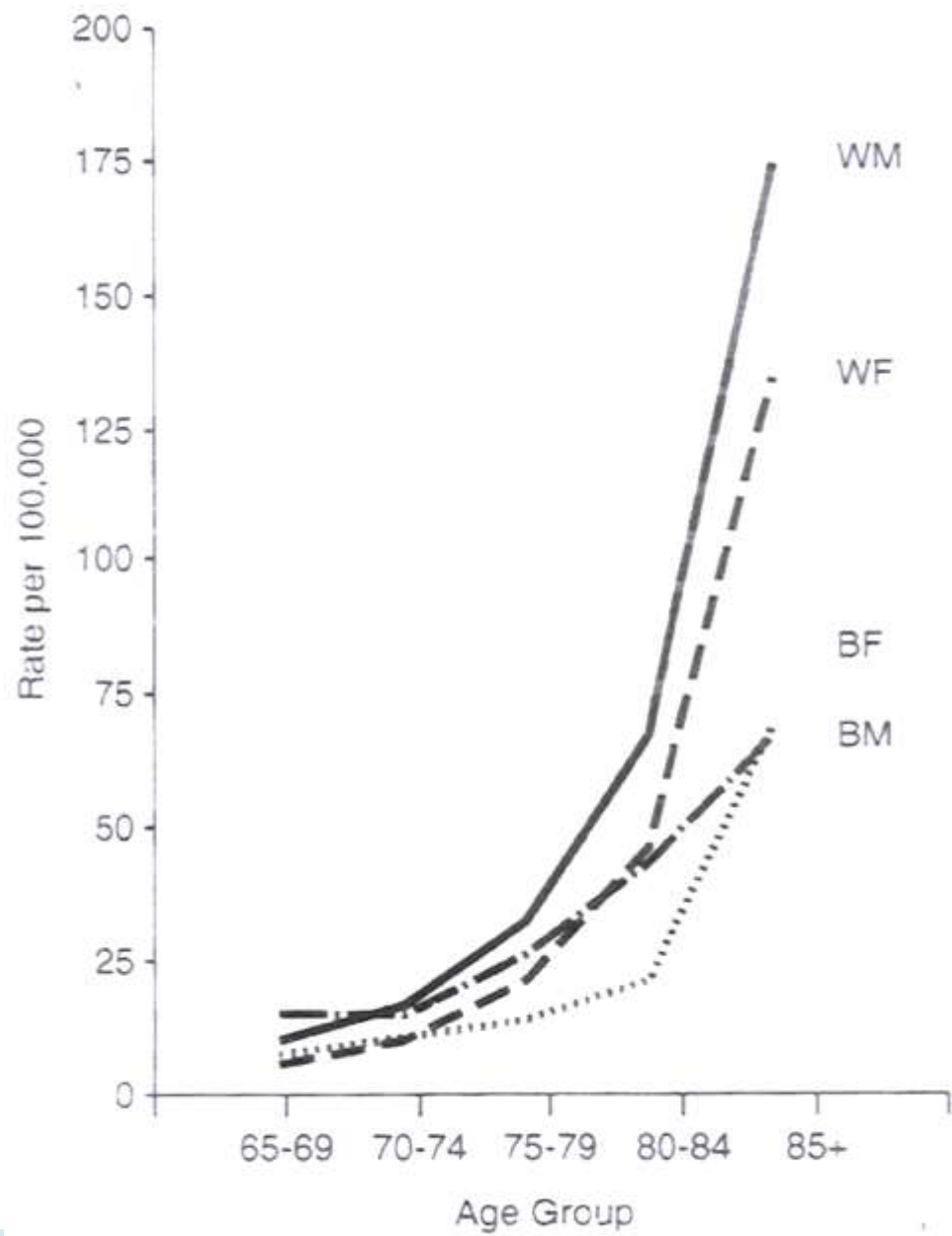
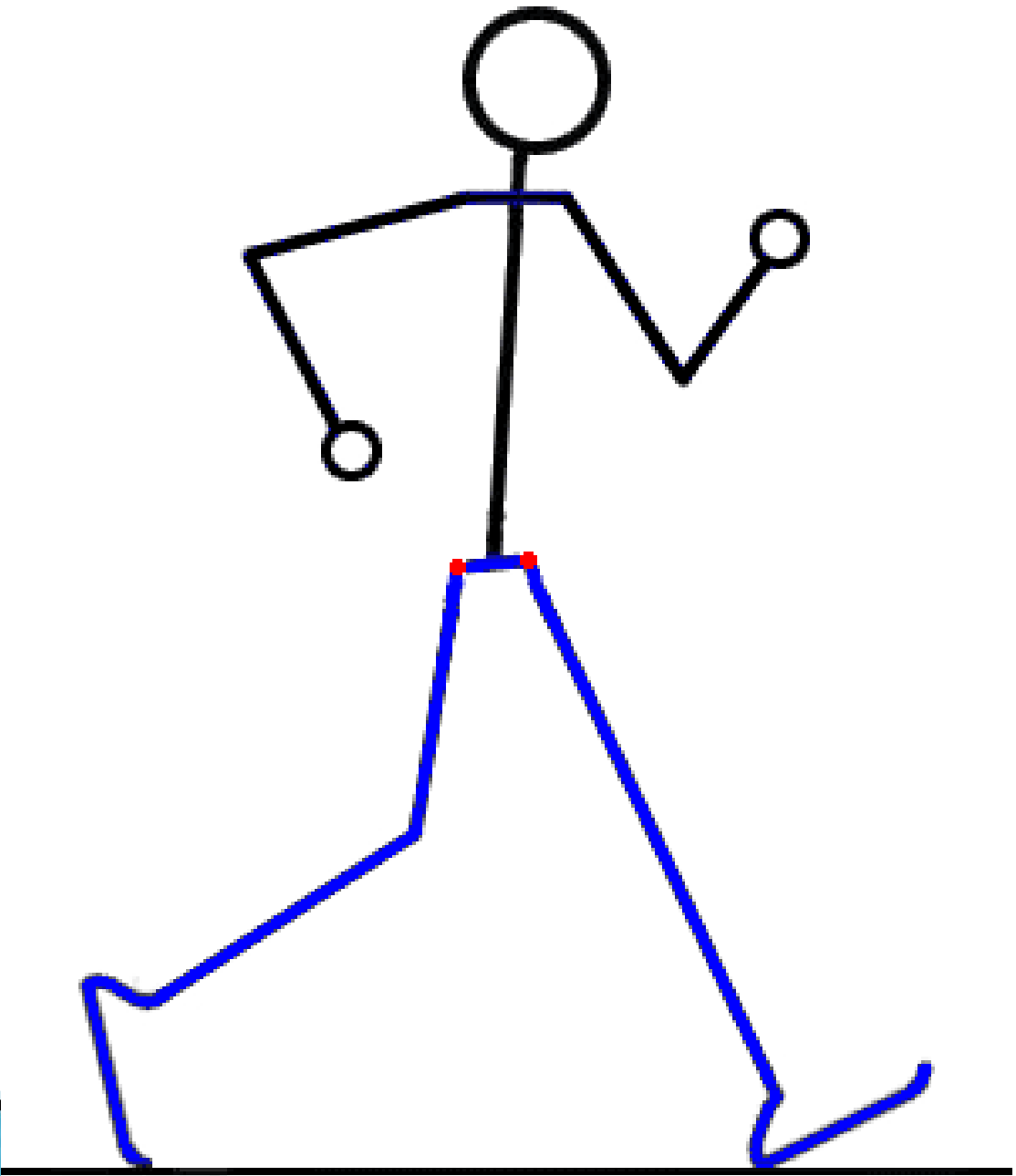
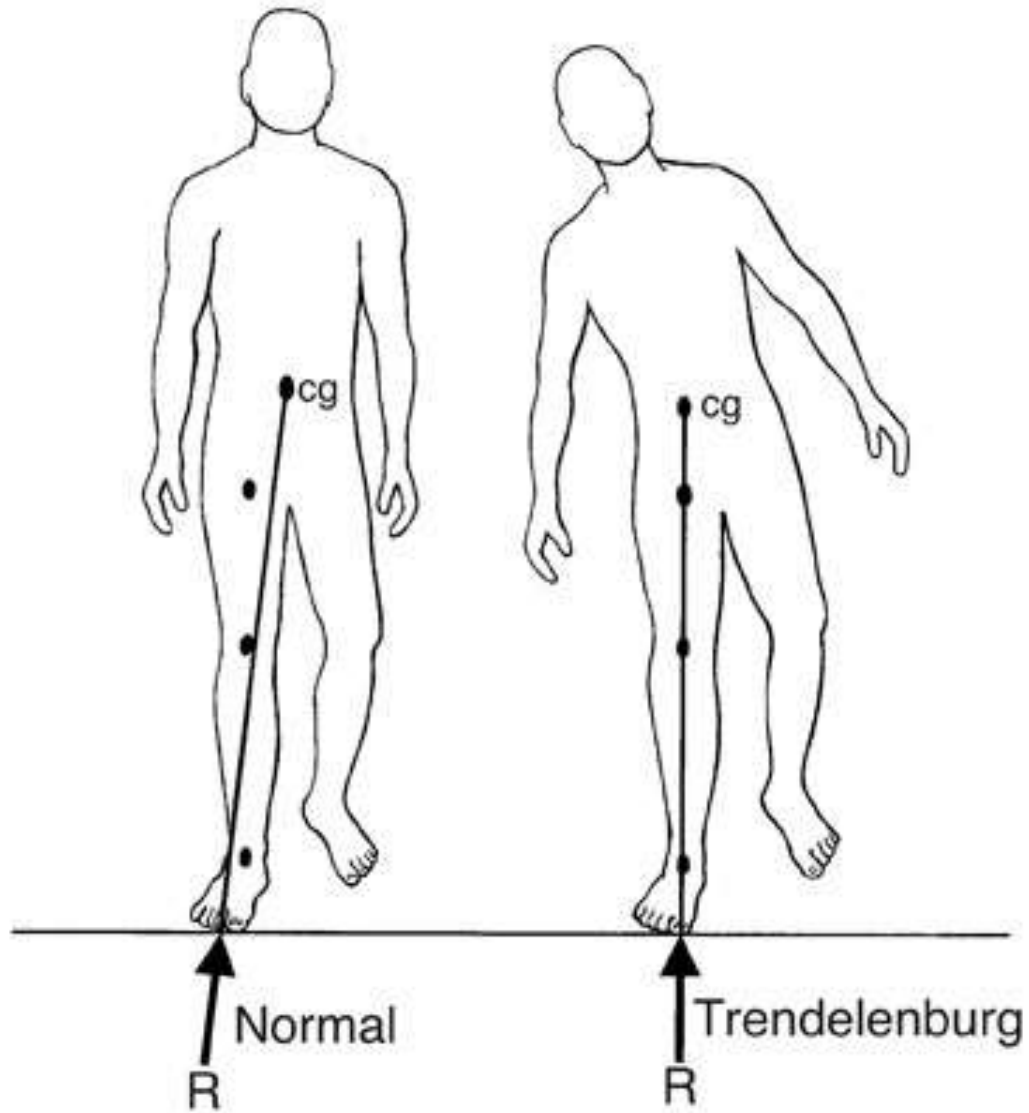


Figure 1 Fall death rates per 100,000 persons by age, sex, and race, United States, 1988





