

# DELIRIUM: An UP-DATE

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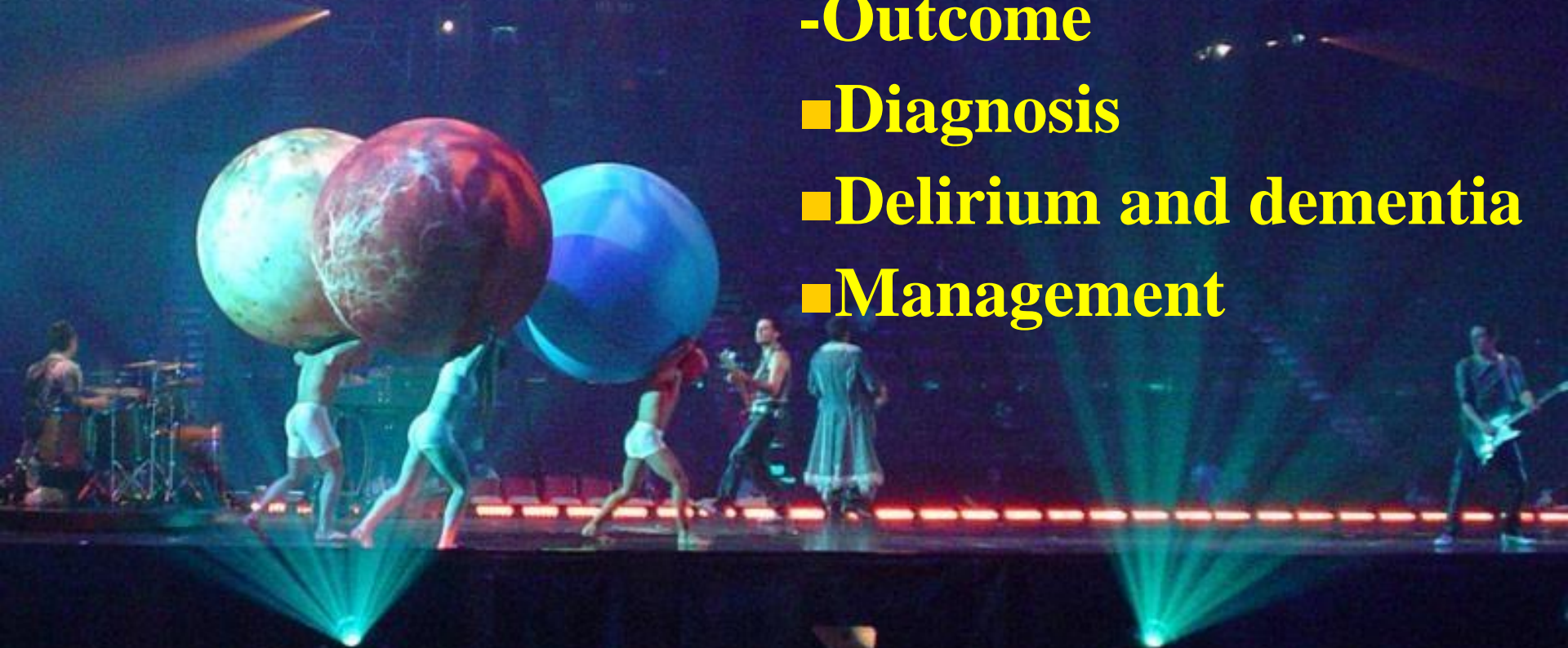
**Do you want to know more about Dementia?**

**Public Meeting**



# Delirium : Topics to cover

- Background
  - Epidemiology
  - Clinical presentation
  - Outcome
- Diagnosis
- Delirium and dementia
- Management



Inflatables for **DELIRIUM**; a Cirque du Soleil live music event, North American Tour 2006

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# What is delirium?

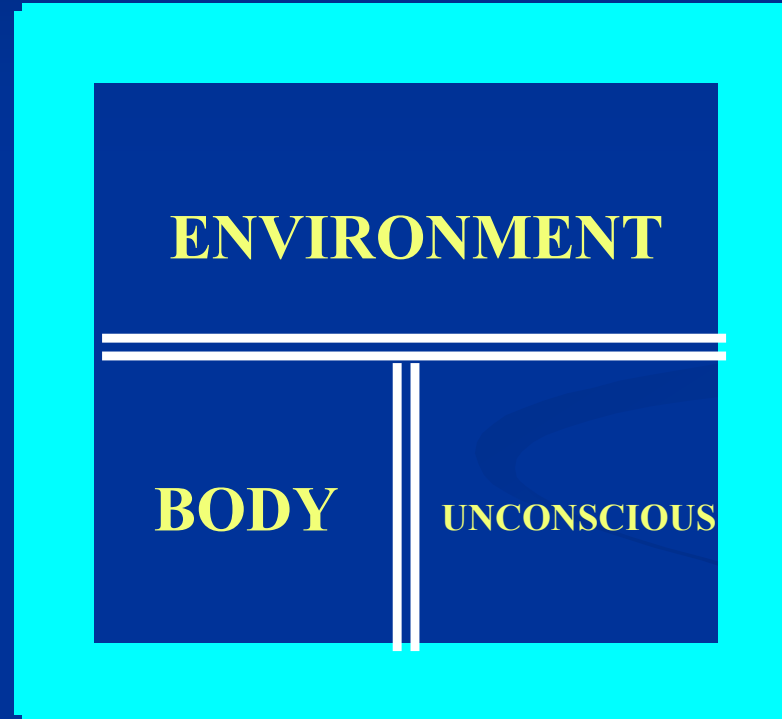
- **Quick /sudden onset of confusion – days or weeks**
- **Change to usual level of cognition**
- **Fluctuating pattern to the confusion**



