

Delirium: Be alert (and armed)

Dementia NZ Symposium May 2018

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Mr Fred Smith



- Is an 83 year old man
- He falls frequently, is slowly losing weight, has memory issues, and some chronic stable medical problems.
- He fell again in the night and couldn't get off floor, no obvious injuries but sore all over.

What's going on?

- You see Fred the following morning, and manage to stand him up. He insists he's all right, in fact he's rather grumpy. He keeps being distracted by other small noises. When you pop out of the room he is surprised to see you when you return. "Who are you?"



Is Fred delirious?

- Why does it matter?
- How can you tell if a person with dementia now has a delirium too?
- What are the differences between delirium and dementia?
- What does it mean for how you care for this person?

Delirium definition

- Disturbance in **attention** (reduced ability to concentrate, stay on task, or stay on topic) and **awareness** (level of consciousness changes: drowsy or stuporose; normal; hyperalert) .
- Change in **cognition** (memory for new things, disorientation, language disturbance, not perceiving things as they are) that is not due to a dementia.
- The disturbance develops over a **short period** (usually hours to days) and tends to **fluctuate** during the course of the day.
- There is evidence that it is **caused** by a direct physio-logic consequence of a general medical condition, an intoxicating substance, medication use, or more than one cause.

Other features of delirium



Other features of delirium

- Speech can be incoherent
- Mood can be very different from usual - any of: frightened, overemotional, clingy, irritable, tearful, controlling
- Hallucinations
- Sleep-wake pattern reversed or disturbed
- Paranoid delusions
- Person is bewildered, trying to make sense of things

- **IS THIS HIS “USUAL”?**
- Did this change occur pretty recently (hours- days)?
- Is he “confused”?
- Is she sleepy and hard to get fully alert even though it’s daytime?
- Is he distracted and hard to keep on task or in the conversation?
- Is she agitated and cross or suspicious?

No

Yes

Yes

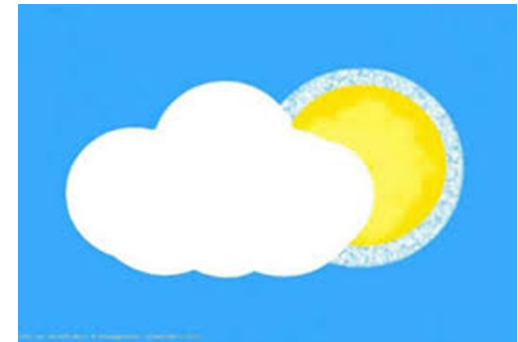
Yes

Yes

Yes

Yes

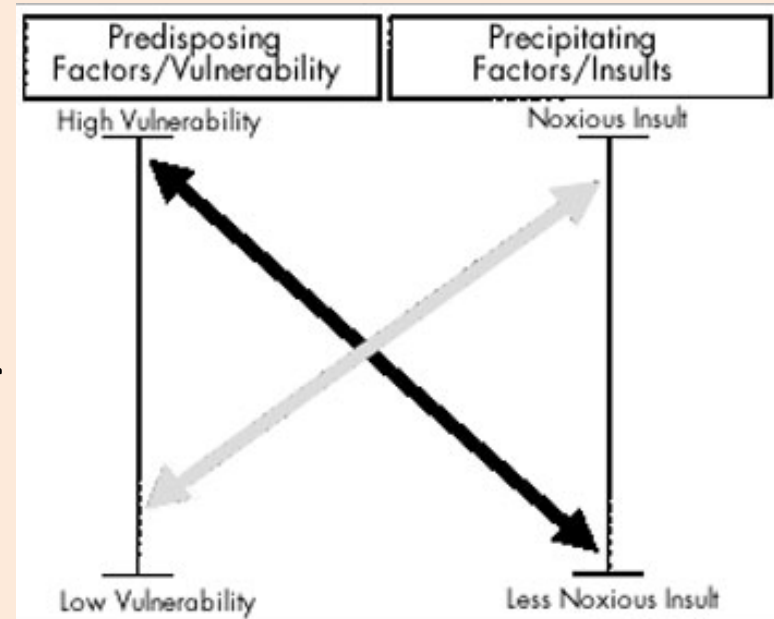
THINK DELIRIUM



Anyone can become delirious

It's just a question of:

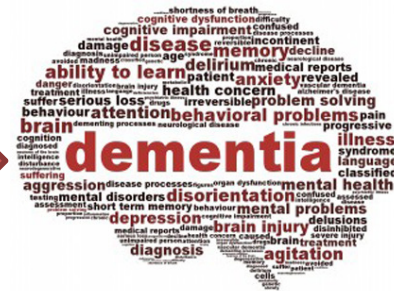
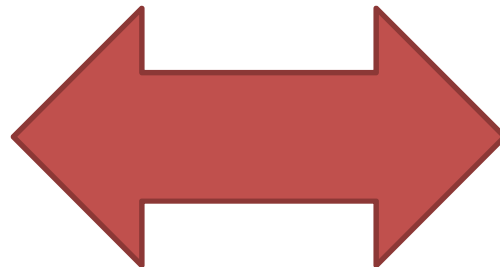
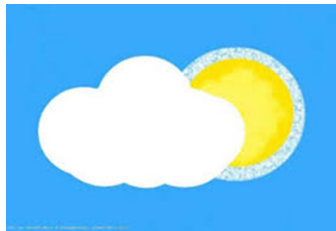
- Vulnerability of brain
- Number and severity of triggers