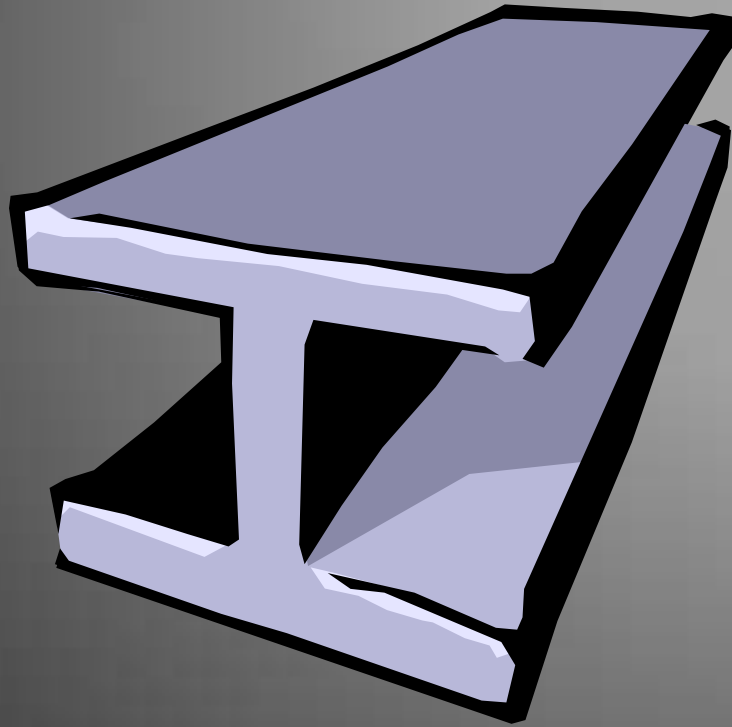
# Centre of Gravity Shift



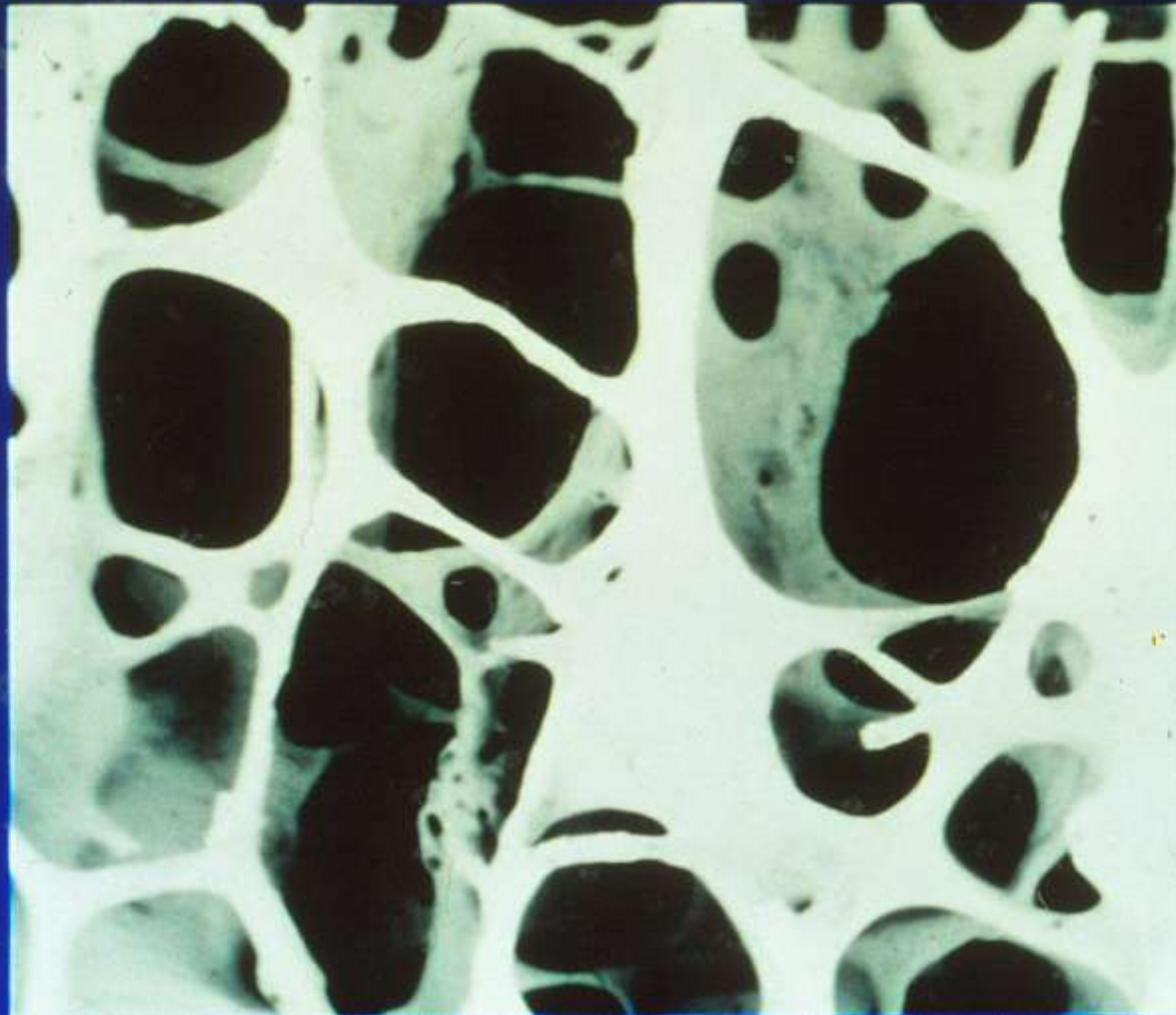




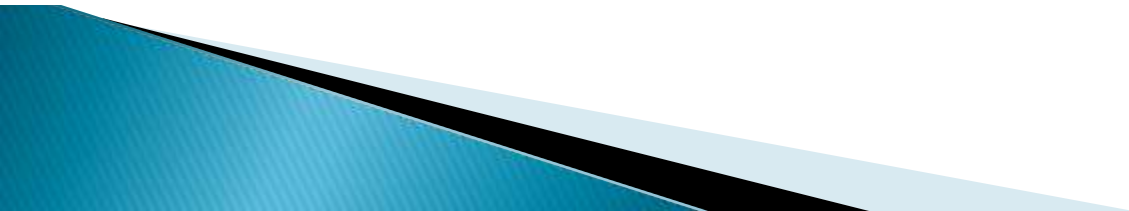
# Osteoporosis



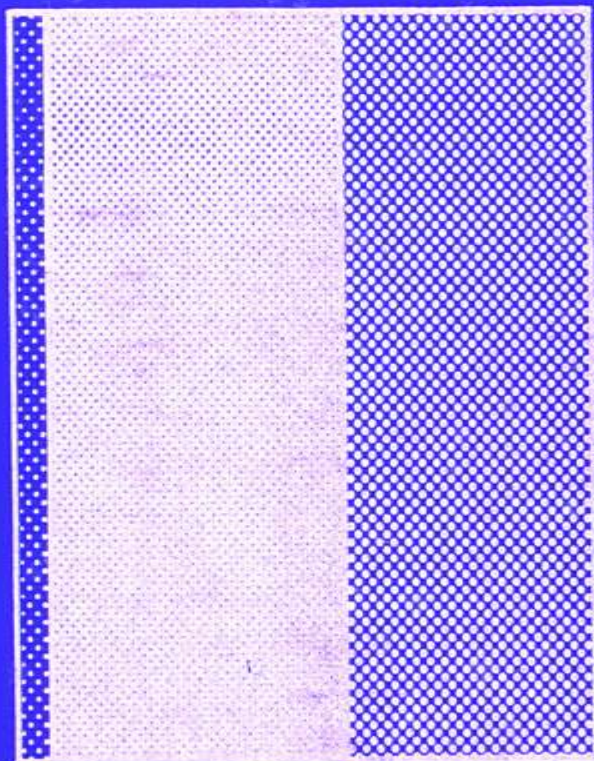
## Osteoporosis - trabecular bone



Fieldwidth:  
4.6 mm

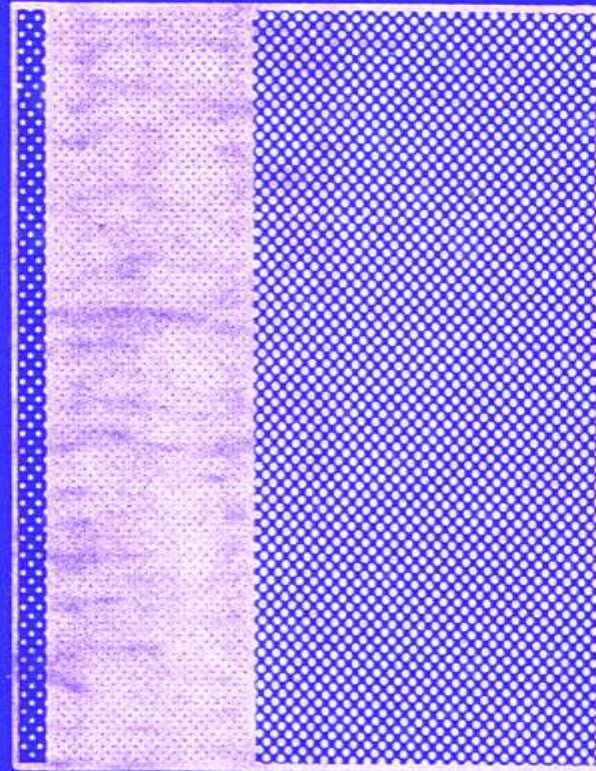


## 117 Normal bone components



-  Osteoid
-  Bone
-  Marrow

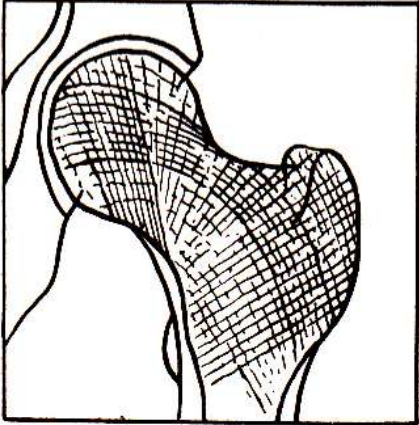
## 126 Osteoporosis – bone components



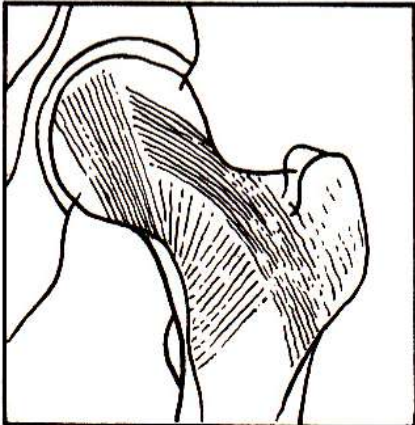
-  Osteoid
-  Bone
-  Marrow

# Trabecular Grading Patterns (Singh)

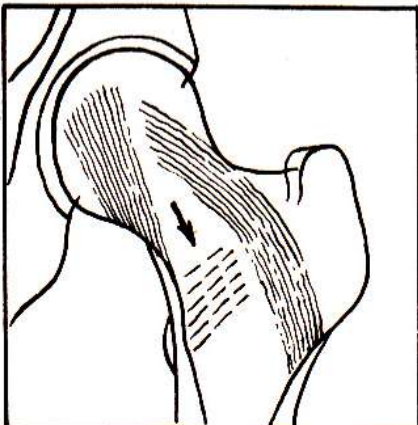
(Figure 2)



