NEUROPSYCHOLOGICAL ASSESSMENT OF THE SUBSTANCE-USING OLDER PERSON

MONICA WILLIAMS, CLINICAL NEUROPSYCHOLOGIST, CDAMS, ST GEORGE'S HEALTH SERVICE

OVERVIEW

- Alcohol related cognitive impairment
  - Background
  - Neuropsychological profile
- Case examples
  - Cognitive profile
  - Capacity issues
  - Management

BACKGROUND

- Alcohol related cognitive impairment
  - Excessive and prolonged alcohol use is a risk factor for cognitive impairment
  - 78% of alcoholics have some degree of brain pathology on autopsy
  - High prevalence of alcohol related dementia in nursing homes : 10 – 24%
  - Level of cognitive impairment can vary:
    - Level of alcohol intake – many years of 6 – 8 drinks per day from early adulthood
    - Health status and nutrition
    - Other factors

ALCOHOL RELATED COGNITIVE IMPAIRMENT

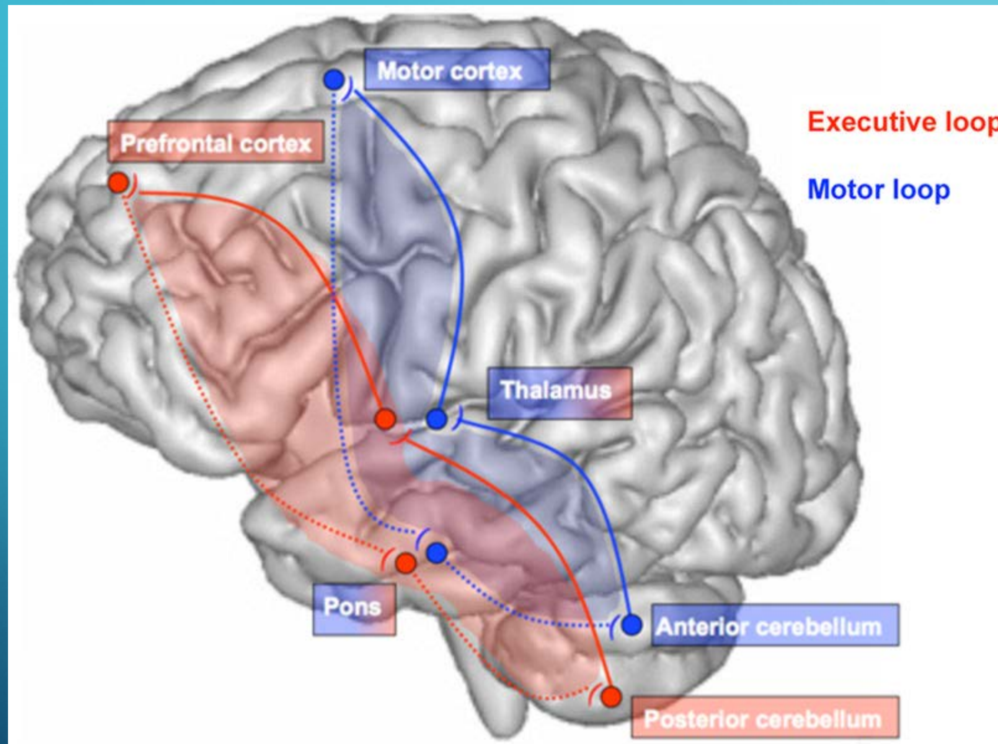
- Cause of impairment
  - Thiamine deficiency
  - Alcohol neurotoxicity

  } Combination of both
- Confounding comorbidities which can contribute to cognitive impairment
  - Falls with head strike
  - Liver disease
  - Malnutrition effects
  - Psychiatric diagnoses
  - Past overdose…
- Dual burden in older adults – aging plus substance abuse