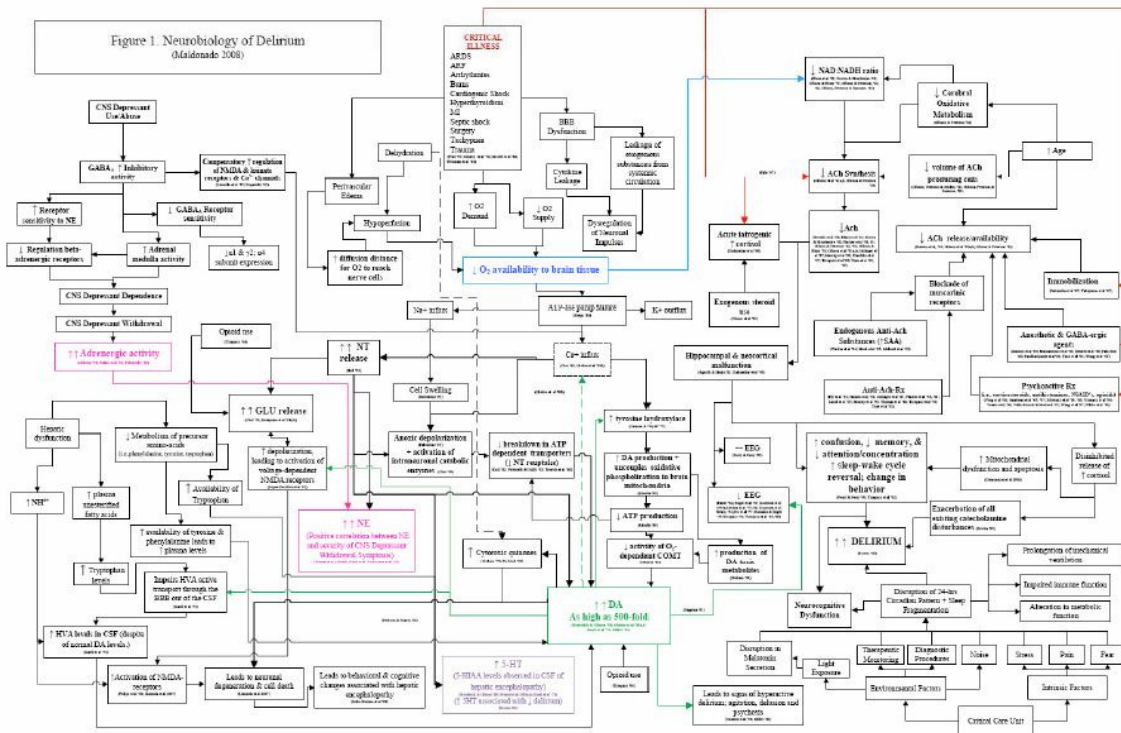
Risk factors help us identify who most likely to cross the delirium threshold

Dementia and Delirium

- Any episode of delirium in old age increases the likelihood of dementia.
- If he's over 85, having an episode of Delirium means he is **9 times** more likely to develop Dementia
- Dementia increases the odds of delirium too.
- If she has dementia, she is **up to 6 times** more likely to suffer delirium if she gets admitted to hospital.



Why?



- It's complicated!
- We don't really know HOW delirium happens
- We now know that it isn't always a temporary state that fully resolves afterwards

Analogyes



Chronic heart disease



Sudden trigger (e.g. infection)



Acute heart failure



Chronic kidney impairment



Sudden trigger



AKI: acute kidney impairment



Dementia



Sudden trigger



Delirium

**When it gets better, the organ may be the same as it was...
or not as good as it was.**

Delirium prevalence

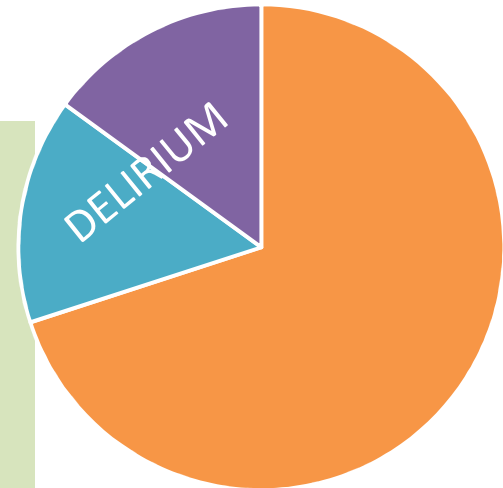
- Estimated to be 14% prevalence (i.e. on any given day) in aged residential homes



Delirium in care homes. Reviews in Clin Geront 19 (4) November 2009 , pp. 309-31

Prevalence

- Estimates vary from 15-30% of all hospital inpatients
- **That means a *minimum* of 1 in 8 of all inpatients**
- 25% General Medicine wards
- 50% Geriatric inpatient wards
- 50% of hip fracture patients

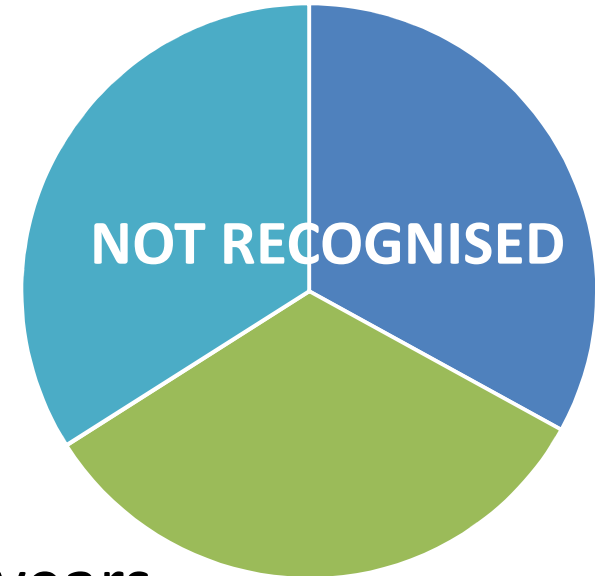


Prevalence in surgical patients

- General surgery 7 - 20%,
- major abdominal surgery 50%
- Orthopaedic surgery 30%
- All surgical wards stay >48 hours 30%



Recognition



- 32-66% cases unrecognised.
- No changes in these data in last 30 years
– Inouye 2017 (Sydney Delirium workshop)
- Note that Delirium is the single **MOST COMMON** in-hospital complication

Fred's not delirious – yet...