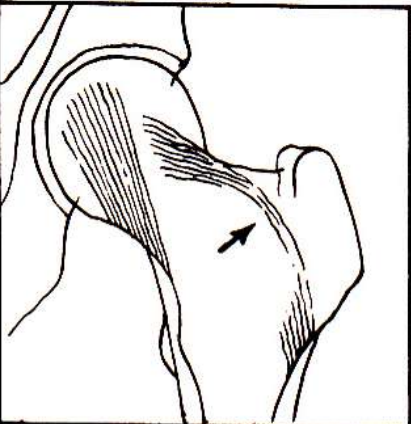
Grade 7 Normal



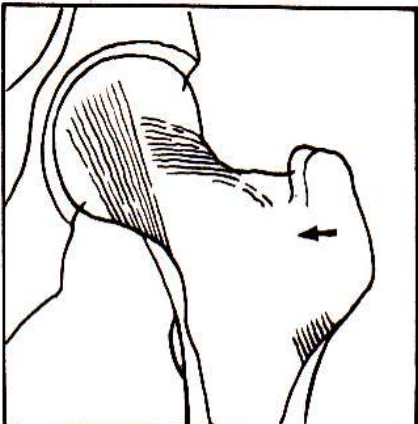
Grade 6



Grade 5



Grade 4



Grade 3

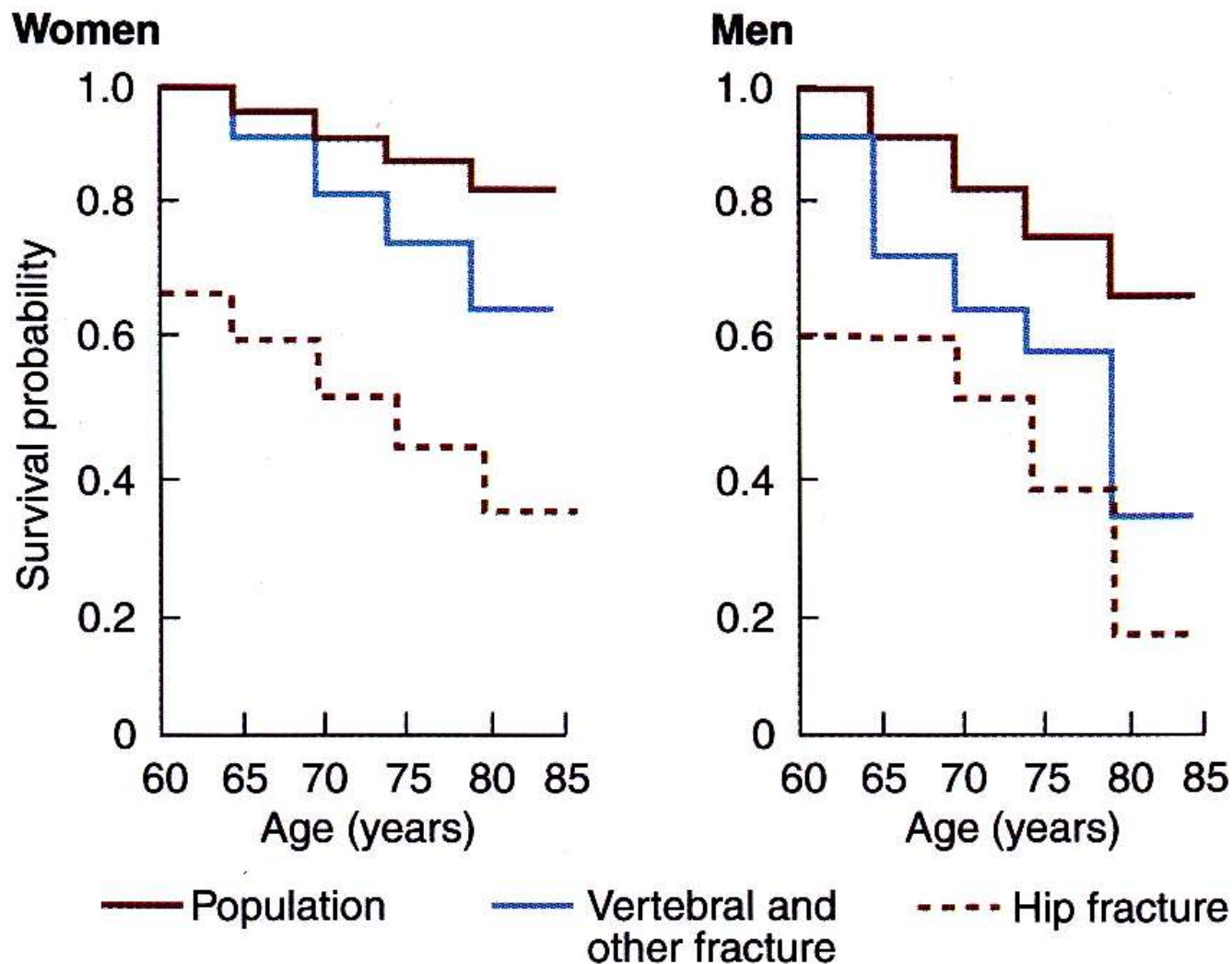


Grade 2



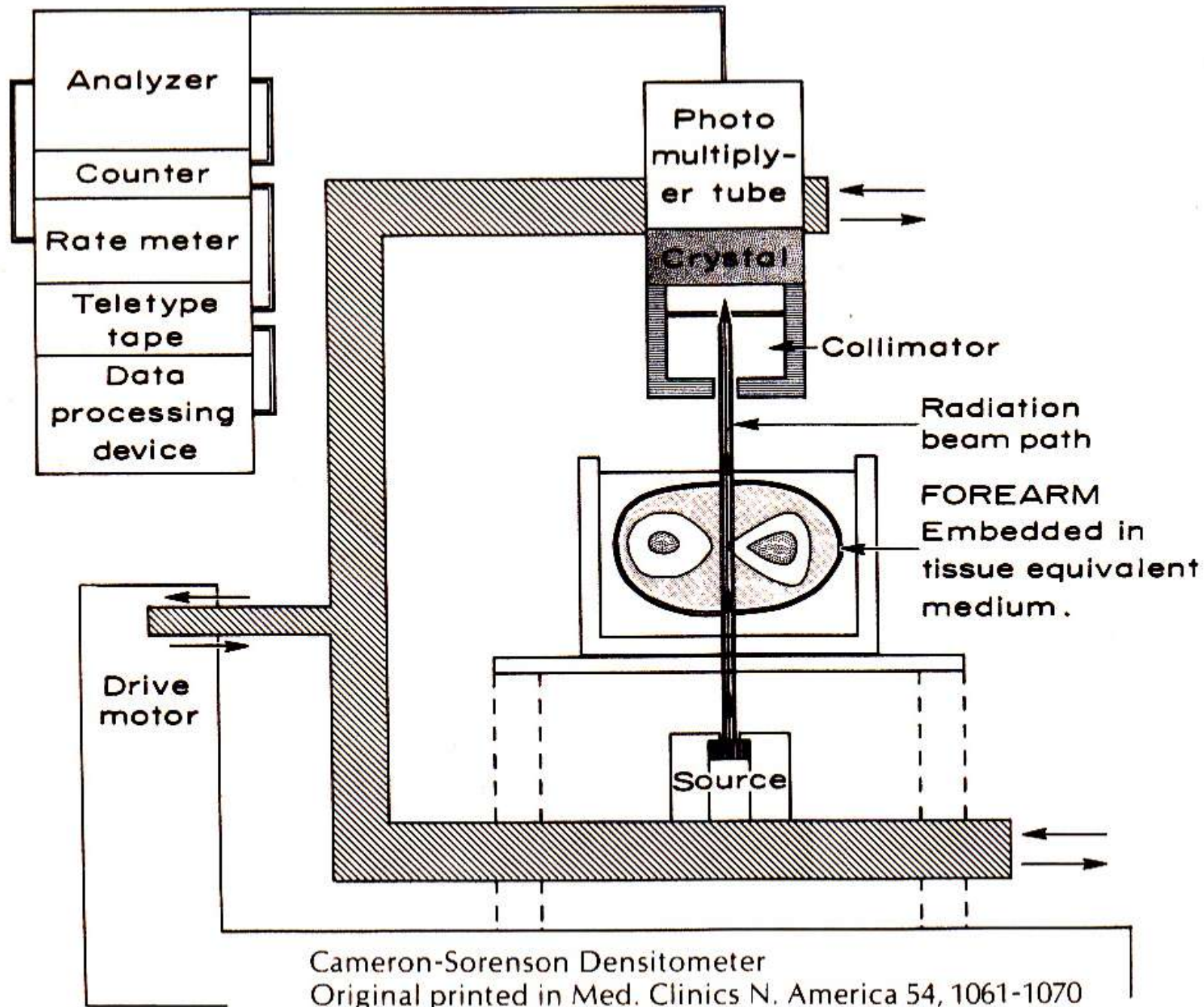
Grade 1

# 1: Cumulative survival probability after fracture



*Survival is reduced after any type of fracture, vertebral or non-vertebral, more so in men than women. (Figure reprinted from Center et al<sup>4</sup> with permission from Elsevier.)*





Cameron-Sorenson Densitometer

Original printed in Med. Clinics N. America 54, 1061-1070

Riggs B. J., Lowsey J., Kelly P. J., Wahner H. W., W. B. Saunders Co. Phila

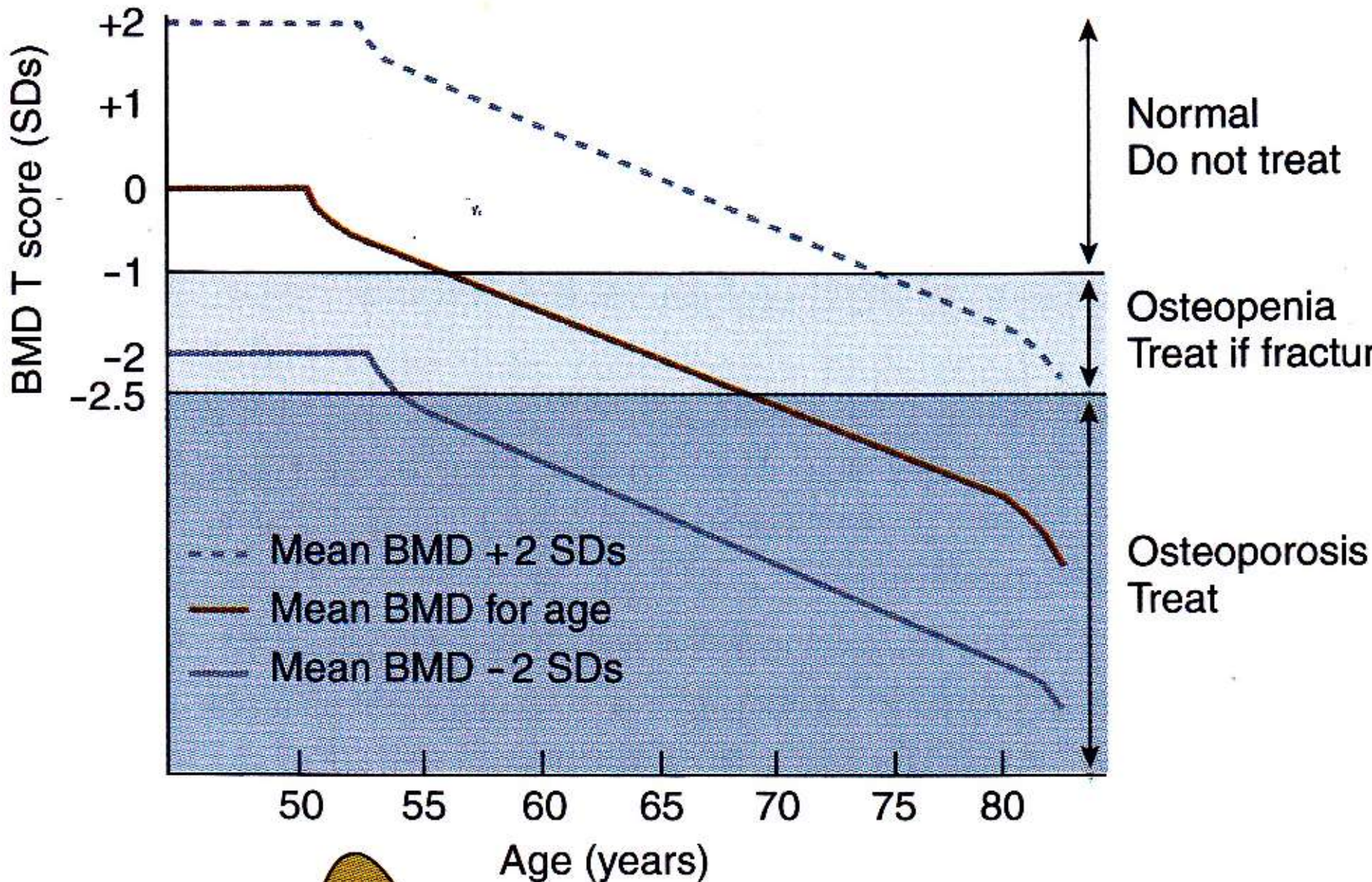
# Are your patients eligible for a rebate?