NEUROPSYCHOLOGY OF ALCOHOL RELATED COGNITIVE IMPAIRMENT

- Some cognitive functions can improve with abstinence
- Older drinkers likely to have ongoing problems, have a younger onset of problems and are more likely to be male
- Heterogeneous cognitive profiles with impairments across a broad range of cognitive functions
  - Intellect
  - Working memory and processing speed
  - Executive functions
  - Memory functions
    - Impaired encoding due to poor organisation of information, with better recognition (executive issue)
    - Long term retrieval or anterograde memory formation (WKS)

FRONTOCEREBELLAR CIRCUIT



- Disruption to frontocerebellar circuitry
- Damage at any point can result in dysexecutive or "frontal deficits"
  - Executive dysfunction
    - Drive
    - Impulse management
    - Flexible thought
  - Behavioural disturbance
  - Maintenance of addictive behaviour
  - Denial

CHALLENGES IN ASSESSMENT

- Client engagement
  - Social isolation – may present for other reasons, ie post injury
  - Compliance affected by insight and apathy
- Timing of assessment
  - Validity of assessment in an individual who is presently using
  - Ideal situation – assessing someone who has withdrawn from substances for several weeks
  - Misdiagnosis – dementia in someone who is using
- Hidden impairment – MMSE

CASE EXAMPLE 1

- 74 year old man, widowed 16 years ago, Diploma of Marine Engineering, discharged as medically unfit from Navy
- Neurology assessment 6 months prior
  - 12 month history of worsening memory problems, confusion with handling money, unsteady gait
  - CT brain: mild generalised cortical atrophy within normal limits
  - Normal liver function tests
  - Nystagmus on lateral gaze, ataxic gait, troubles with tandem walking
  - No mention of alcohol history
  - Diagnosis of AD, or VAD

CASE EXAMPLE 1

- Partner coping poorly at home, ACAS assessment
  - Issues with anxiety, binge drinking, and dementia
  - MMSE of 16/27
- Referred to CDAMS
  - Abstaining from alcohol 2 months
  - MMSE 29/30
  - Binge drinking just before ACAS assessment – slab of beer
  - Performing well on cognitive screening tests – referred for neuropsychology

CASE EXAMPLE 1

- Medical history
  - Hypertension, high cholesterol, stroke at age 39 years, possible TIAs
  - Heavy alcohol use and smoking
    - Drank heavily during Naval career
    - Abstained 30 years,
    - Binge drinking since wife's death 16 years ago: couple of weeks of consuming slab of beer within 24 hour period, then may abstain 3/12.
  - Psychiatric history
    - Admissions to Repat
    - Treatment with ECT
    - Present mood euthymic