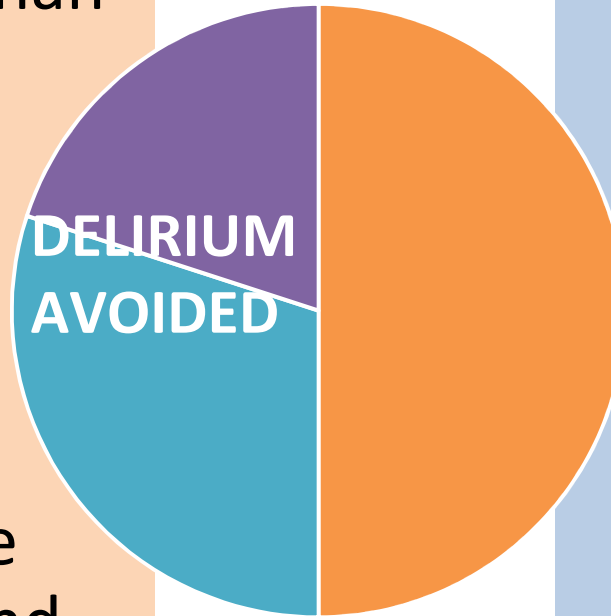
“Oh yes – of course I know who you are. Sorry – I’m just in a bit of pain. Can you help me get organised?”

- Do you think he’s **at risk** of Delirium?

We can reduce **risk...**

- Much better than we can treat delirium

- By somewhere between 30 and 50 %



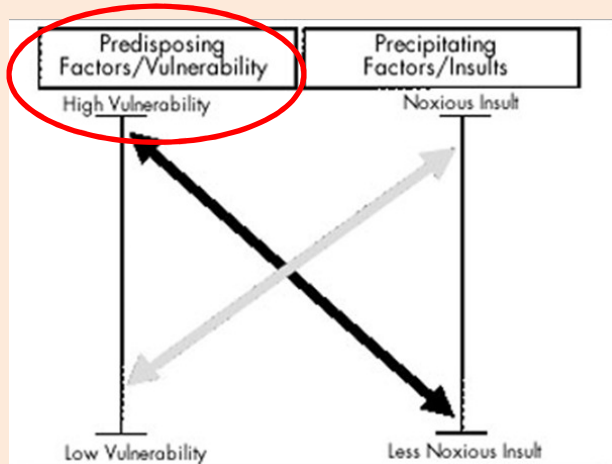
- Most (all) of this work has been done in acute hospitals

But the guidelines extrapolate it to residential facilities too

Risk factors

Biggest 4

- Old (65 or older)
- Cognitive decline
- Severe illness
- Hip fracture

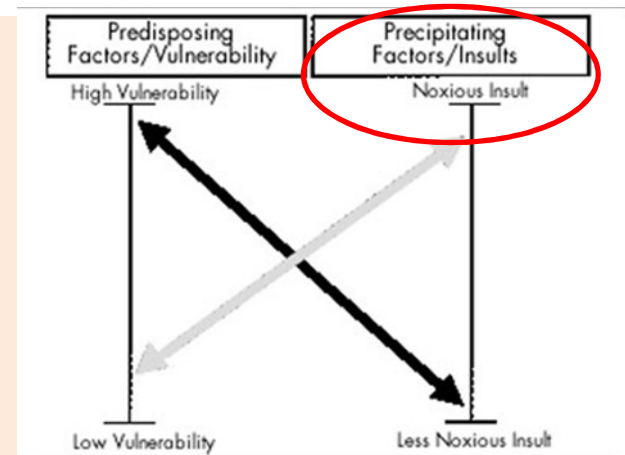


Others

- Hearing, sight, language impaired
- Male
- Depression
- Previous delirium
- Multiple longterm medical problems
- Taking many medications
- Frailty
- Undernourished
- Alcohol dependence

Triggers of delirium

- Sudden poor vision, hearing, or language barrier
- Displacement from usual routine/ environment
- Unrecognised stroke or bleed on the brain
- Head injury
- Silent heart attack
- Hidden infection
- Obvious infection
- Constipation
- Urinary retention (bladder won't empty)
- Tubes such as IV lines, chest drains, bladder catheter
- General anaesthetic
- Serious bony injury
- Trauma
- Undertreated pain
- Overtreated pain
- Polypharmacy (multiple medicines)
- Any psychotropic medicines (ones that act on the brain)
- Withdrawal from alcohol, sleeping tablets etc
- Low sodium (salt level) & other blood abnormalities
- Hypo/hyperthyroid and other endocrine abnormalities
- Anaemic
- Dehydration
- Brain secondaries



AND THE LIST GOES ON...

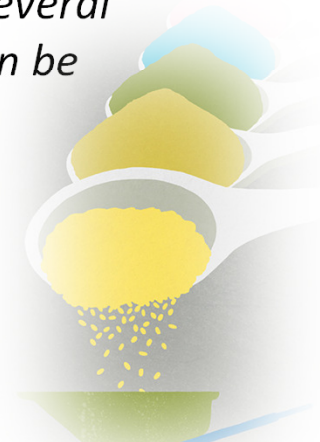
Triggers of delirium – an easier list

- Acute change in routine and environment
- Acute impairment in physiology (body systems)
 - pain, fear, constipation, urinary retention, dehydration, low blood sugar etc
- Any psychotropic drug; lots of other drugs; lots of drugs
- Acute medical or surgical condition or injury

The more vulnerable the patient, the less severe any of these need to be



A bit of several things can be enough



What can I do to prevent Delirium for Fred?

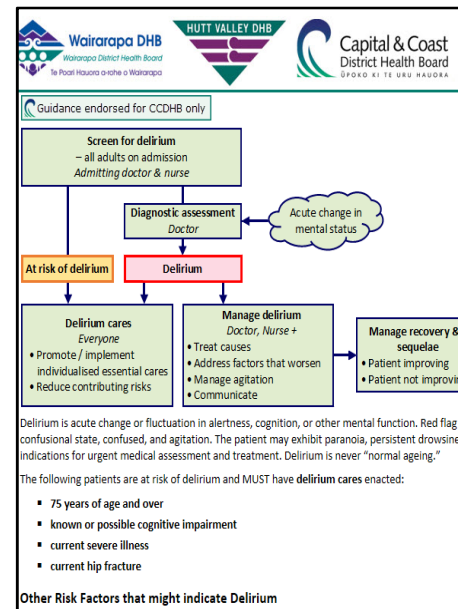
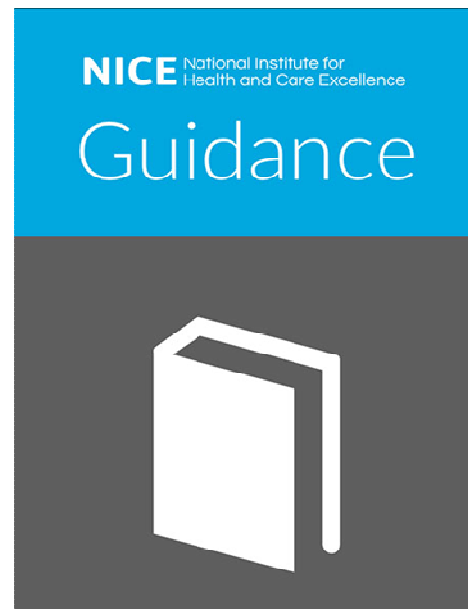