The government has set strict, complex rules that apply to rebates for bone mineral densitometry. Unfortunately, not all patients are eligible for a Medicare or DVA rebate. To be eligible for a rebate, patients must meet one of the following criteria:


Item number	Description
12323 <i>Time since previous bone mineral densitometry scan is not relevant.</i>	If performed for: <ul style="list-style-type: none"><li>▪ A person aged 70 years or over.</li></ul>
12306 <i>Must be at least 24 months since any previous bone mineral densitometry scan.</i>	If performed for: <ul style="list-style-type: none"><li>▪ 1 or more fractures occurring after minimal trauma (this can only be used once for each fracture); or</li><li>▪ Monitoring of osteoporosis proven by previous bone densitometry;</li><li>▪ Scan at least 2 years prior with Z score of -1.50 or lower, or T score of -2.50 or lower.</li></ul>
12312 <i>Must be at least 12 months since any previous bone mineral densitometry scan.</i>	If performed for: <ul style="list-style-type: none"><li>▪ Prolonged &amp; current glucocorticoid therapy (as per dose limits outlined in the MBS);</li><li>▪ Conditions associated with excess glucocorticoid secretion;</li><li>▪ Male hypogonadism; or</li><li>▪ Female hypogonadism lasting more than 6 months before the age of 45.</li></ul>
12315 <i>Must be at least 24 months since any previous bone mineral densitometry scan.</i>	If performed for: <ul style="list-style-type: none"><li>▪ Primary hyperparathyroidism;</li><li>▪ Chronic liver disease;</li><li>▪ Chronic renal disease;</li><li>▪ Proven malabsorptive disorders (eg. Coeliac or Crohn's disease);</li><li>▪ Rheumatoid arthritis; or</li><li>▪ Conditions associated with thyroxine excess.</li></ul>
12321 <i>Must be at least 12 months since any previous bone mineral densitometry scan.</i>	If performed 12 months following a significant change in therapy.



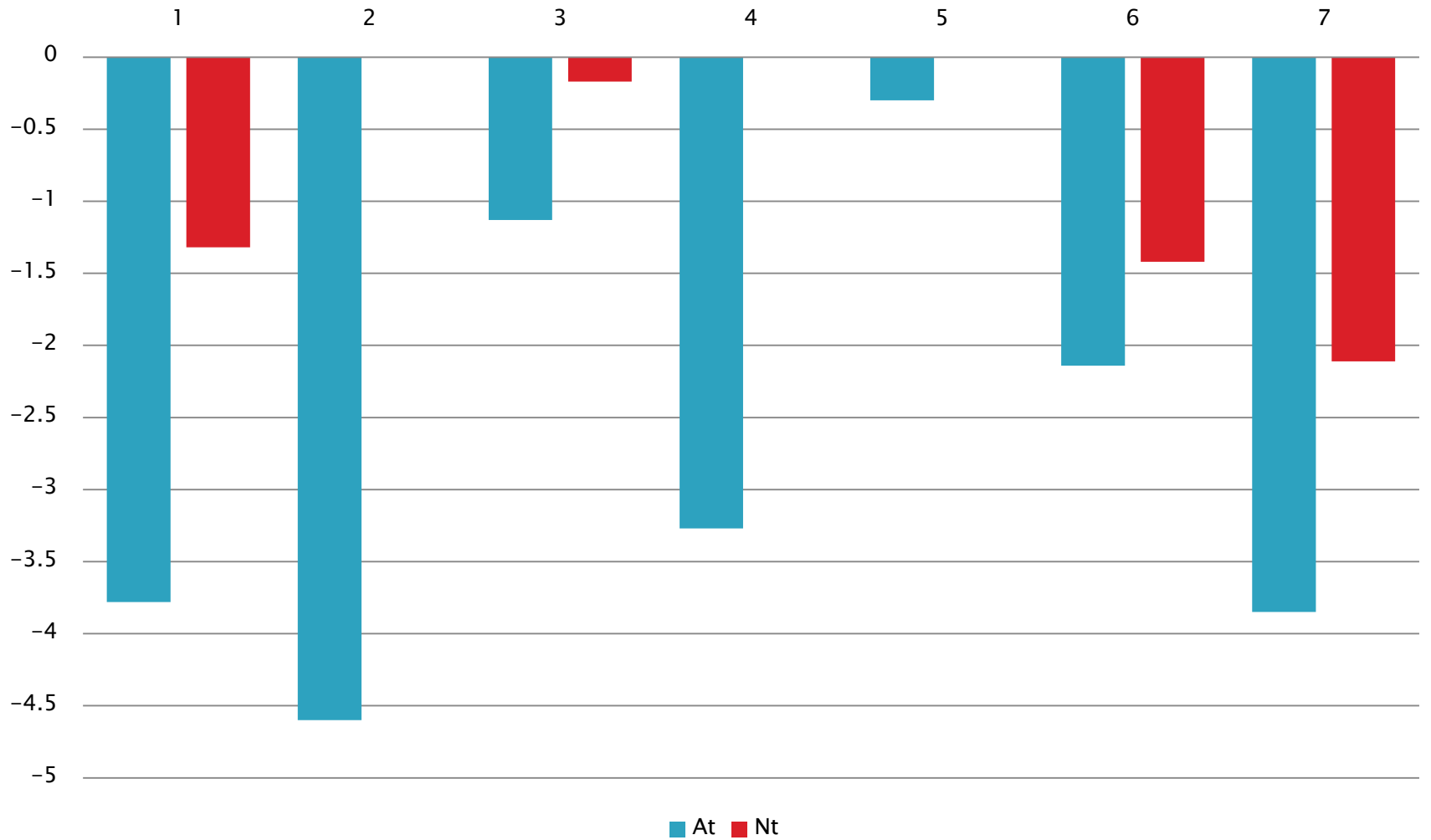
# 4: Approach to treatment of the individual



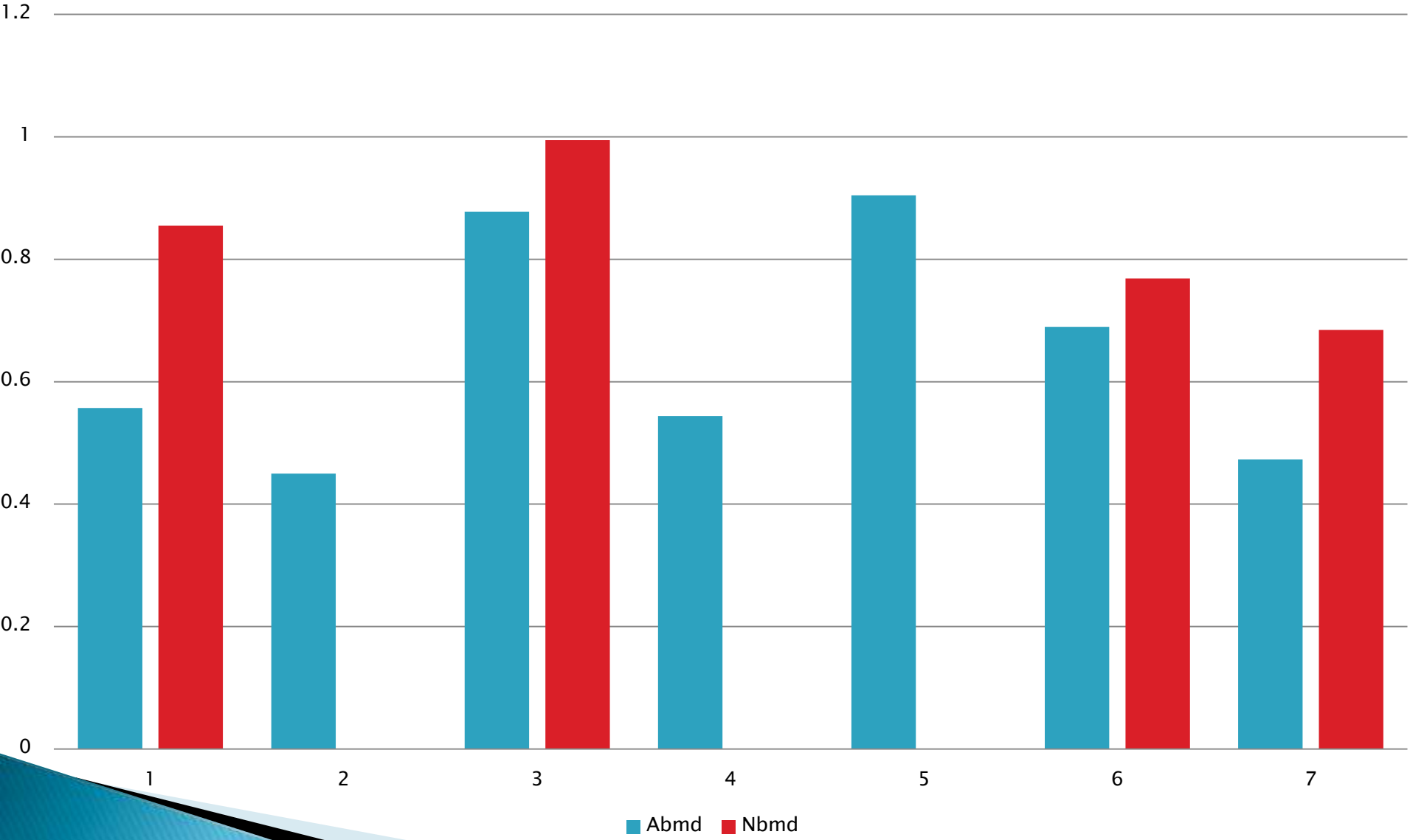
# Patient cohort report

- ▶ In 2010 , 22 patients with prior polio were reviewed in the Armstrong Clinic of the Toowoomba General Hospital.
  - ▶ In those with a history of falls, fracture or age > 70 bone densitometry was recorded.
  - ▶ In selected cases the radiology service agreed to do assessment of affected and unaffected weight bearing limbs.
- 


# t-score Bone Mineral Density



# BMD Comparison




# Unanswered questions

- ▶ How common are falls in post-polio compared with age matched controls?
  - ▶ How prevalent and severe is osteoporosis in post-polio patients?
  - ▶ Does age of onset of polio, gender and gait disturbance act as an effect modifier?
  - ▶ What is the best treatment ?
  - ▶ How should we exercise with lower limb or spinal disease to protect bone mass?
  - ▶ Who can we see for these issues?
- 