# Also

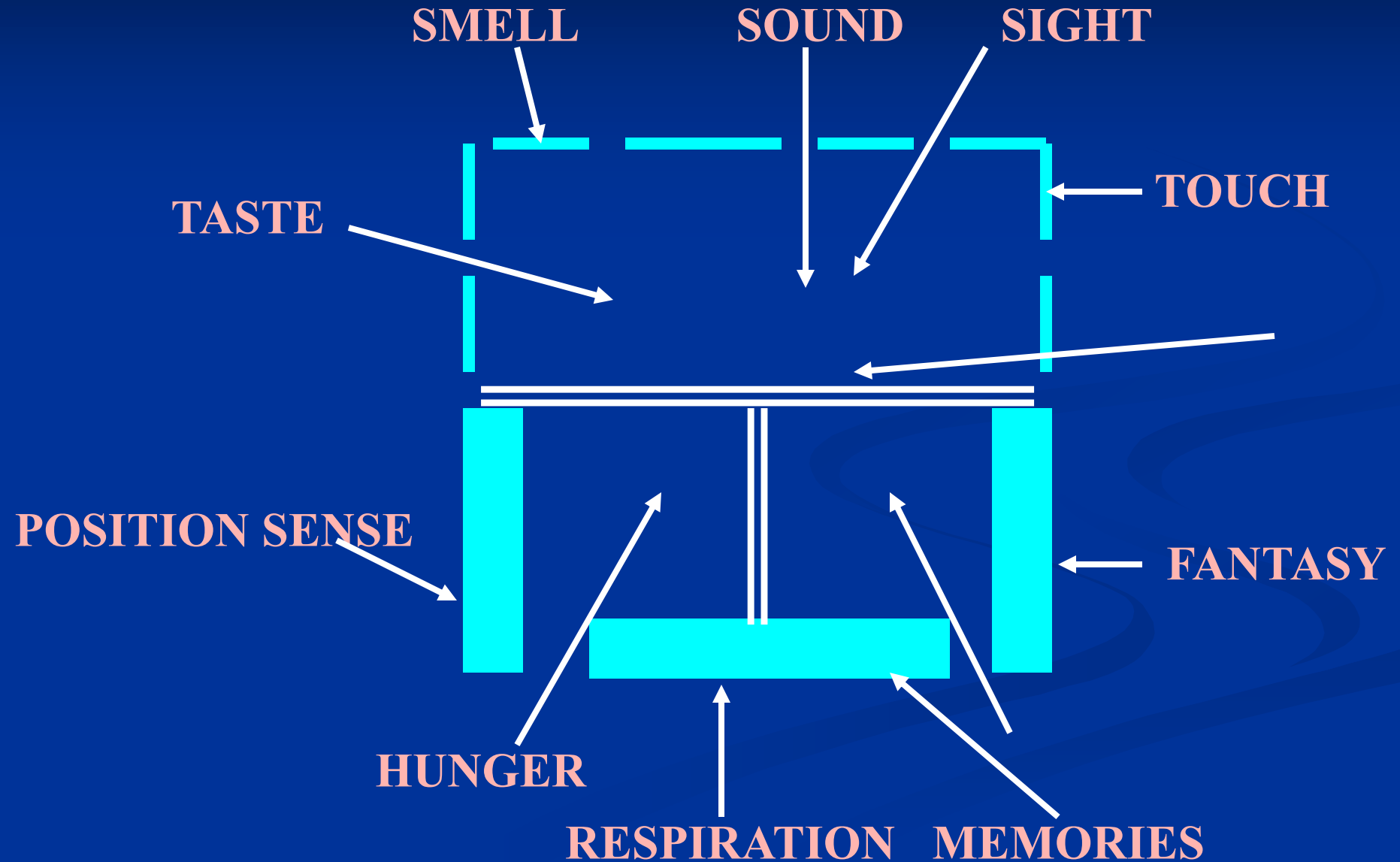
- **Inattention – not being able to follow what is said**
- **Disorganised thinking – speech is rambling, incoherent or illogical**
- **Altered state of consciousness – ie more alert or looks lethargic**
- **Presence of abnormal believes, e.g. delusions and hallucinations (esp. visual hallucinations)**