Prevention: what research shows:

- All studies done in hospitals
- All multicomponent
- Overall: a 30-66 % reduction of delirium
- Also showed around a 60% reduction in falls

So... The same ideas were extrapolated to wherever delirious patients are found

What was in the multicomponent intervention?



**RECOGNISE THE
PERSON AT RISK**

**BEST CARE
COMPONENTS FOR *ALL*
PERSONS**

**CARE COMPONENTS
TAILORED TO *THE*
PERSON**



RECOGNISE THE PERSON AT RISK

- Risk factor assessment at admission
 - Age 66+, severe illness, hip fracture, dementia
- Delirium assessment
 - Screening of those at risk
 - Diagnosis by experienced staff



4AT ASSESSMENT	
ALERTNESS Normal (fully alert, but not agitated, throughout assessment)	0
Mild sleepiness for <10 seconds after waking, then normal	0
Clearly abnormal	4
AMT4 Age, date of birth, place (name of the hospital or building), current year.	
No Mistakes	0
1 Mistake	1
2 Mistake	2
ATTENTION Ask the patient: "Please tell me the months of the year in backwards order, starting at December." To assist initial understanding one prompt of "what is the month before December?" is permitted. Months of the year backwards	
Achieves 7 months or more correctly	0
Starts but scores <7 months / refuses to start	1
Untestable (cannot start because unwell, drowsy, inattentive)	2
ACUTE CHANGE OR FLUCTUATING COURSE Evidence of significant change or fluctuation in: alertness, cognition, other mental function (eg, paranoia, hallucinations) arising over the last 2 weeks and still evident in last 24hrs	
No	0
Yes	4
4 or above: possible delirium +/- cognitive impairment	
1-3: possible cognitive impairment	
0: delirium or severe cognitive impairment unlikely (but delirium still possible if [4] information incomplete)	

With a brief test

RECOGNISE THE PERSON AT RISK

- If you know the person, you can already know if he or she is at risk
- And you now know that he or she is at greater risk whenever one of the major triggers happens



BEST CARE COMPONENTS FOR *ALL* PERSONS

- Familiar people/ staff
- Reduce moves
- Monitor daily
- Manage the illness
- Reassure, reorientate and communicate with the person
- Inform and educate the patient and whanau



CARE COMPONENTS TAILORED TO *THE* PERSON

- Reorientate, lighting, signage, explanation
- cognitive stimulation
- food and fluids, dentures...
- bladder and bowel
- mobilise or exercise
- monitor for infection
- remove tubes
- hearing and vision
- pain
- polypharmacy
- sleep hygiene and quiet nights



More info on reducing risk of Delirium:

NICE Guidance

- <https://www.nice.org.uk/about/nice-communities/social-care/quick-guides/recognising-and-preventing-delirium#sharing>

HELP: Hospital Elder Life Programme

- <http://www.hospitalelderlifeprogram.org/>

Canterbury THINK Delirium brochure

- <https://www.cdhb.health.nz/Hospitals-Services/Health-Professionals/think-delirium/Documents/Think-Delirium-236949.pdf>

What can I do to prevent Delirium for Fred?

- Can he be cared for without moving him from his home?
- Can he be cared for without disrupting his routine?
- Good essential care:
 - Food and eating
 - Drink
 - Bowels and bladder working
 - Able to see, hear and understand
 - Pain and discomfort addressed
 - Careful use only of meds, investigations and interventions
 - Quiet calm environment
 - Not put to bed unless having a nap



Fred is in pain...

Which of the following can trigger delirium?

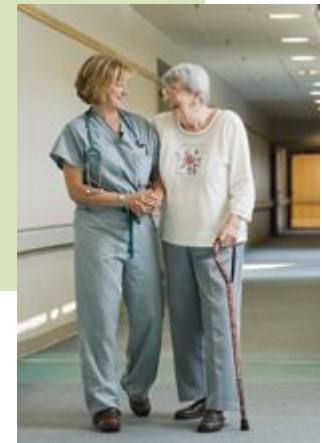
1. Undertreated pain
2. Opiates (codeine, tramadol, fentanyl, morphine)
3. Anti-inflammatories (nurofen, voltaren)
4. Paracetamol (Panadol)



Pain is stronger driver of Delirium than
medicines

Pain and Delirium

- Pain and disability are big triggers
- Opiates may be needed:
 - use the lowest effective dose
 - Use the smoothest delivery
 - AVOID Tramadol
 - DON'T TITRATE with a fentanyl patch
 - Cognitive patients need YOU to decide on PRN (top-ups)
 - Only getting side effects not relief? Stop or go back
 - Laxatives!!!
- These are surprisingly effective!
 - Repositioning
 - Reassurance
 - Massage, essential oils, touch
 - Hot or cold packs
 - Reminding of their injury and sense-making
 - Distraction
 - Sleep hygiene
 - Having a proper nap
 - **Going for a walk**



Fred IS delirious.

What do I need to think about?

- **NAME IT: DELIRIUM**
- Addressing triggers: good medical care. Where?
- Advocacy: good medical care means the least harmful, and the most meaningful for Fred.
- Managing the person: good nursing care. Where?
- Advocacy: good nursing care is better with info about the person: routine, priorities, dislikes.
- Support: Family understanding of Delirium; and support to be advocates themselves.