# Conclusion

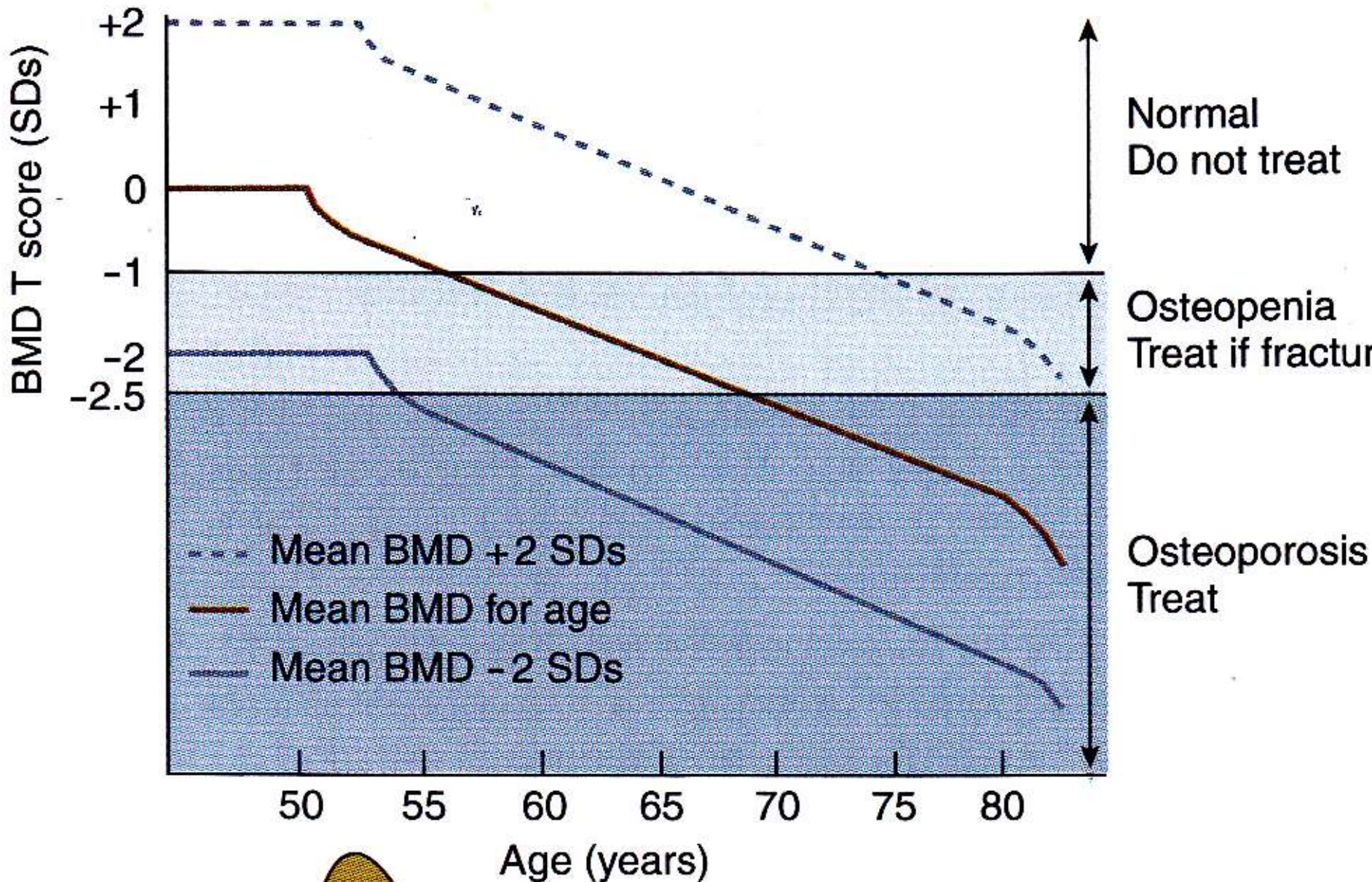
- ▶ Osteoporosis is likely to be highly prevalent in post-polio patients.
  - ▶ Affected weight bearing limbs are likely to be more severely affected than non affected weight bearing limbs.
  - ▶ There would appear to be a case to propose a larger comparative cohort study .
  - ▶ Specific intervention needs to be considered.
  - ▶ These results may be of extreme importance to other spinal and non spinal disabilities.
- 



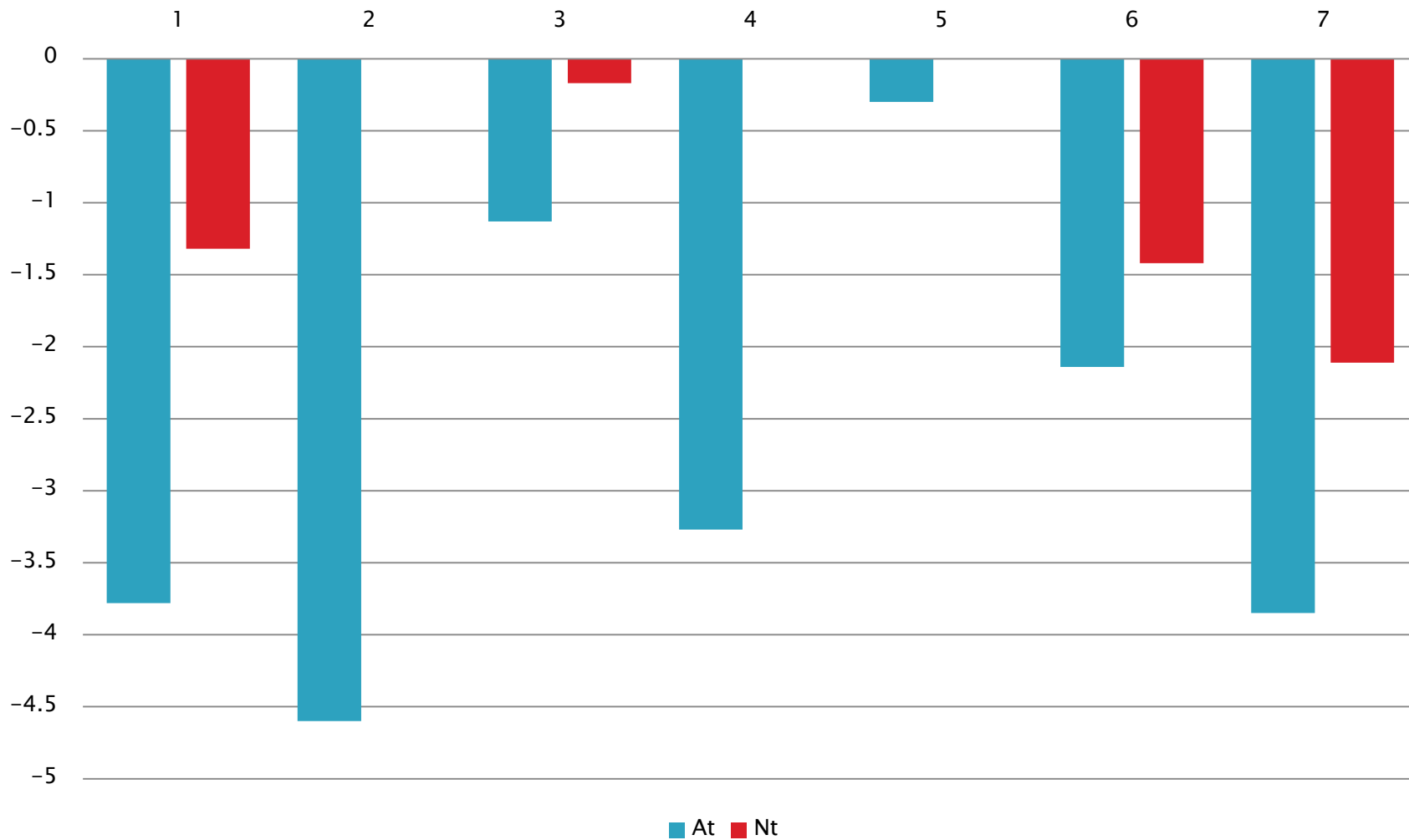
**Damage**

**Control**


# 4: Approach to treatment of the individual



# t-score Bone Mineral Density



The imperative to treat increases with:

- Increasing age
  - Declining BMD
  - Prior fracture
  - Family history of osteoporosis
  - Risk factors for bone loss (eg, hyperparathyroidism, corticosteroid therapy, immobilisation, chronic illness)
  - High levels of bone remodelling markers
- 

## NO FRACTURE

PATIENTS WITH MAJOR RISK FACTORS

PATIENTS  $\geq 70$  YEARS

- refer for BMD test, eligible for rebate
- treatment on PBS for prevention\*

BMD test

T-score between -1.0 and -2.5 SD

$\leq -2.5$  SD (Osteoporosis)

## FRACTURE PRESENT

POSSIBLE SPINAL FRACTURE

- Back pain
- Height loss
- Kyphosis

ANY FRACTURE FOLLOWING MINIMAL TRAUMA

Spine x-ray to confirm wedge/crush fracture

BMD test (recommended but not essential)

Consider excluding/treating secondary causes

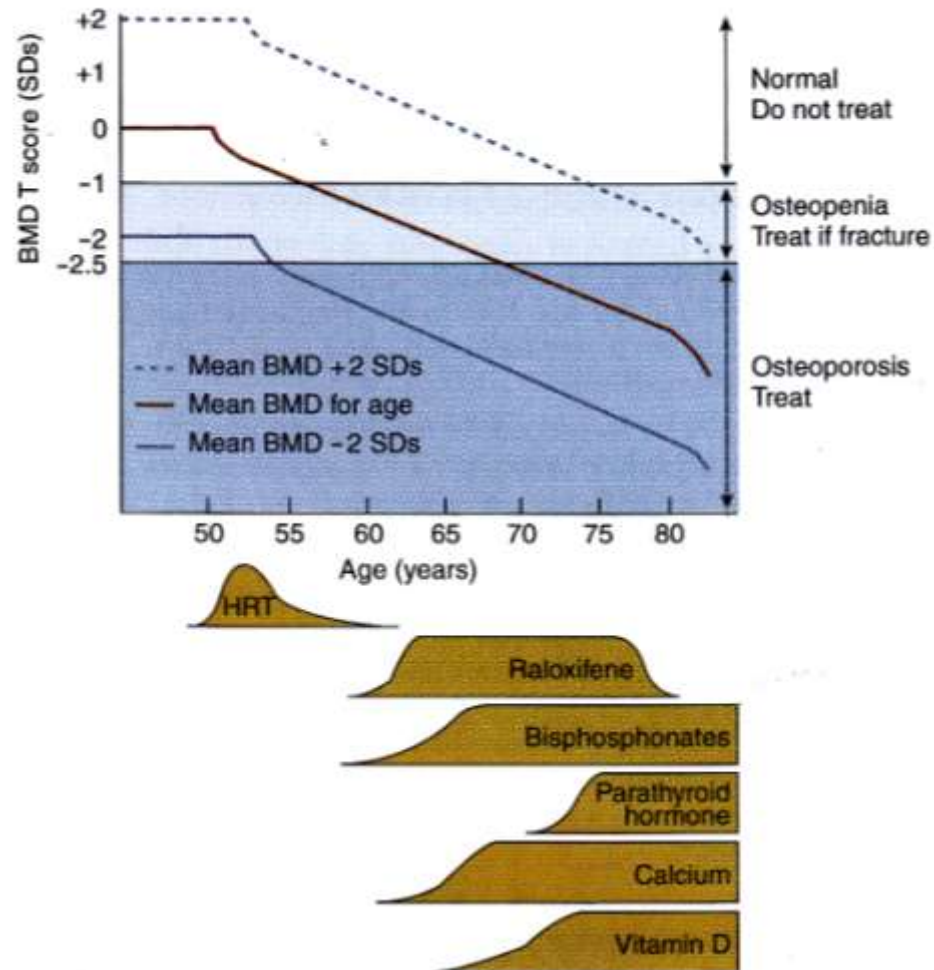
- Ensure adequate daily calcium intake (1000mg/d) and replete vitamin D status ( $>60$ nmol/L)
- Encourage exercise and implement falls prevention strategies