# **FILTER CIRCUMSCRIBING AWARENESS**

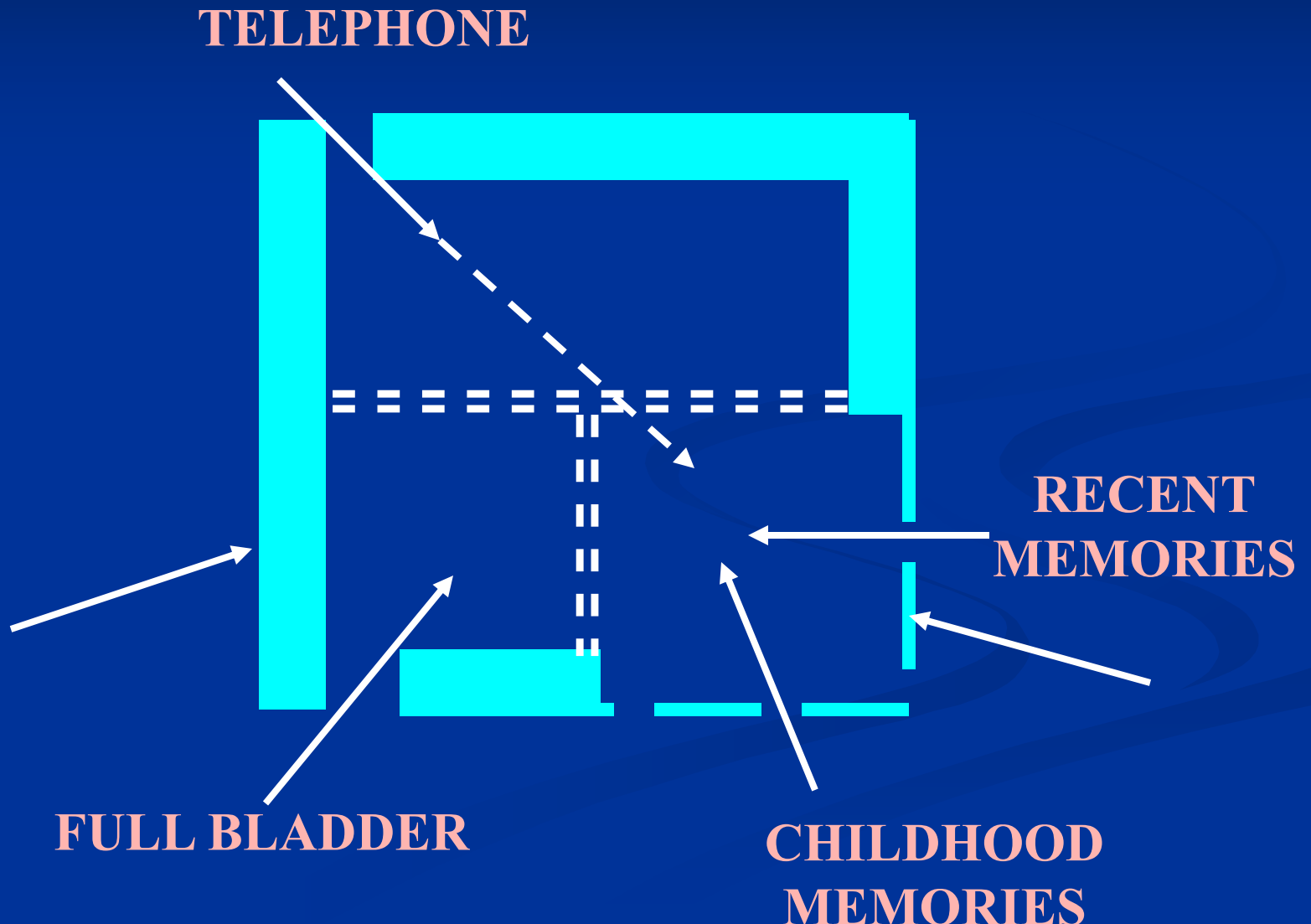


*Averil Stedeford*

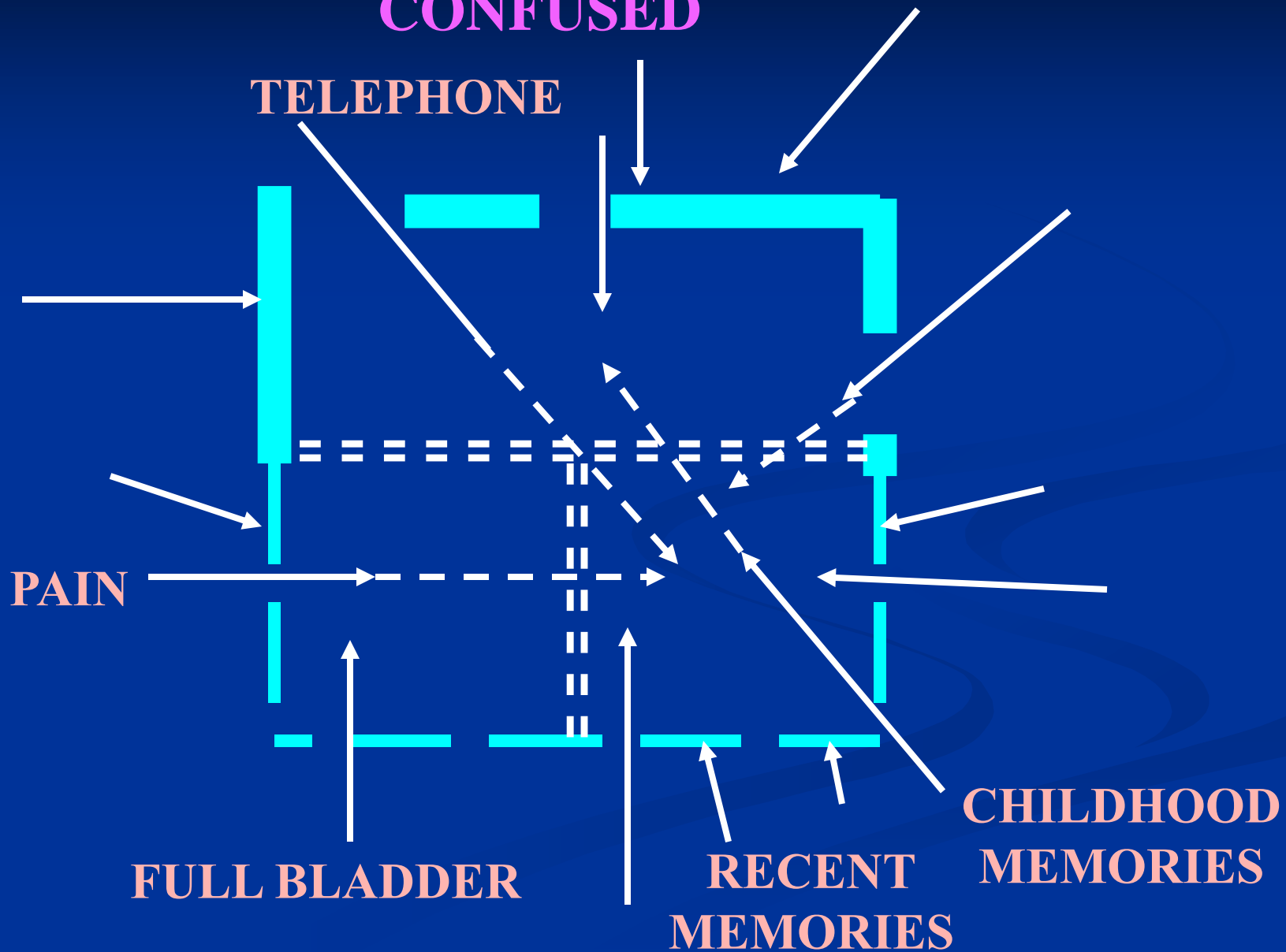
# FILTER CIRCUMSCRIBING AWARENESS: AWAKE