Health professionals talking with family

Resources:

- Patient info brochures: all good, they all say much the same!
- CCDHB, Hutt, Canterbury, Waikato, NICE – easy to find something on Google.

Online videos:

- <https://www.youtube.com/watch?v=BPfZgBmcQB8> What is Delirium. UK. Animated pictures, using patient journey to explain.
- <https://www.youtube.com/watch?v=M4wsPTtGelc> Vet Affairs USA “quiet and excited delirium – signs, with vignettes of a couple

Fred IS Delirious...

What **treats** delirium?

- Recognition
- Good essential nursing care
- Goal-directed medical care
- Treating/removing triggers where able

- **No medication can shorten delirium**
- A metanalysis of antipsychotic medication found **no effect on prevention, duration, severity, ICU admission** for delirium
- Antipsychotics only treat symptoms (agitation, psychosis) – and this is arguable...

Ongoing debate about whether antipsychotics:



Do treat delirium

OR

Just increase risks

OR

Do neither – delirium mainly follows its own natural history

Do treat distress, psychosis in delirium

OR

Mainly treat onlookers' distress

Are an overly simplistic, response to change in one neurotransmitter

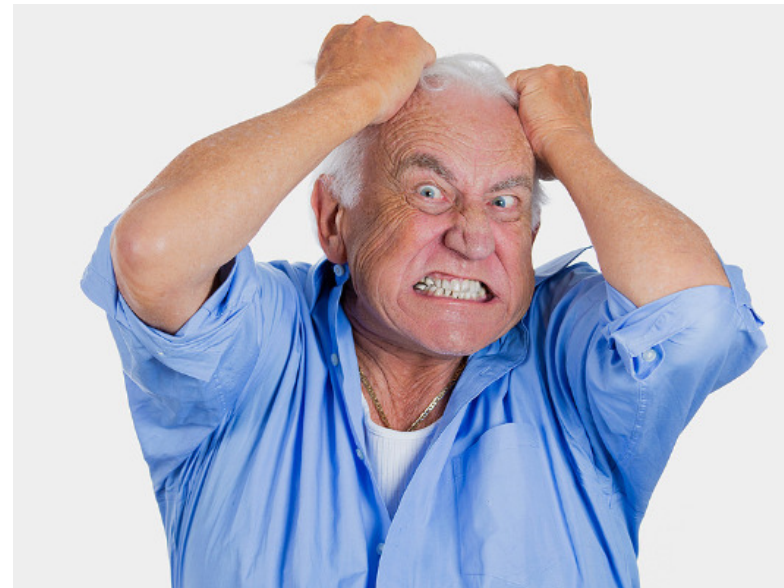
OR

Should be considered as one part of a response to a multifactorial syndrome, akin to psychiatric disorders

Might benefit certain subgroups (clinical subtypes, aetiology, background cognitive profile) – but this unstudied

Fred is agitated

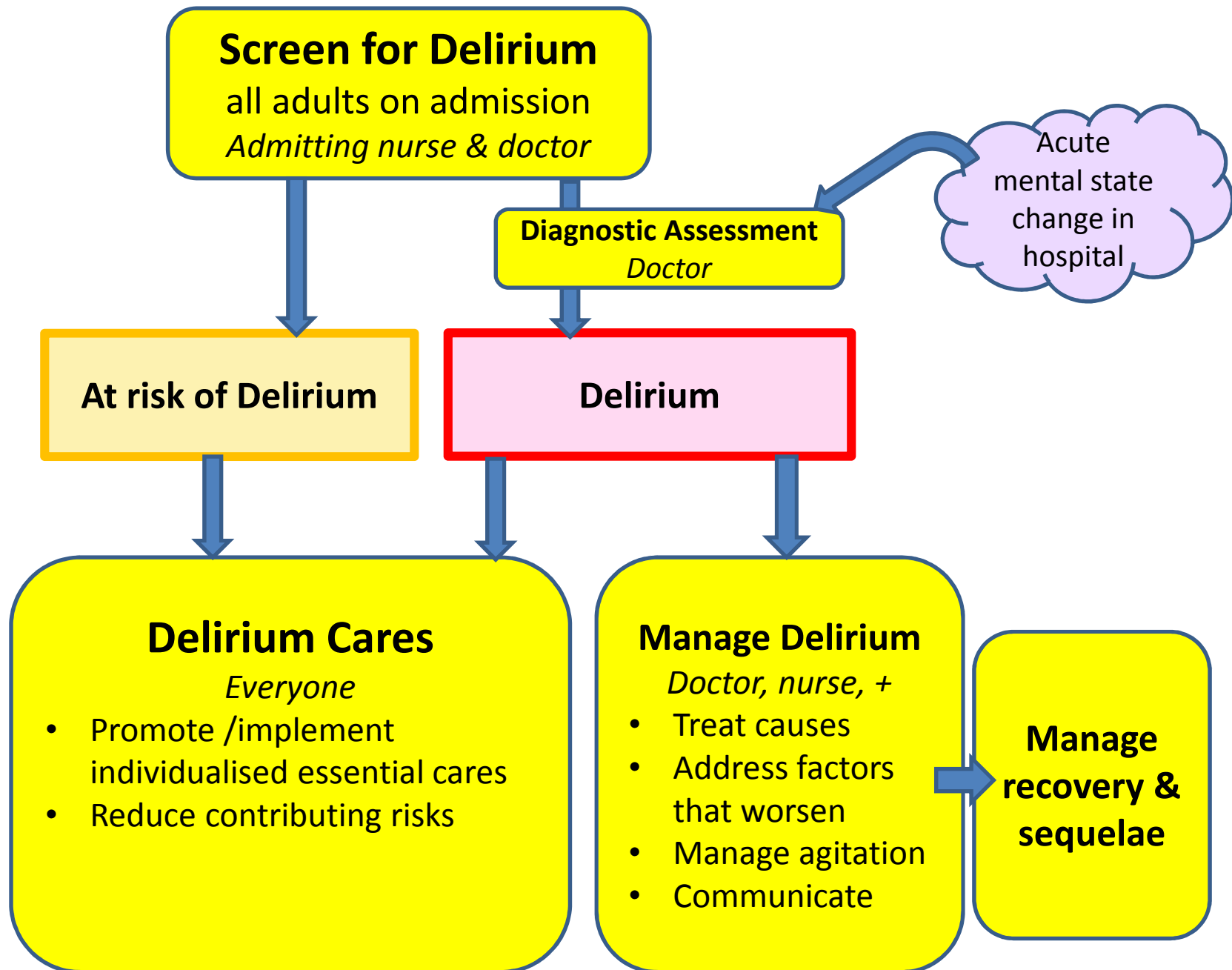
- Fred is calling out repeatedly, trying to get out of bed (despite his broken arm and tubes attached to him), shouting at you and eventually taking a swing with his fist.