Initiate specific anti-osteoporosis therapy

- Oral or IV bisphosphonates (alendronate, risedronate, zoledronic acid\*\*)
- Strontium ranelate (women only)
- SERM (raloxifene) (women only)
- Hormone therapy in presence of hypogonadal symptoms
- Teriparatide

Repeat BMD test in 1-2 years

## 4: Approach to treatment of the individual



The imperative to treat increases with:

- Increasing age
- Declining BMD
- Prior fracture
- Family history of osteoporosis
- Risk factors for bone loss (eg, hyperparathyroidism, corticosteroid therapy, immobilisation, chronic illness)
- High levels of bone remodelling markers

## Exercise and osteoporotic fracture prevention

Reprint Collection

**Part 1: the role of exercise**

**Part 2: prescribing exercise**

Patient handouts

**Exercising to help osteoporotic fractures: guidelines**

**Exercising to help osteoporotic fractures: exercises**





# FORTEO®

## Teriparatide (Rbe) Injection

### WARNING

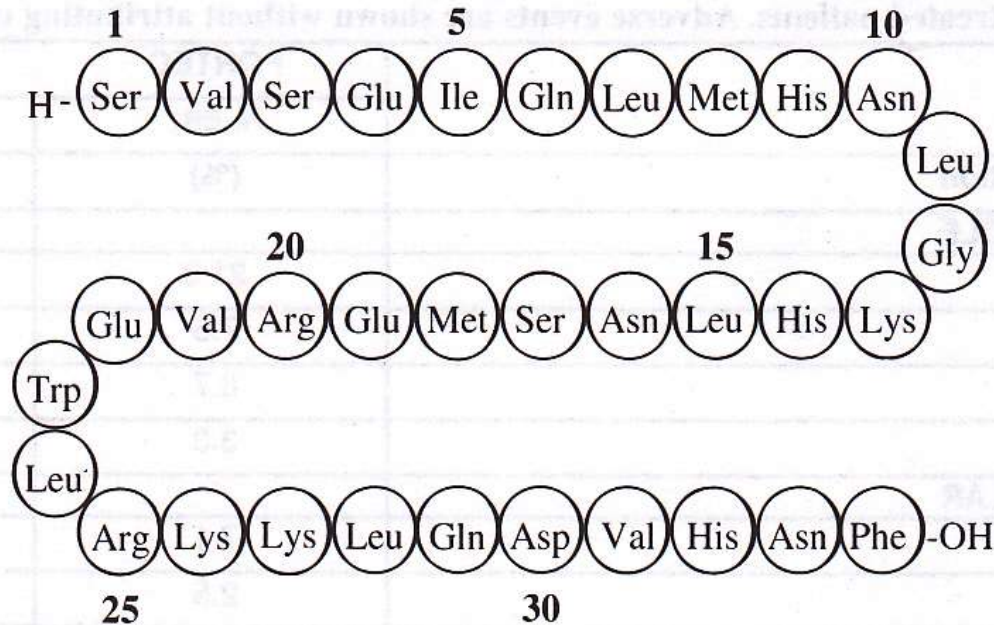
In male and female rats, teriparatide caused an increase in the incidence of osteosarcoma that was dependent on dose and treatment duration. The effect was observed at systemic exposures to teriparatide ranging from 3 to 60 times the exposure in humans given a 20- $\mu$ g dose and occurred after treatment durations ranging from 6 to 24 months. Effects were dependent on dose and duration of treatment, but a no-effect dose was not determined. The relevance of the rat osteosarcoma findings to humans has not yet been established (see PRECAUTIONS and Carcinogenesis).

### NAME OF THE DRUG

FORTEO®, teriparatide (rbe) injection [recombinant human parathyroid hormone(1-34), rhPTH(1-34)] is the first in a new class of bone formation agents. Once-daily administration of FORTEO activates osteoblasts and stimulates the formation of new bone.

Teriparatide has a molecular weight of 4117.8 daltons and is identical in sequence to the 34 N-terminal amino acids of the natural human parathyroid hormone.

The amino acid sequence of teriparatide is shown below:



NOVARTIS

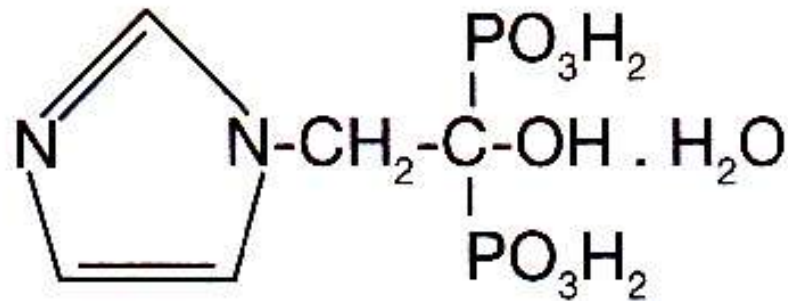
**ZOMETA<sup>®</sup>**

*(zoledronic acid)*

## NAME OF THE DRUG

The active ingredient of Zometa is a bisphosphonate, zoledronic acid, or 1-hydroxy-2-(1H-imidazol-1-yl)ethane-1,1-diphosphonic acid monohydrate.

The chemical structure of zoledronic acid is:



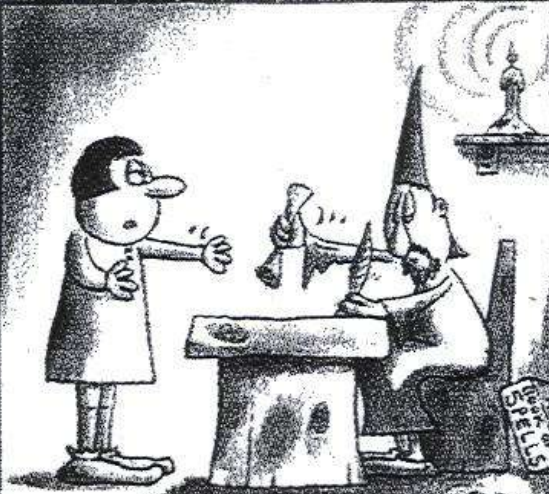
# Drugs



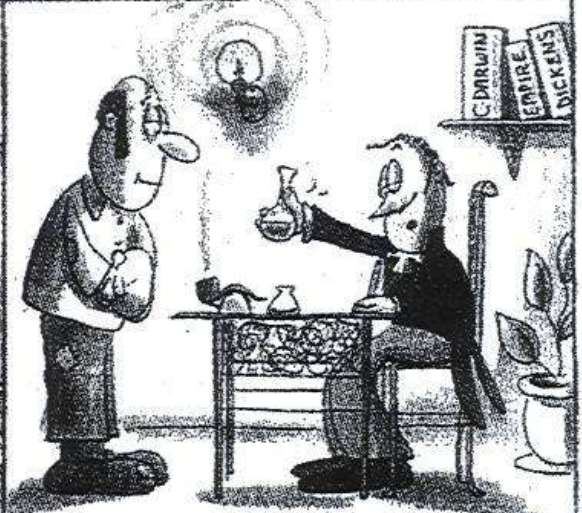
A quick history of medicine.



2020 B.C. Here Chew this root.



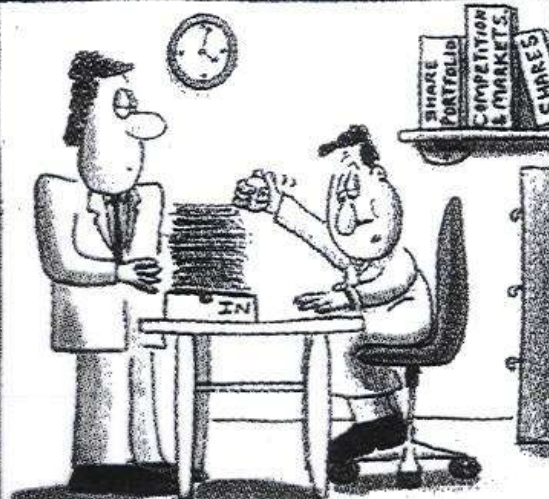
700 A.D. That root is heathen, recite this prayer.



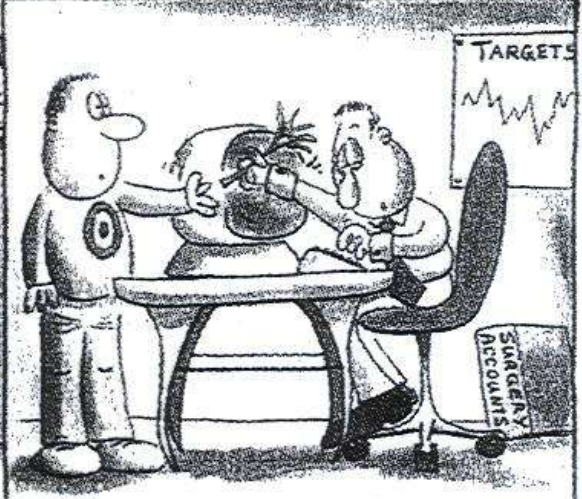
1860 A.D. That prayer is Superstition, Sip this potion.



1940 A.D. That potion is Snake juice, Swallow this pill.

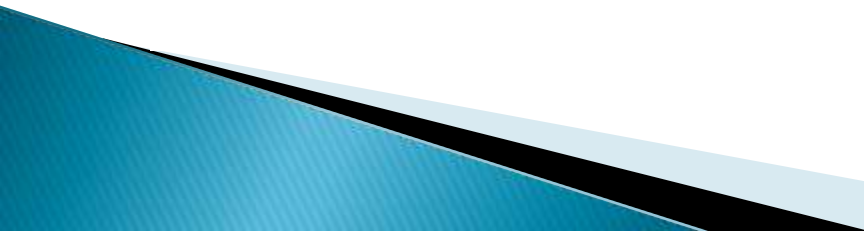


1988 A.D. That pill is ineffective, take this antibiotic.




2002 A.D. That antibiotic is artificial, here Chew this root.

# The Problem of Age and Drugs

- Persons over 60 years are the greatest consumers of drugs in our community.
  - Persons over 60 are more likely to have more than one chronic illness.
  - 80% of people over 75 in the community administer their own medication and 50% make at least one error per day
- 

# Why are the aged so different?

- Faulty prescriber rationale; most drug studies exclude persons >70.
  - Altered pharmacokinetics.
  - Altered pharmacodynamics.
  - Altered drug adherence.
  - Polypharmacy induced drug interactions.
- 