# FILTER CIRCUMSCRIBING AWARENESS: ASLEEP

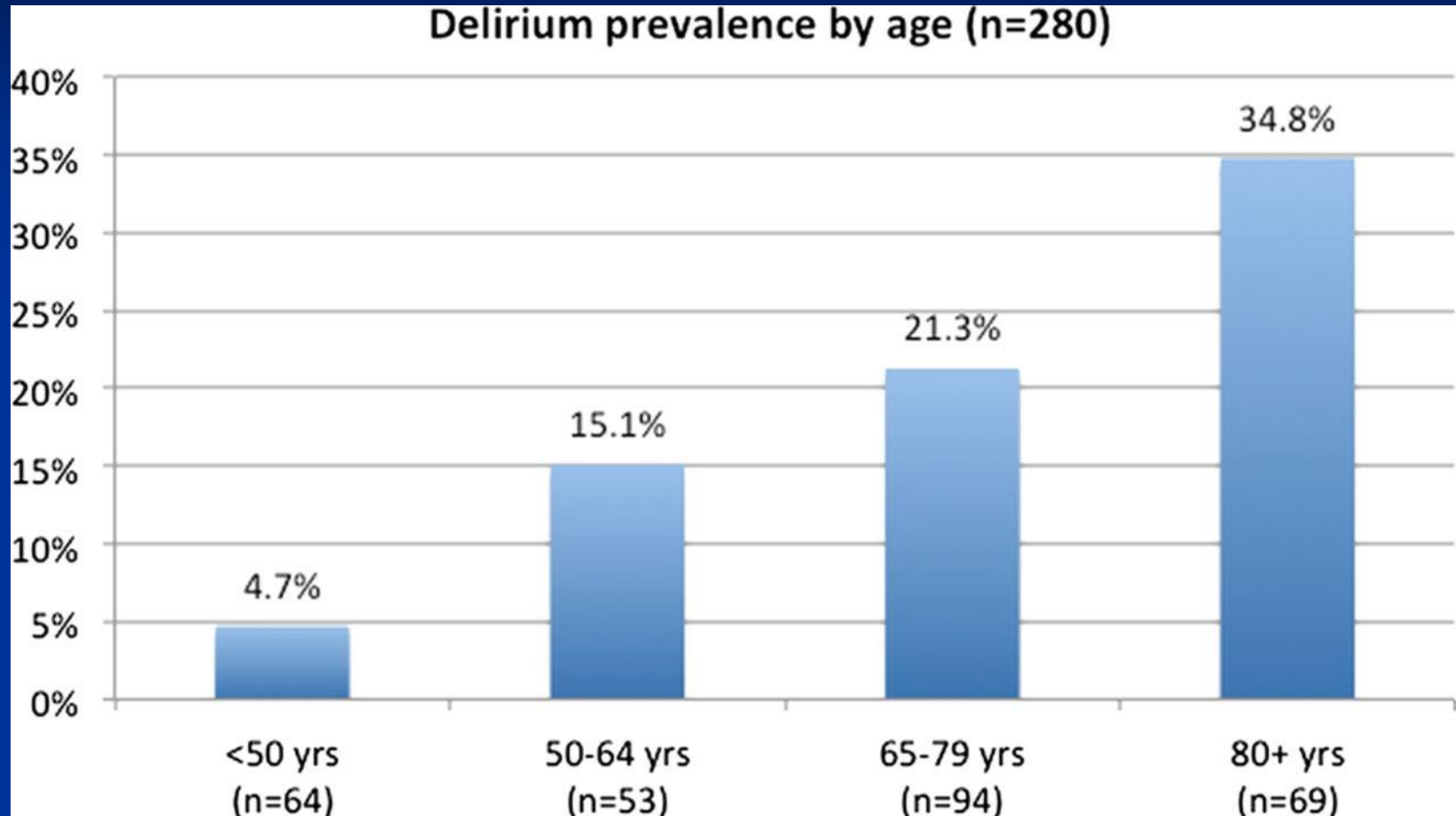


# FILTER CIRCUMSCRIBING AWARENESS: CONFUSED





# Delirium prevalence stratified by age group

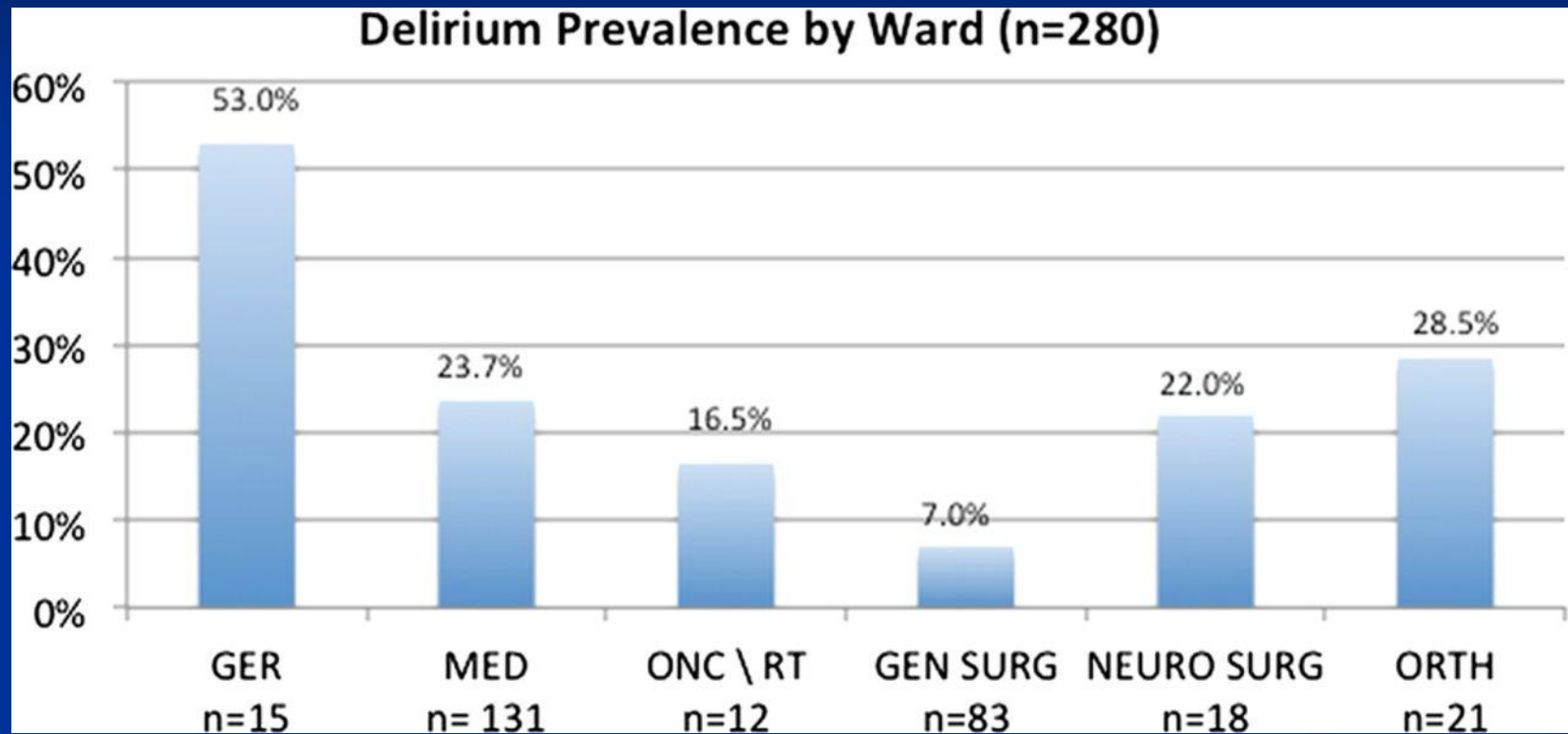


Ryan D J et al. *BMJ Open* 2013;3:e001772

# Epidemiology of delirium

- **Common in hospitalized elderly patients**
- **Medical in patients**
  - 70 + years approx 20 - 25%
  - NB: Only 3.3% referred to Liaison OAP in NCL!!
  - **Terminally ill 78-88%**
- **Surgical in patients**
  - NoF 40%
  - Elective orthopaedics 20%
  - General 10 - 15%

# Prevalence of delirium on medical units



Ryan D J et al. *BMJ Open* 2013;3:e001772

# Delirium: Etiology

**V  
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**Vascular**

**Infections**

**Nutrition**

**3Ds\***

**Injury**

**Cardiac**

**Autoimmune**

**Tumors**

**Endocrine**

*\*Drugs/Dementia/Depression*

# Medication causing delirium

## Central nervous system agents

- Antidepressants (tricyclics, trazedone, phenazine)
- Conventional neuroleptics
- Anticonvulsants (phenytoin, carbamazepine, valproic acid)
- Sedatives (Benzodiazepines and barbiturates)
- Stimulants (methylphenidate)
- Anticholinergics (benzotropine, oxybutulin, scopolamine)
- Anti-Parkinsonian med (levodopa, amantadine, bromocriptine, selegiline)
- Alcohol
- Antispasmodics (baclophen)
- Analgesics (opioids, pentazocine)
- NSAID (indometacyn, ibobrufen)
- Lithium

# Medication causing delirium

## Antibiotics

- Penicillins (penicillin, methicillin)
- Quinolones (ciprofloxacin)
- Trimethoprim-sulfamethoxazole
- Chlorambucil
- Antimycobacterials (isoniazide, cycloserine)
- Antiviral (acyclovir)
- Chloroquine

## Cardiovascular agents:

- $\beta$ -adrenergic antagonists (propranolol, metoprolol)
- CNS-acting  $\alpha$ -agonists (methyldopa)
- Ca-channel antagonists (nifedipine, verapamil)
- Digitalis glycoside (digoxin, digitalis)