Avoid medicating – how?

- **1:1 nursing (a family member?)**
- Nurse in single room
- Low lighting at night
- Remove all medical stuff you can
- Have familiar objects
- Correct sensory deprivation (spectacles, hearing aid)
- Gently reassure and reorientate (give this advice to others)
- Distract and agree if necessary (validation)
- **Take patient for walks** if appropriate
- Sensory distraction: Use music, essential oils, soft toy to cuddle, massage, folding flannels, sensory toys.





A big decision needs to be made for Fred

- Does he have the mental capacity to make it?
- In other words can he understand the issue, remember the information, weigh up the pros and cons, make a choice and communicate it clearly?



For example

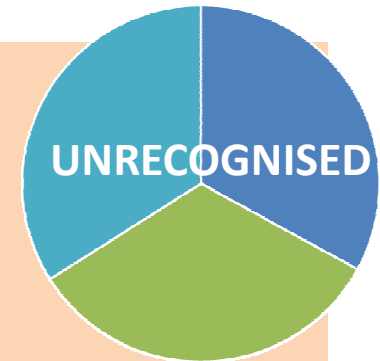
- The medical team wants to activate his Enduring Power of Attorneys and discharge Fred to a rest home – which is against his wishes.
- Fred has been rambling on in a vaguely paranoid way about his younger relatives and now asks you to organise his lawyer to come in.
- You have come to realise that Fred has an underlying dementia and are alarmed that he may make poor decisions, so you ask his GP to activate his Enduring Power of Attorney
- A medical specialist has a pre-existing appointment with Fred and wants to discuss complicated treatment for a life-limiting condition.

Pause.

Why does this need to happen now?

- Delirium doesn't automatically mean loss of capacity to decide....
- But it often does, and the person is also in a vulnerable state:
 - Sick
 - In pain
 - Emotional
 - Relatively powerless
 - A captive audience

- Is the Delirium recognised?



- Mild delirium/ hypoactive (sleepy/ apathetic) is particularly hard to pick
- Has it got better yet?
- Is it going to – in time for this decision?

How long does Delirium last?

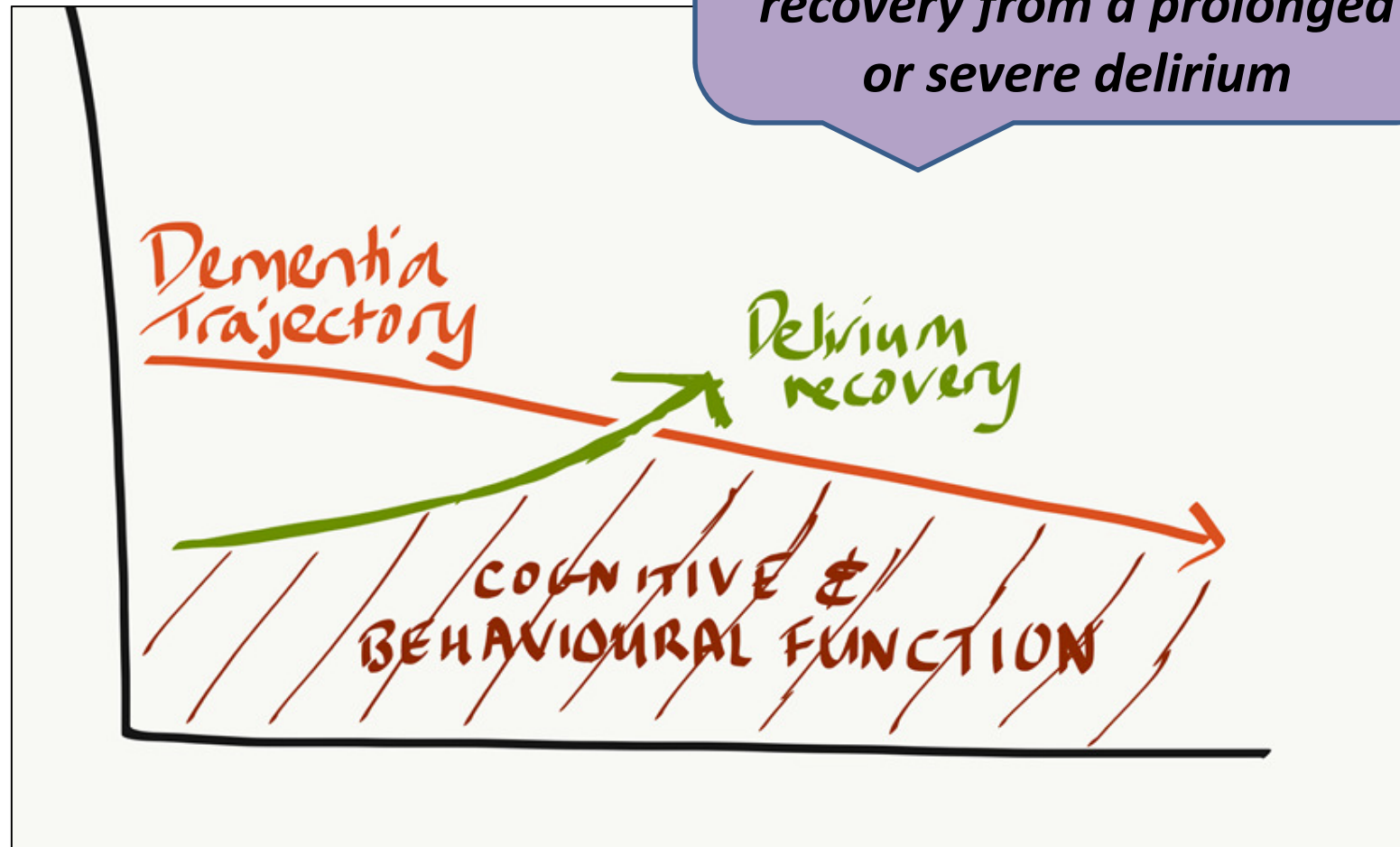
Varies from a day or two, to weeks, to months

A person may well not return to their previous cognitive functional level



The longer and more severe the delirium, the longer it will take to recover

If dementia was already present, dementia progression may overtake recovery from a prolonged or severe delirium



Who can speak for Fred?

