Delirium: Be alert (and armed)

Dementia NZ Symposium May 2018
Dr Kate Scott, Geriatrician, CCDHB
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?
  • What are the differences between delirium and dementia?

• How can you tell if a person with dementia now has a delirium too?
  • 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)? **Yes**
  - Is he “confused”? **Yes**
  - Is she sleepy and hard to get fully alert even though it’s daytime? **Yes**
  - Is he distracted and hard to keep on task or in the conversation? **Yes**
  - Is she agitated and cross or suspicious? **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.

Davis DH. Brain. 12 Sep;135(Pt 9):2809-16.

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
Analogies

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
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%
• 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

DELIRIUM AVOIDED
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

  With a brief test

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<table>
<thead>
<tr>
<th>ALERTNESS</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Normal, alert and oriented to environment</td>
<td>0</td>
</tr>
<tr>
<td>Misplacing objects for &lt;10 seconds after wiping, then normal</td>
<td>0</td>
</tr>
<tr>
<td>Clearly abnormal</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>AIMS</th>
<th>Score</th>
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<tbody>
<tr>
<td>Age, date of birth, place of residence, current year</td>
<td>6</td>
</tr>
<tr>
<td>Job, marital status</td>
<td>1</td>
</tr>
<tr>
<td>2. Orientation</td>
<td>2</td>
</tr>
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</table>

**ATTENTION**

Add the digits: “Please tell me the months of the year in order. Starting at January.”

To avoid fluctuating course, you might allow 1-2 weeks for improvement to be assessed.

**ACUTE CHAOS OR FLUCTUATING COURSE**

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<thead>
<tr>
<th>Alertness/S Obser/ Abnormal Orientation</th>
<th>Score</th>
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<tr>
<td>Abnormal</td>
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<tr>
<td>Slurred speech</td>
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**AGITATION**

<table>
<thead>
<tr>
<th>DSM-IV</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1-3</td>
<td>Possible cognitive impairment</td>
</tr>
<tr>
<td>0</td>
<td>Cognitive or severe cognitive impairment</td>
</tr>
</tbody>
</table>

**INFORMATION ACQUISITION**

<table>
<thead>
<tr>
<th>Score</th>
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<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1-4</td>
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</tbody>
</table>
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
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][1] What is Delirium. UK. Animated pictures, using patient journey to explain.
- [https://www.youtube.com/watch?v=M4wsPTtGeIc][2] 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

Are a 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

Do treat distress, psychosis in delirium
   OR
Mainly treat onlookers’ distress

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.
Screen for Delirium
all adults on admission
Admitting nurse & doctor

At risk of Delirium

Delirium Cares
Everyone
• Promote / implement individualised essential cares
• Reduce contributing risks

Delirium

Diagnostic Assessment
Doctor

Manage Delirium
Doctor, nurse, +
• Treat causes
• Address factors that worsen
• Manage agitation
• Communicate

Manage recovery & sequelae

Acute mental state change in hospital
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
- The longer and more severe the delirium, the longer it will take to recover
- A person may well not return to their previous cognitive functional level
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 for Property (assets and finances)

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Cannot legally refuse “standard treatment” for Fred

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<td>OR if Fred has made the power of attorney “Immediate” and well as “Enduring”</td>
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<tr>
<td><strong>Property manager, appointed by the family court</strong></td>
</tr>
<tr>
<td><strong>Welfare Guardian, appointed by the family court</strong></td>
</tr>
<tr>
<td>Can make decisions – until time limit runs out (max 3 years)</td>
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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

Archives of Gerontology and Geriatrics. 64 (pp 38-44), 2016
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!
Effectiveness of Multicomponent Nonpharmacological Delirium Interventions: A Meta-analysis.


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.