- Antiarrhythmics (lidocaine, tocainide, procainamide, disopyramide, quinidine, mexilitane)

cont...

- **Antihistamines**
- **Glucocorticoids (prednisolone)**
- **Anabolic steroids (testosterone)**
- **Caffeine**
- **Disulfiram**
- **Immunosupresants**
- **Interferon- $\alpha$**
- **Decongestants (ephedrine, pseudoephedrine)**
- **Hypoglycemics (chlorpropamide)**
- **Metformine**

# What causes delirium?

- Pain
- Infection
- Nutrition
- Constipation
- Hydration
- Environment





# And many other causes...

- **Grief / Distress**
- **Alcohol withdrawal**
- **Surgery**
- **Non prescribed medications**
- **Blood chemical imbalances**
- **Falls/head injuries**



# Falls and older adults

Old age began with one's 1st fall and the death came with the 2nd .



*Love in the Time of Cholera*  
*Gabriel García Márquez*

Clinical Features	Delirium	Dementia
<b>Prevalence:</b>		
<b>Community</b>	0.5-2%	9.8%
<b>Hospital</b>	14-56%	42.4%
<b>Onset</b>	Sudden	Slow and gradual
<b>Duration</b>	Days to weeks, although it may be longer	At least 6 months cognitive impairment
<b>Cause</b>	Almost always another condition	Usually a chronic brain disorder
<b>Course</b>	Usually reversible.	Progressive, irreversible
<b>Effect at night</b>	Almost always worse	Often worse (known as sun-downing effect), especially in vascular and mixed dementia
<b>Attention</b>	Severely impaired	Unimpaired until severe dementia
<b>Level of consciousness</b>	Impaired and fluctuating, ranging from lethargic to hyperalert	Unimpaired until late stages
<b>Psychomotor changes</b>	Increased or decreased	Often normal
<b>Orientation to time and place</b>	Varies	Impaired
<b>Use of language</b>	Slow, often incoherent, and inappropriate	Occasional word finding difficulties
<b>Memory</b>	Varies	Significantly impaired
<b>Need for medical attention</b>	Urgent to prevent dire consequences	Required but less urgently