Next of kin:
No legal right to
make decisions
but useful person
to speak about
Fred

If there is no-one
who can give
consent for
treatment,
doctors can go
ahead based on
consensus of
doctors and
significant others
who know Fred

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EPOA = Enduring
Power of Attorney
for Health and
Welfare

EPOA for Property
(assets and
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Can make
decisions IF a
doctor has
activated it due to
Mental Incapacity

Cannot legally
refuse “standard
treatment” for
Fred

EPOA for Property
(assets and
finances)

Can make
decisions IF a
doctor has
activated it due to
Mental Incapacity

OR if Fred has
made the power
of attorney
“Immediate” and
well as “Enduring”

Who can speak for Fred?

Next of kin:
No legal right to make decisions but useful person to speak about Fred

If there is no-one who can give consent for treatment, doctors can go ahead based on consensus of doctors and significant others who know Fred

EPOA = Enduring Power of Attorney for Health and Welfare

Can make decisions IF a doctor has activated it due to Mental Incapacity

Cannot legally refuse “standard treatment” for Fred

EPOA for Property (assets and finances)

Can make decisions IF a doctor has activated it due to Mental Incapacity

OR if Fred has made the power of attorney “Immediate” and well as “Enduring”

Property manager, appointed by the family court

Welfare Guardian, appointed by the family court

Can make decisions – until time limit runs out (max 3 years)

Delirium: not a good time to...

- Make a big decision. Wait until better
- Appoint an Enduring Power of Attorney. Wait until better
- Activate an Enduring Power of Attorney. Wait until better
- Fred may well lack capacity temporarily but he needs to be given the time and opportunity to recover.
- DOES THE DECISION HAVE TO BE MADE NOW?

Fred is coming home

- Will he be over his delirium now?



Fred is coming home

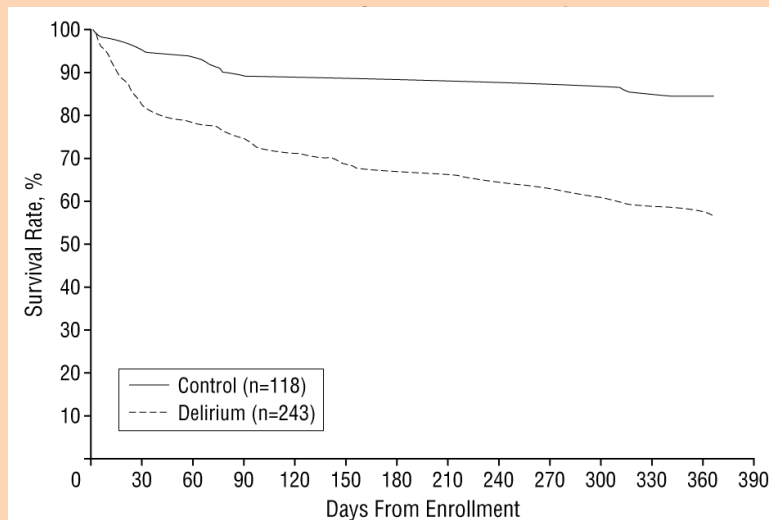
- Will he be over his delirium now?
- Not necessarily:
45% are still delirious at discharge from acute hospital
- Hopefully he is improving!



Fred may do well now... but he may not.

- Cognitive, physical, social function poorer in a large proportion; esp if dementia*
- Between 50 and 80% patients recall delirium after – the memory is often **traumatic**

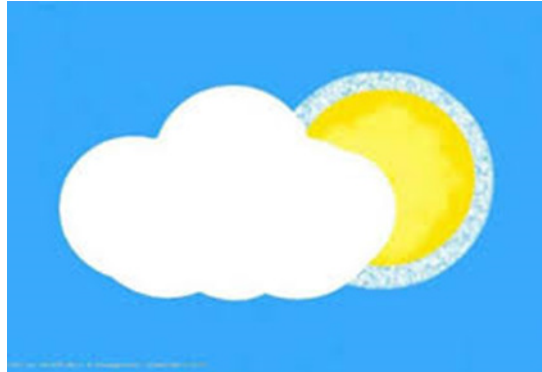
- Increased mortality persists – 6, 12, 24 months*
 - 60% at 1 year



What will give Fred the best chance of recover at home?

- Similar to best essential care in hospital.
 - Predictable, gentle routine
 - Meals, meds, nap and bedtimes similar each day
 - Keeping moving: going for walks if practical
 - Starting very simple and gradually increasing activities
- Enough cognitive stimulation but not too much.
 - Enjoyable
 - Social contact
 - Music
 - Pottering with leisure pursuit if able
 - Games and crosswords if that's already her "thing"
 - Exercise/ sport / dance