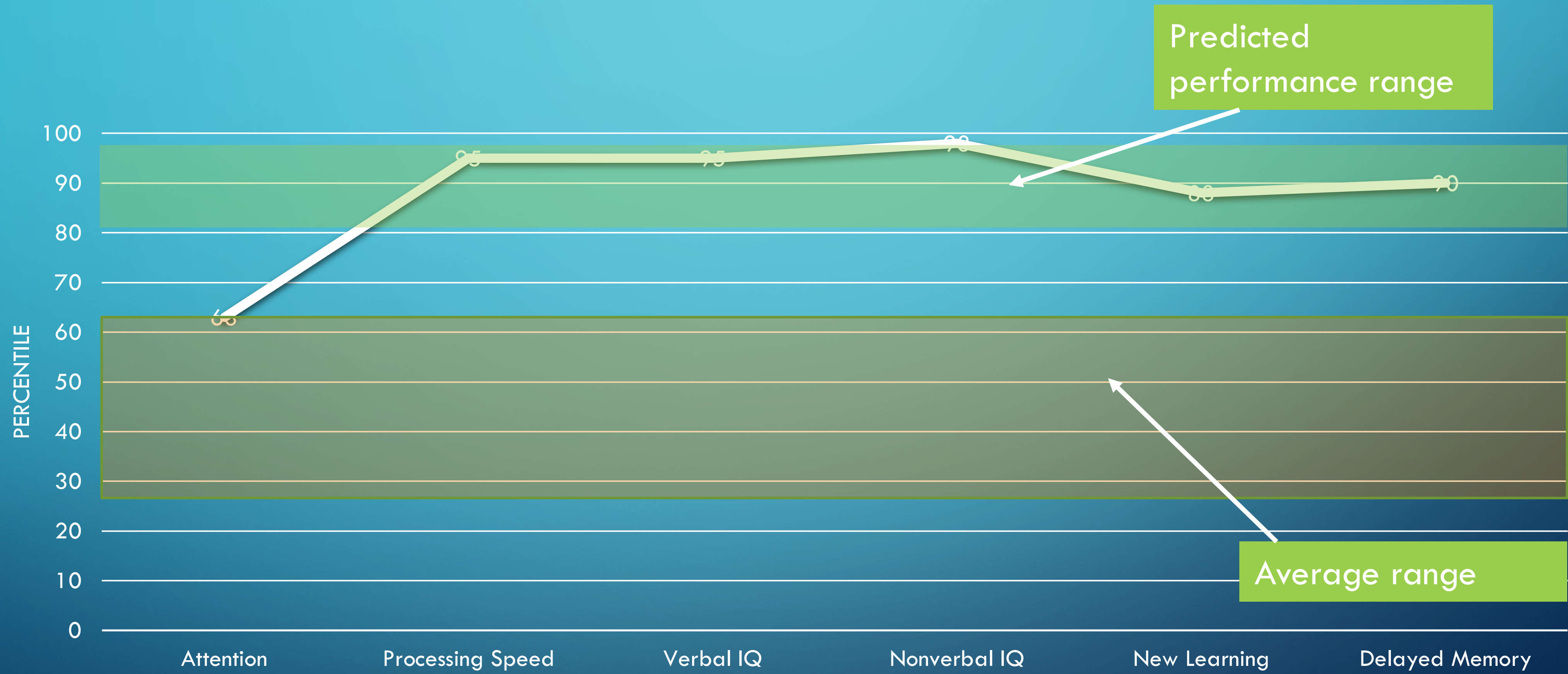
CASE EXAMPLE 1

- Recent history
  - 2 years of cognitive difficulties
  - Loses things, needs to write things down, becomes muddled and easily distracted
  - Marked problem with fluctuating mood
  - Fluctuating mood associated with memory problems
  - Mood and memory worse when drinking
  - Improvement in mood and memory since abstaining

CASE EXAMPLE 1

- Presentation
  - Very pleasant and cooperative
  - Ataxic gait, slurred speech
  - Normal mood, mild teariness/anxiety at times
  - No language disturbance
- 3 - 4 months without alcohol
- Predicted intellectual level
  - Superior range 90th percentile level, top 10% of peers

NEUROPSYCHOLOGY ASSESSMENT



NEUROPSYCHOLOGY ASSESSMENT

- Profile largely preserved
- No evidence of dementia syndrome
- Previous impairment seen when drinking heavily
  - Cautious interpretation of cognitive results when currently consuming excessive quantities
  - Importance of gathering a good history of alcohol intake and duration
- Cause of attentional problems may be multifactorial
  - Mood
  - Minimal organic damage – vascular or alcohol use

MANAGEMENT

- Psychoeducation re acute effects of alcohol on cognition and mood
- Encourage abstinence – rejoin a support program
- Importance of maintaining normal mood – rewarding and purposeful activities

CASE EXAMPLE 2

- 64 year old woman, registered nurse and midwife, not worked since age 30 after workplace injury to her back
- Widower since 2005, two children who are estranged from her
- Presently in residential care
- Referral reason: wants to leave care; does she have capacity to make this decision?