# Comorbid disease



# High Risk Groups

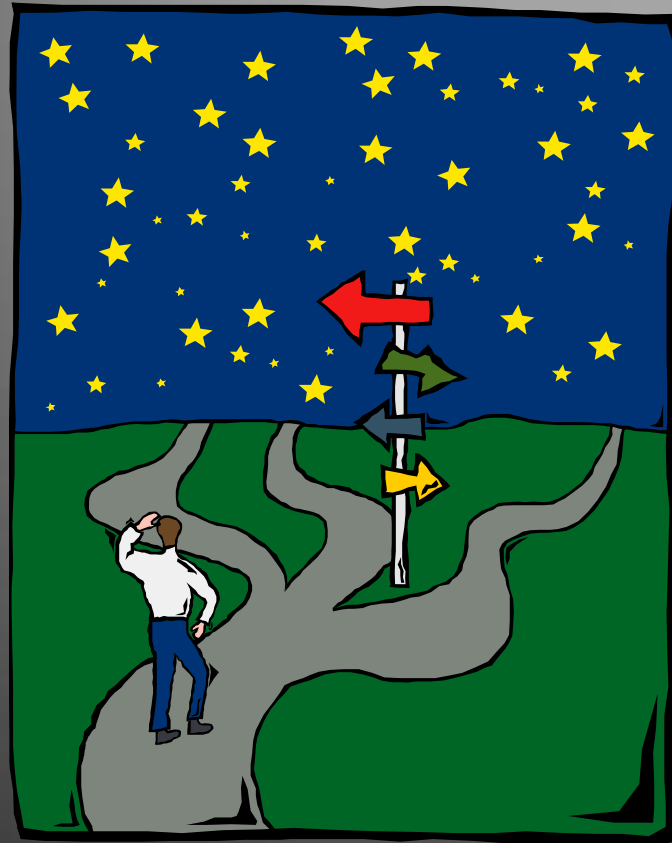
- Age >85
- Renal impairment
- Multiple organ failure
- Dementia
- Specific drugs e.g.  
immunosuppressives, anti-coagulants



# Impaired nutrition in the elderly

- Overweight is the commonest form of malnutrition in the elderly (15% of persons over 60 are >20%IBW)
- Poor nutrition practices contribute to irregular bowel habit, poor micronutrient balance, sleep disturbance, osteoporosis and drug induced electrolyte disturbances.

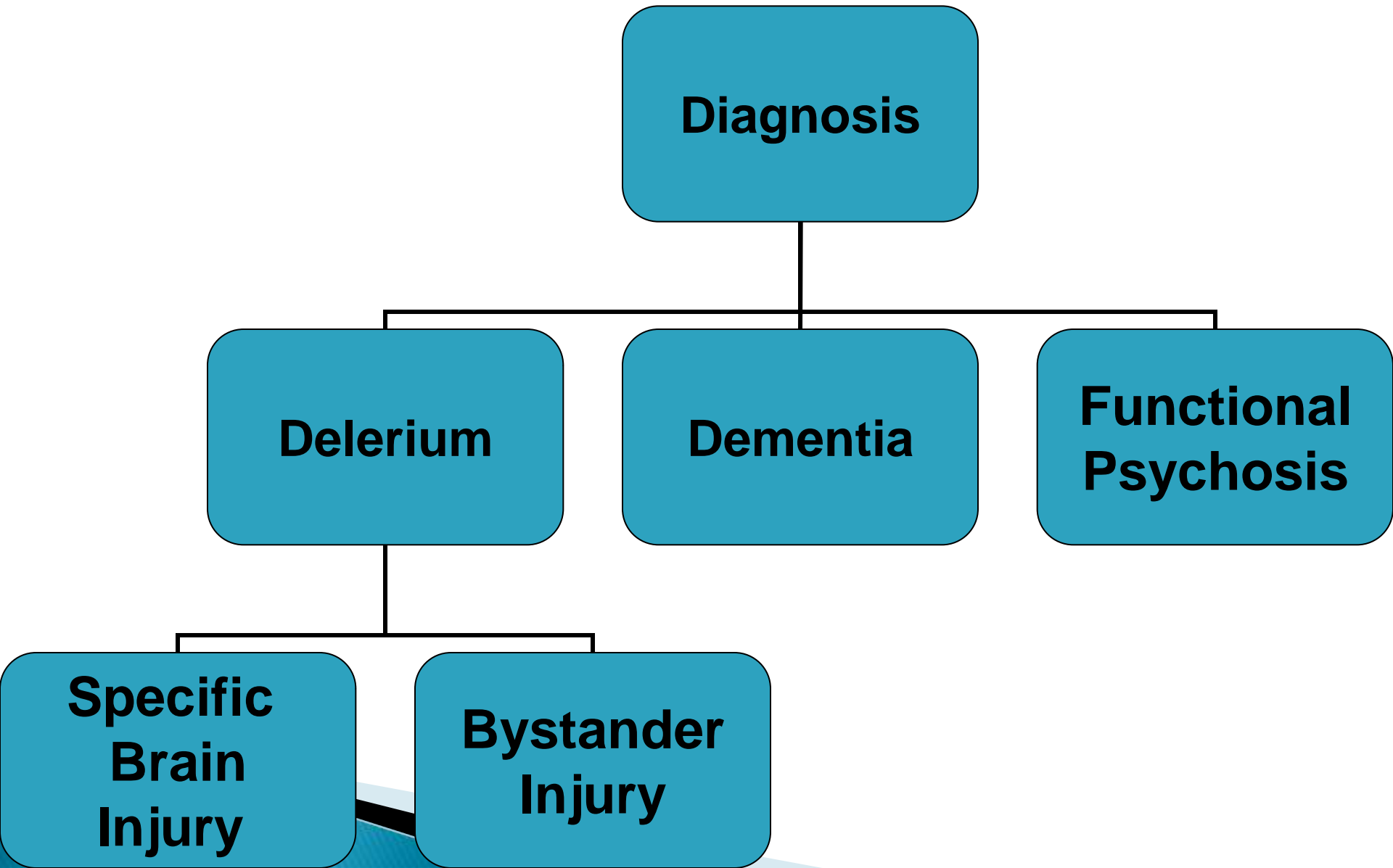
# Delerium



# Delerium

- ▶ Definition;
  - An acute reversible disturbance of consciousness, cognition and perception that occurs over a short period of time and tends to fluctuate from moment to moment.

# Acute confusional state



**Diagnosis**

**Delerium**

**Dementia**

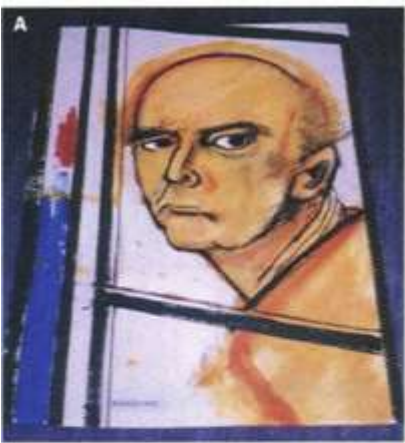
**Functional  
Psychosis**

**Specific  
Brain  
Injury**

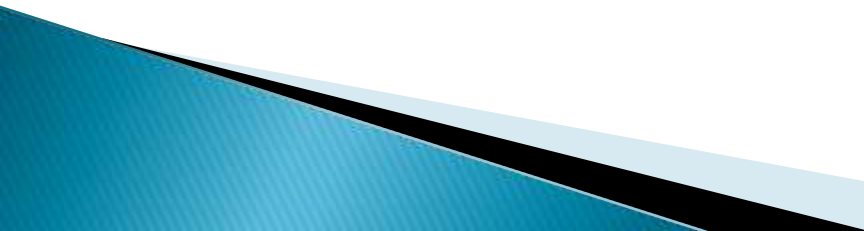
**Bystander  
Injury**

# Dementia

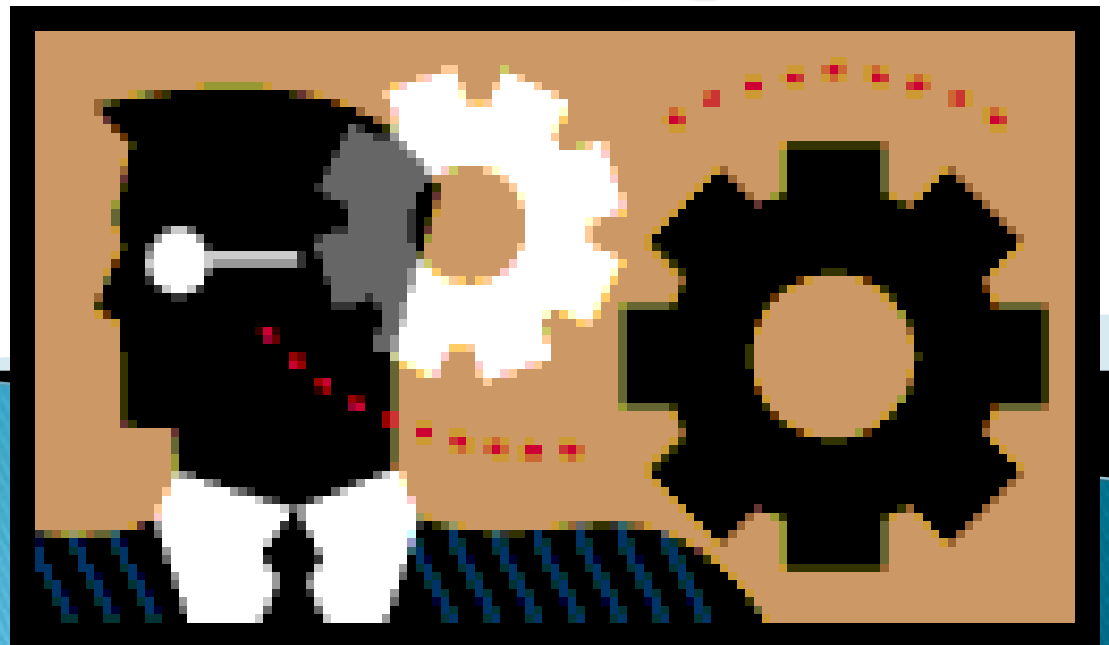




# Features of Dementia

- ▶ Impairment of
  - ▶ S Social skills
  - ▶ P Perceptuo–Motor Skills
  - ▶ A ADL
  - ▶ S Solving skills
  - ▶ M memory skills
  - ▶ E Emotional skills
- 

# Remember the 'Grannygram'

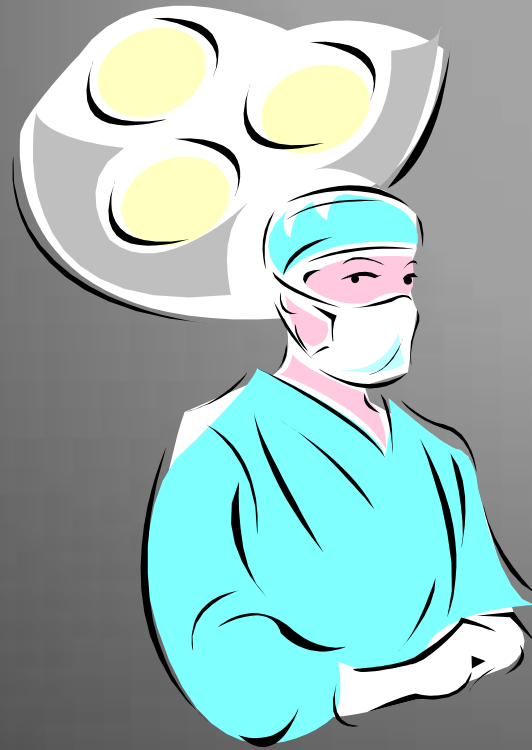




# Investigation of a patient with altered mental status

- ▶ FBC
- ▶ ELFT
- ▶ ESR,CRP
- ▶ Vitamin B 12
- ▶ Serum folate
- ▶ MSU
- ▶ CXR
- ▶ Urine toxicology screen
- ▶ TFT
- ▶ CT head scan
- ▶ VDRL
- ▶ ABG's
- ▶ HIV
- ▶ Lumbar puncture
- ▶ EEG
- ▶ MRI