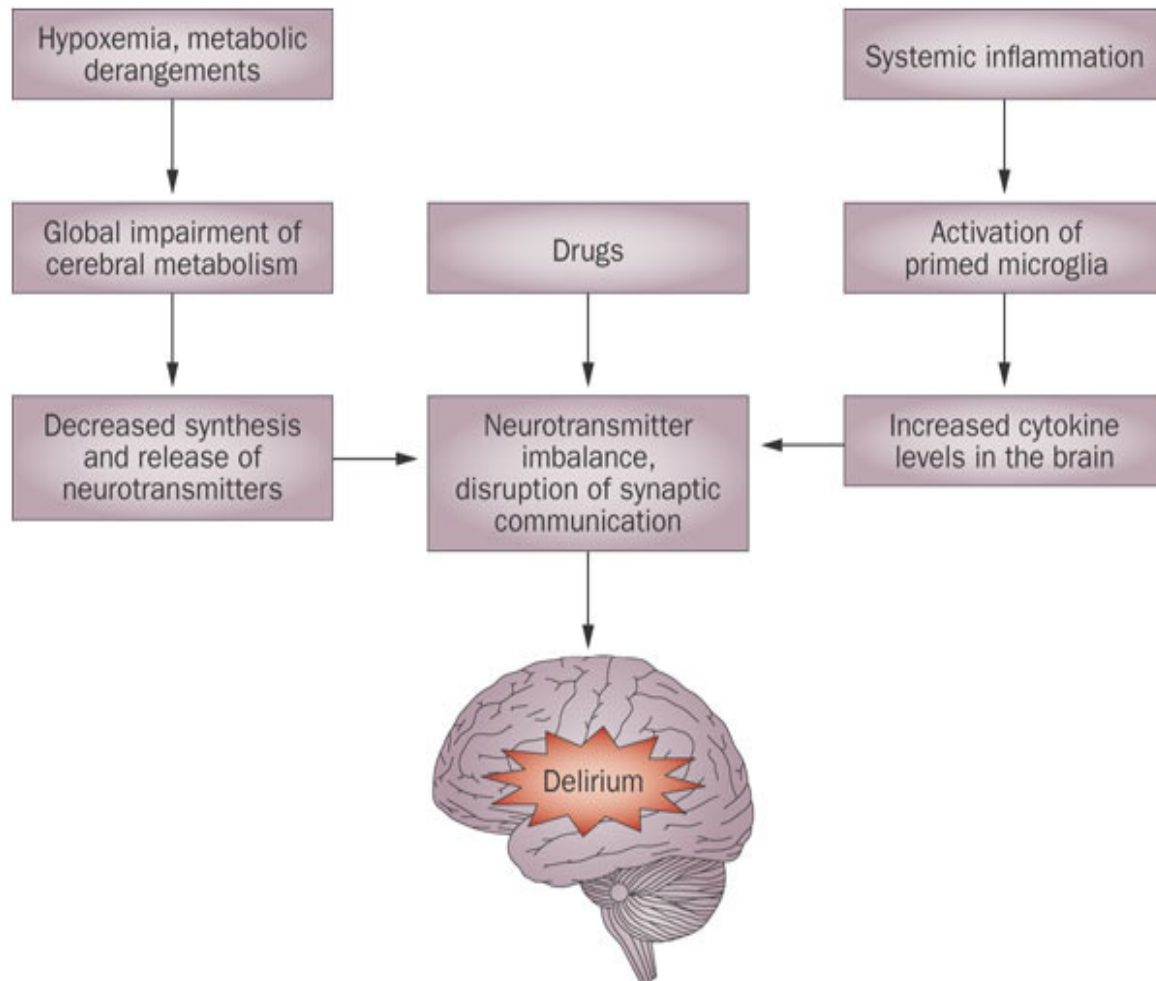
Question Time

I'm confused.

No wait...

Maybe I'm not.

Delirium Pathophysiology



- Delirium a product of multiple potential processes, rather than final common pathway
- These can include direct effects on brain (drugs, impaired blood flow) or secondary effects from illness processes affecting the whole system of the body
- Much ongoing work

- Much is made of elevated levels of Dopamine (especially because antipsychotics lower dopamine)
- But there are also changes in noradrenalin, glutamate, acetylcholine (reduced) and histamine, GABA, serotonin (reduced/ increased)
- See Maldonado. AM J Geriatr Psychiatry 21;1190-1222 2013 for more

A/Prof Gideon Caplan, Prince of Wales , NSW (conference 2017)

- He feels neuroinflammation nor neurotransmitter results don't meet criteria for causation
- but his work showing altered glucose metabolism and blood flow changes does.
 - Evidence for aerobic ➤ anaerobic glucose metabolism
 - Reduced blood flow to post cingulate gyrus (attention)
- Poised to trial improving glucose metabolism
 - Inhaled insulin via nasal mucosa!

Prevention - metanalysis

- **Effectiveness of Multicomponent Nonpharmacological Delirium InterventionsA Meta-analysis.**
- Hshieh TT... Inouye SK. *JAMA Intern Med.* 2015;175(4):512-520.
- 14 interventional studies. Overall, 11 studies demonstrated significant reductions in delirium incidence (OR 0.47; 95% CI, 0.38-0.58).
- Four randomized or matched trials **reduced delirium incidence by 44%** (OR, 0.56; 95% CI, 0.42-0.76).
- The rate of **falls decreased** significantly among intervention patients in 4 studies (OR, 0.38; 95% CI, 0.25-0.60); in 2 randomized or matched trials, the rate of falls was reduced by 64% (OR, 0.36; 95% CI, 0.22-0.61).
- **Length of stay and institutionalization also trended toward decreases** in the intervention groups, with a mean difference of -0.16 (95% CI, -0.97 to 0.64) day shorter and the odds of institutionalization 5% lower (OR, 0.95; 95% CI, 0.71-1.26).).

Antipsychotics for prevention and treatment

- Systematic review and metanalysis by Neufeld K, Inouye S et al. JAGS 2016 March. 64:705–714, 2016, focused on post-operative patients but including both surgical and medical patients
- Part of working up a post op delirium clinical practice guidelines under AGS; who concluded there was too little numbers to just look at surg or med patients separately
- Found **no effect on prevention, duration, severity, ICU admission for delirium**
- Note made of previous metanalyses and single studies with positive results (Quetiapine in ICU patients 2 studies*): Can't be sure about specialised populations.
- *2010, 2011 (both Devline et al, both Crit Care Med)

- Antipsychotics are (probably) associated with **increased mortality** – use them as a last resort
 - A metanalysis concluded they were NOT in 2009 (Elie et al), but a robust trial in palliative patients in 2017 clearly showed worse mortality in the haloperidol group (Agar et al)
- We don't know if they **cause** death directly, or if the use of them is a **marker** that the person is pretty sick/ vulnerable and more likely to die.