CASE EXAMPLE 2

- Medical history
  - Alcohol abuse
    - Self report – ½ a bottle of gin per day (underestimate?)
    - Lost drivers licence – BAL 0.134mg/100 ml
  - Prescription drug abuse
    - Pain medications – doctor shopping
  - Loss of weight – 18kg weight loss over two year period
  - Ataxic gait
  - Oedema

CASE EXAMPLE 2

- History
  - Frequent hospital presentations (8 x over 2015/16)
    - Falls
    - Abdominal pain
    - Tremors and nausea – alcohol withdrawal
  - Self-neglect
    - Loss of weight
    - Poor attendance to self care – could not be showered by carers as intoxicated
    - Home in "semi-squalid" state – rotten food, blood and faeces on carpet / sheets
  - Failure of home based support in preventing falls / improving self care – frequent relapse

CASE EXAMPLE 2

- Current function
  - Placed voluntarily in residential care
  - Abstaining from alcohol
  - Pain medications rationalised
    - Fentanyl patch
    - Pregabalin
    - Paracetemol
    - Diazepam
    - Endone/oxycodone

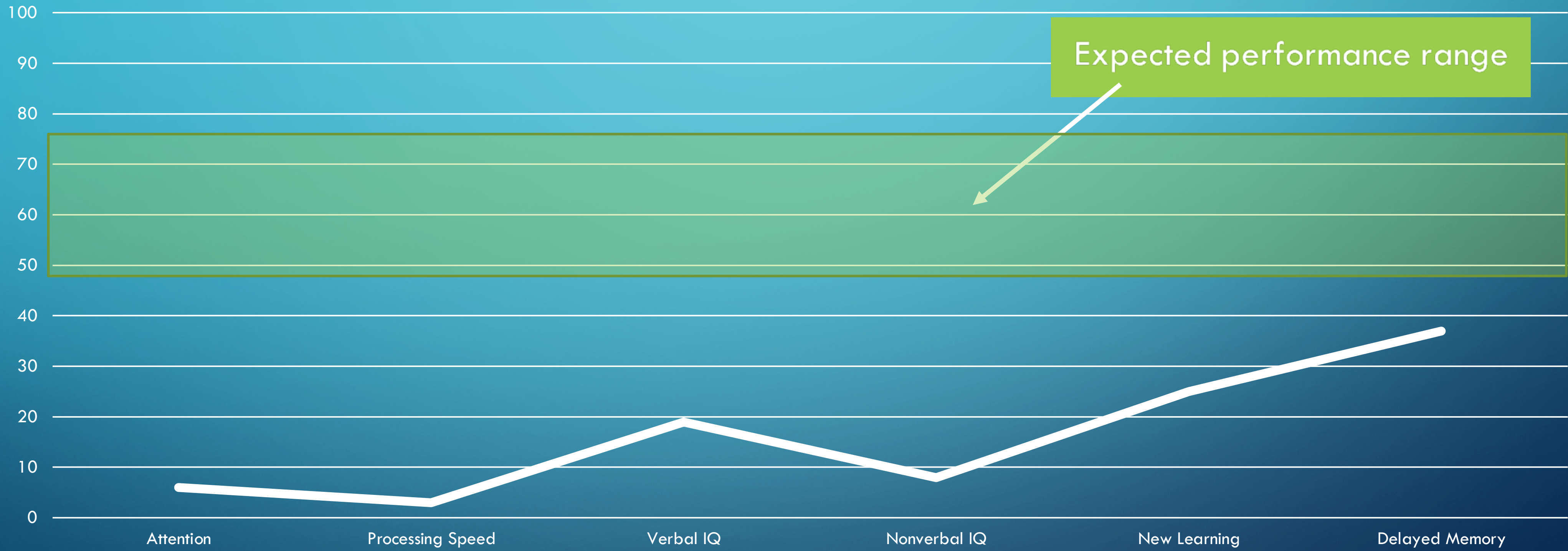
CASE EXAMPLE 2

- Current function
  - Improvement in weight – 15 kg increase
  - Needs prompts to finish meals and drinks
  - Supervision when showering due to falls risk
- Ongoing issues
  - Falls in shower – failure to wait for assistance
  - Performing exercises in shower
  - Slipped when walking with 4 wheeled frame
  - Fractured left wrist while in community - failed to alert staff