# Hospitalisation and Surgery



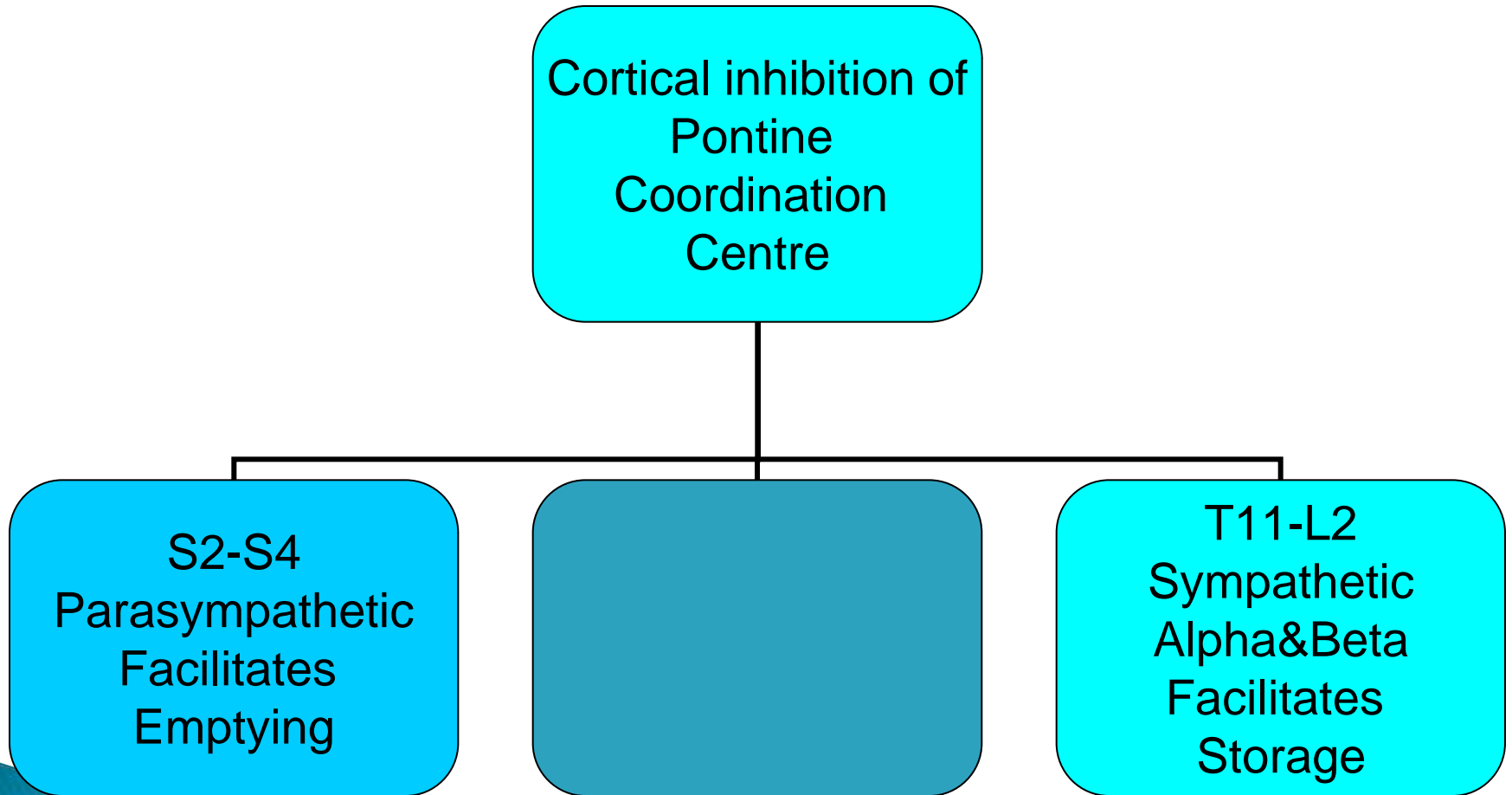
# Avoid Hospitalization if Possible

Complication	Age <65	Age >65
Restraints	1%	20%
Sedation	5%	43%
Medical	17%	40%
Surgical	42%	43%

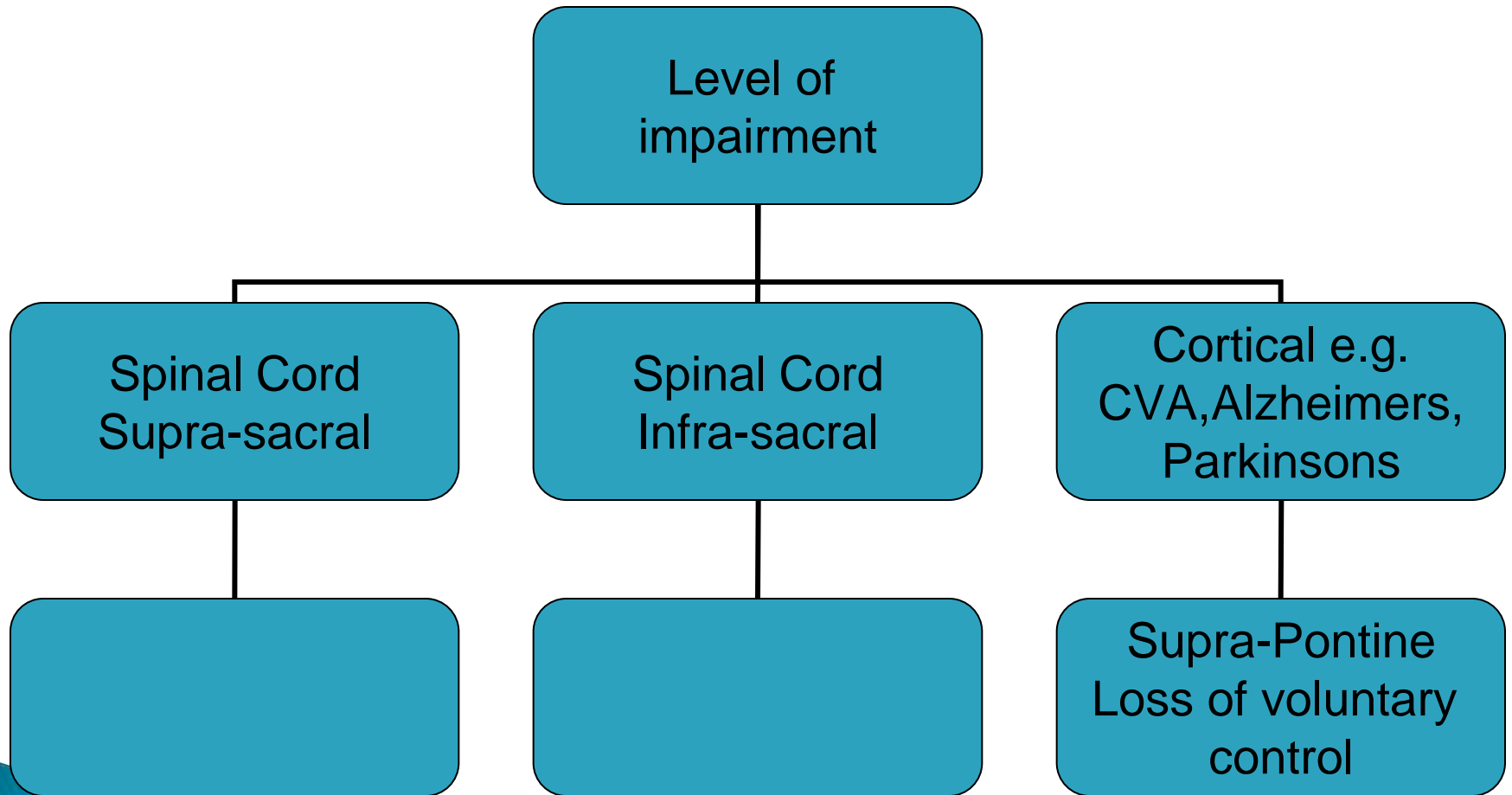
# Incontinence



# Bladder Control



# Neuropathic Bladder



# The Law




# The Praxis of aging embraces the notions of...

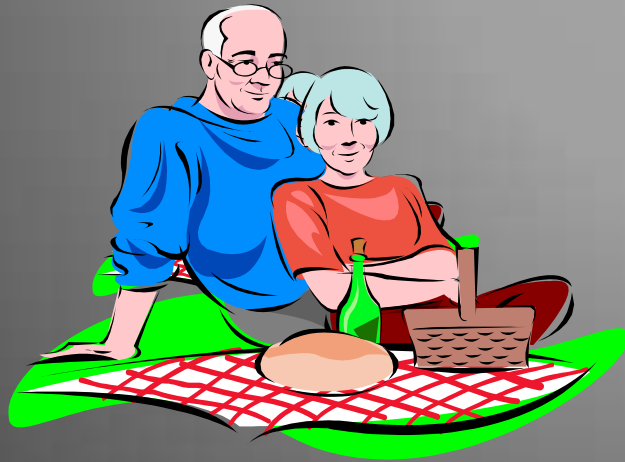
- ▶ Dependency
  - ▶ Autonomy
  - ▶ Fear and anxiety
  - ▶ Awareness of finitude
- 
- ▶ The nomenclature of aging is a device for introducing order into an inherently ambiguous part of the human condition



# Legal issues

- ▶ Competency
  - ▶ Driving
  - ▶ Autonomy vs duty of care
  - ▶ End of life issues
  - ▶ Resource rationalisation
- 

# Families



# Wisdom and Age

- ▶ “ Every generation considers themselves smarter than the last one and wiser than the next”
  - Robert Louis Stevenson


# “VALUE” in communication

- ▶ V Value Family Statements
- ▶ A Acknowledge Family Emotions
- ▶ L Listen to the Family
- ▶ U Understand the Patient as a Person
- ▶ E Elicit Family Questions
  - Curtis and White Chest 2008;134;835–843

# 10 Challenges in post-polio Care

- ▶ 1. Falls
- ▶ 2. Osteoporosis
- ▶ 3. Drugs
- ▶ 4. Comorbid disease
- ▶ 5. Delerium
- ▶ 6. Hospitalisation and Surgery
- ▶ 7. Dementia
- ▶ 8. Incontinence
- ▶ 9. The Law
- ▶ 10. Families


# XIII: Burial

- ▶ No eulogy
  - ▶ Brief
  - ▶ Will anyone remember?
- 

# In Flanders Field


- ▶ Take up our quarrel with the foe:
- ▶ To you from failing hands we throw
- ▶ The torch; be yours to hold it high.
- ▶ If ye break faith with us who die
- ▶ We shall not sleep, though poppies grow
- ▶ In Flanders fields.
  - Lt Colonel John McCrae

# Where to from here?

- ▶ We still have a large task ahead to reduce fear and bias within our community.
  - ▶ Adopt a Family, Church, neighbour or organisation!
    - One in 4 people in our community live alone.
  - ▶ Have a presence and a voice within your community.
    - Local paper, newsletter, meetings in public places.
  - ▶ Speak, often and with honesty
  - ▶ Consider the wider picture of disability within our world and develop common goals.
    - E.g. osteoporosis, falls, and independence.
- 



# Scientific endeavours

- ▶ Consider a study of falls and ADL in post-polio patients.
  - ▶ Consider a large state wide study of bone disease in post-polio patients and look at the outcomes over 5 years.
  - ▶ Promote vaccination for all preventable diseases we safe and proven vaccines are available.
  - ▶ Help community groups and in particular youth groups develop programs to break down fear and bias and violence in our communities.
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