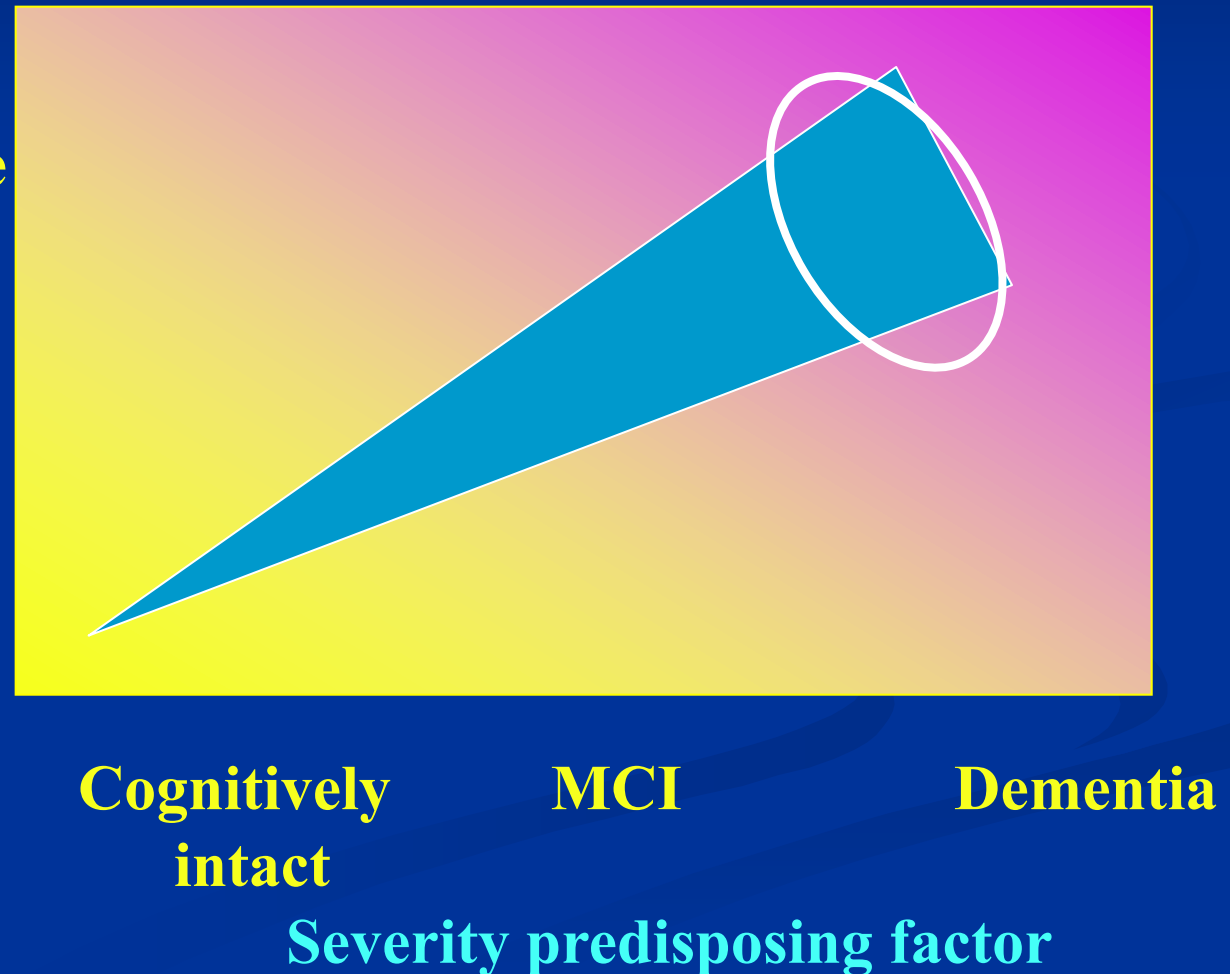
# Delirium: Relationship between predisposing and precipitating factors

Severity precipitating factor

Sepsis with  
multiorgan failure

Pneumonia

Uncomplicated  
UTI



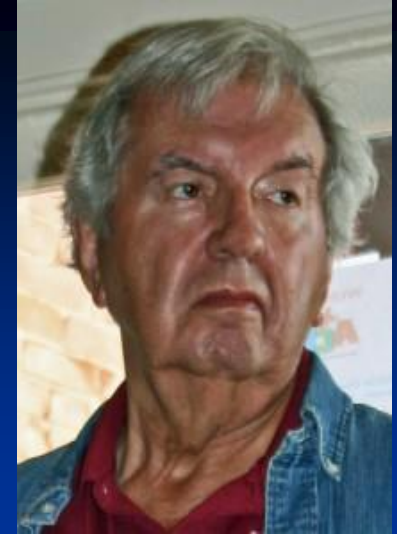
# Delirium outcome: Cognitive impairment

- 5 days after surgery, 50% of those delirium -ve returned back to preoperative cognitive functioning vs 20% of those delirium+ve;
- after 6 months 75% vs 60%