CASE EXAMPLE 2

- Presentation
  - Unsteady gait, poor compliance with SPS, “showing off”
  - Euthymic mood, blunted range affect
  - Irritable when presented with complex tasks
  - Fluent language but verbose, tangential and overinclusive
  - Mispronunciation errors for drug names
- Wishes to move out of residential care - placed $1000 deposit on house 4 days before
  - Believes this was not a risk as assessment will go well
- Predicted premorbid level
  - Average to high average range (50th to 75th percentile level)

RESULTS



RESULTS

- Moderate to severe intellectual loss
  - Loss of old factual knowledge – bottom 25% of peers
  - Impaired problem solving – bottom 8% of peers
  - Concrete reasoning
  - Marked slowing – bottom 3% of peers
  - Marked problems with attention – bottom 6% of peers
- Milder memory losses
  - Inefficient new learning – does not forget

RESULTS

- Severe executive losses :
  - Behaviour – impulsive with poor judgement; dissociation between knowing and doing (SPS)
  - Very poor control of attention
    - Poor self monitoring and error detection
    - Very poor initiative and idea generation – bottom 5% of peers
    - Mentally rigidity
  - Marked impulsivity - 40% error rate – unable to constrain behaviour to follow simple rules

RED GREEN BLUE

CONCLUSION

- Acquired cognitive disability – impairments across multiple domains
- Related to history of alcohol abuse; prescription drug abuse contribution
- Meets criteria for dementia syndrome
  - Severe deficits
  - Impact on independent function
- Clinical diagnosis: Alcohol related dementia

MANAGEMENT ISSUES

- Acquired cognitive deficits – impact upon future independent function
  - Dissociation between *knowing and doing*
  - Poor ability to reason through problems
  - Impaired ability to make judgements regarding effective action
  - Markedly impulsive behaviour
  - Cannot anticipate consequences
- Current conflict: Wish to leave residential care – placed a deposit on a home
- Does she have the capacity to make this decision?

MANAGEMENT ISSUES

- Interview – lack of insight into history, underinformed
  - Minimises seriousness of history of falls, hospitalisations
  - Denies problem with alcohol and substance abuse
  - Lack of insight into severity of wrist fracture; "I still had things to do"
- Cannot integrate the facts of the situation into her understanding
  - Poor function in community, falls risk, brain injury
- Not making an informed decision based on facts, unable to appreciate risk or anticipate consequences of action

MANAGEMENT ISSUES

- Conclusion
  - Lacks capacity to make lifestyle decisions secondary to cognitive disability
- Needs supportive decision maker
- Cannot voluntarily appoint – does not understand her care needs
- Need for application to VCAT for guardian and administrator
- Need for guardian to address future planning

MANAGEMENT ISSUES

- Ongoing management of executive dysfunction – modifying the environment
  - Structure and routine
  - Cueing
  - Clear rules and guidelines
  - Limiting choice (one or two vs many)
    - Overload, “stickiness” in thought, concreteness
- Impulsivity and perseveration - Absence of *conscious* choice to drink
  - Administrator to manage funds to remove access

KEY POINTS

- Importance of gathering history from multiple sources
  - Poor function in community
  - Ongoing risks while in care
  - Impulsive behaviour in putting deposit on house
- Don't be fooled by appearances
  - Supported setting - Groomed, good weight, clean room
  - Good verbal expression and good memory
  - Assessment reveals marked impairments
  - Impaired reasoning on interview in relation to relevant risk and potential consequences

SUMMARY

- Older adults susceptible to the acute and chronic cognitive side effects of alcohol misuse
- Profile indicates strong dysexecutive features, contributing to poor insight and maintenance of drinking behaviour
- Importance of consideration of timing of assessment and risk of misdiagnosis
- Value of obtaining clear history of presenting problem, alcohol consumption and potential other contributing factors
- Cognitive dysfunction profiles and planning management