*Saczynskiet al, NEJM 2012; 367: 30-39*

# Larry McMurry

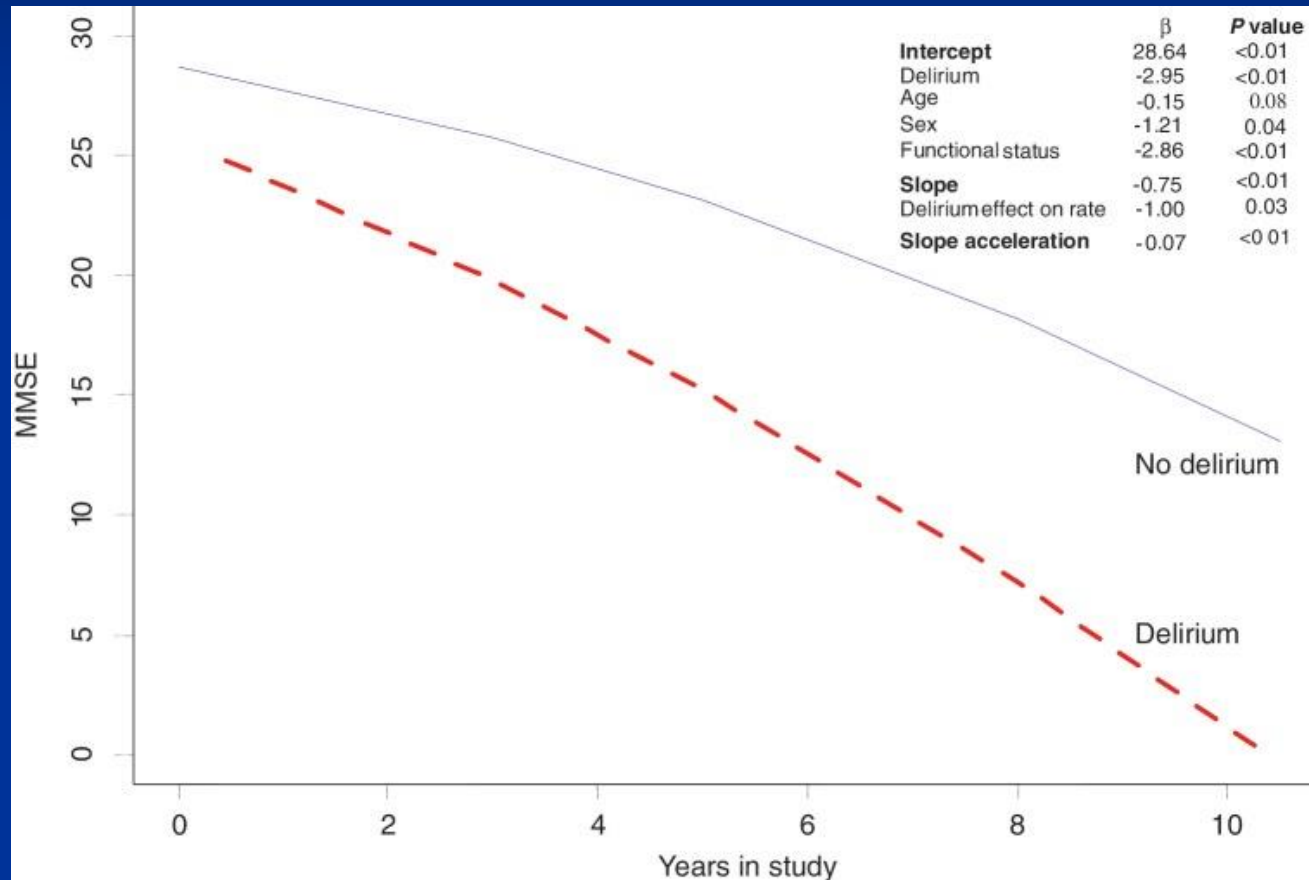
(Suffered global cognitive impairment and could not read for 2.5 years, age 50)



- **What major surgery produces is a certain quality of loss, a loss with its own nuisances, its own character.**
- **I was one person until the morning ... I had quadruple bypass surgery... When I woke up... after 12h in deep anesthesia, I began... my life as a different person, my life as someone else.**

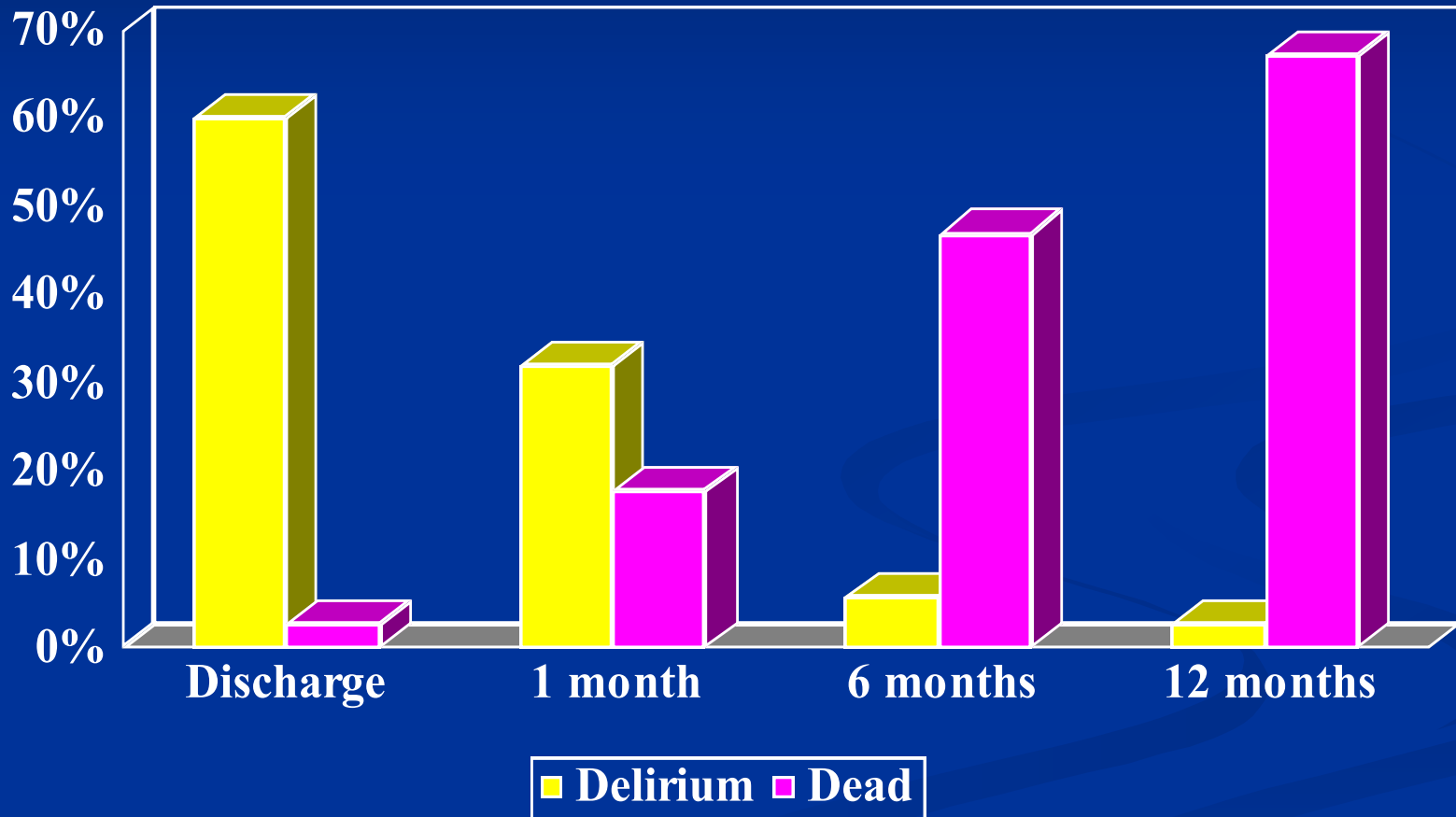
*Walter Benjamin at the Diary Queen, 2001*

# Delirium and dementia



Davis et al, Brain 2012

# Delirium: Outcome





# FORMS OF DELIRIUM

## HYPOACTIVE

- Lethargy
- Reduced motor activity
- Incoherent speech
- Lack of interest
- Can look depressed

## HYPERACTIVE

- Restlessness
- Agitation
- Hallucinations
- Inappropriate behaviour
- We are more likely to be called to see this group!

## MIXED DELIRIUM

# Delirium: Diagnosis

- **Medical assessment(s)**
- **Delirium scales (CAM, DI, DRS, MDAS)**
- **Laboratory investigations**
- **THINK DELIRIUM!!**

# How to diagnose delirium without investigations

- **Single Question in Delirium (SQiD):** 'Do you think [name of patient] has been more confused lately? Sensitivity and specificity of 80% (95% CI 28.3-99.49%) and 71% (41.90-91.61%) respectively compared to CAM

**Ask**  
**family members**  
“Is this a  
**change?”**



## **Hospitals' Lack of Knowledge of the Confusion Assessment Method (Young et al, Hosp PractHosp 2012;40(4):56-63)**

- **A short survey with items assessing respondents' perceptions of delirium detection, familiarity and proficiency with the CAM**
- **Participants: a group of hospital medicine providers comprised of physicians (79.9%), nurse practitioners (7.2%), and physician assistants (12.9%);**
- **Of 157 surveys distributed, 94% (n = 147) were returned;**
- **3 of 4 of providers (77%) reported encountering delirium at least once/week, with 45% reporting encountering delirium >once/week;**
- **82% had never used or heard of the CAM; only 3 respondents felt proficient with its use;**
- **Nurses have an important role in delirium detection (65%);**
- **Delirium diagnosis is often delayed (68%),**
- **Not knowing patients' baseline cognitive status (53%) and having difficulty separating delirium from dementia or psychiatric illnesses (25%) were important challenges to delirium diagnosis**

# Management of delirium

- **Establishing diagnosis and etiology (>48h):**  
alcohol /benzodiazepine withdrawal, drug toxicity, hypercalcemia, gram negative septicaemia, non-convulsive seizures, non-hemiparetic stroke
- **Treatment**
- **??Prevention**

# Delirium: Meds, meds, meds, more meds...

<b>Drug class</b>	<b>Relative Risk</b>
<b>Sedative-hypnotic</b>	<b>3.0-11.7</b>
<b>Opioids</b>	<b>2.5-2.7</b>
<b>Anticholinergic</b>	<b>4.5-11.8</b>
<b>Any psychoactive drug</b>	<b>3.9</b>
<b>Number of drugs</b>	
<b>&gt;1 psychoactive</b>	<b>4.5</b>
<b>&gt;3 added</b>	<b>4.0</b>

# NICE guidelines 2010 for delirium

## Risk factor assessment:

- **>65 y age**
- **Cognitive impairment**
- **Current hip fracture**
- **Severe illness**
- **Observe any change in risk factors**

## Prevention of delirium

- **Familiar environment and healthcare team**
- **Assessment for risk delirium factors: disorientation, dehydration/constipation infection, pain, poor nutrition, polypharmacy, decrease in mobility, sensory impairment, sleep disturbance.**

# NICE guidelines for delirium 2010:

## Treatment

### Non-pharmacological interventions

- identify and manage underlying cause
- effective communication; reorientation/reassurance; engage family and friends
- if distressed or a risk to themselves or others, first use verbal and non-verbal techniques to de-escalate the situation

### Pharmacological interventions

- short-term (<1 week haloperidol or olanzapine)



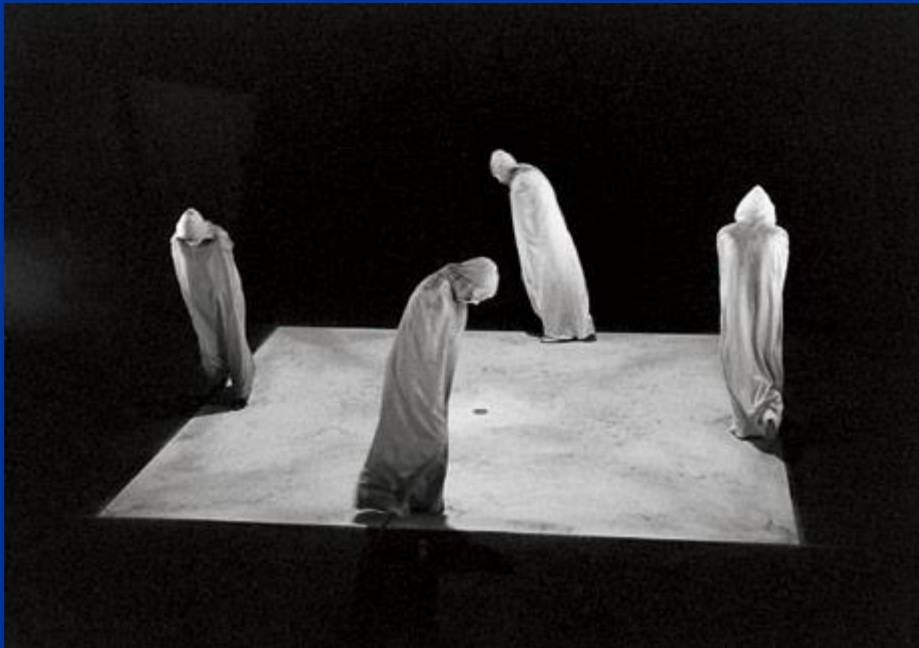
# Conclusion:

- **Delirium is a temporary state**
- **It can be avoided**
- **It can be reversible**
- **It is common!**

# However...

- **Can lead to longer term cognitive problems.**
- **It has a high mortality rate.**
- **Is highly distressing for the person, their families and carers.**

**I pause to record that I feel in  
extraordinary form. Delirium  
perhaps.**



**Malone Dies  
Samuel Beckett**

**Thank you**

**Any questions?**