

Dr Alan Winston

Imperial College Healthcare NHS Trust, London

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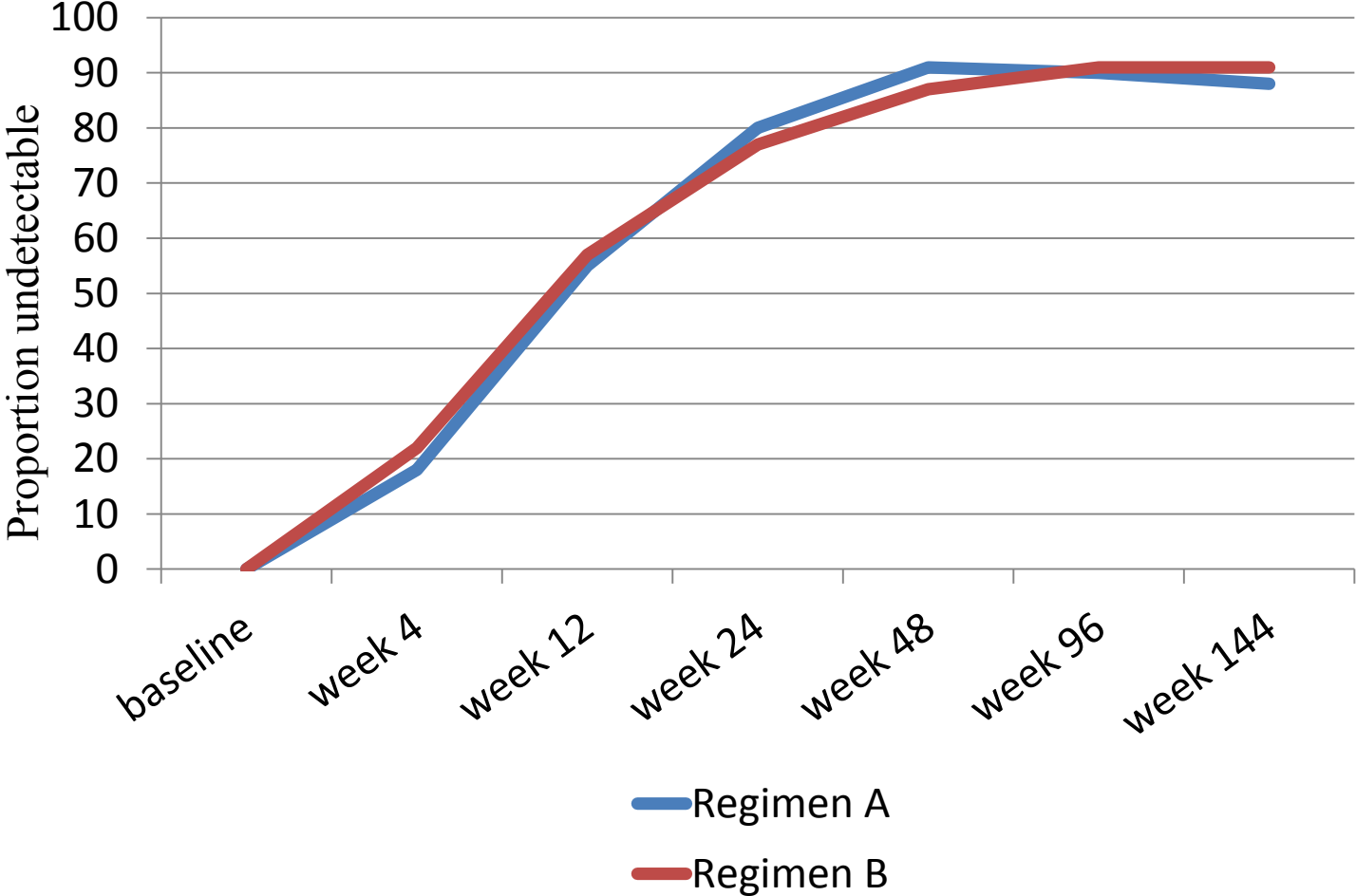
Imperial College Healthcare NHS Trust, London

COMPETING INTEREST OF FINANCIAL VALUE \geq £1,000:	
Speaker Name	Statement
Alan Winston	Alan Winston has received honoraria or research grants, or been a consultant or investigator, in clinical trials sponsored by Abbott, Boehringer Ingelheim, Bristol-Myers Squibb, Gilead Sciences, GlaxoSmithKline, Janssen Cilag, Roche, Pfizer and ViiV Healthcare.
Date	April 2013

Neurocognitive testing in clinical trials: luxury or necessity?

Alan Winston
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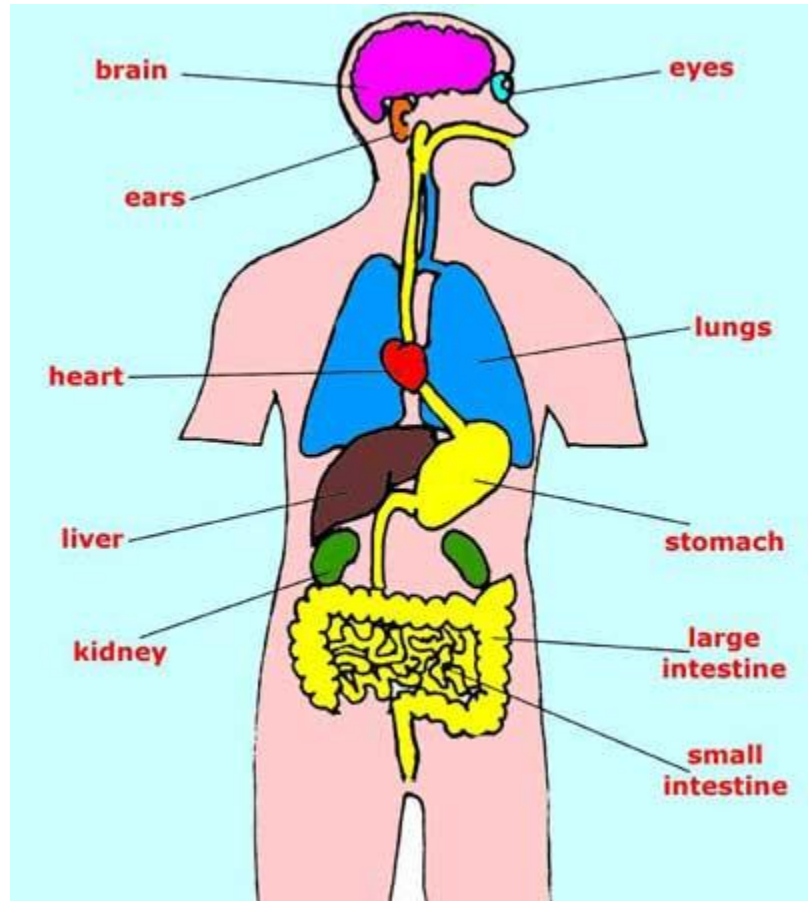
Luxury or necessity



Luxury or necessity

Where next?

- Non-infectious co-morbidities
- Patient acceptability and QOL
- Implications for cost and healthcare utilisation



Technicalities of cognitive testing

Screening battery	Cognitive testing in clinical practice	Cognitive testing in research studies

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Technicalities of cognitive testing

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<p>Problems:</p> <ul style="list-style-type: none">•Ease of administration•Decision to administer to all or selected populations•Sensitive and specific•Reproducible	<p>Problems:</p> <ul style="list-style-type: none">•Populations to target•Time consuming•Appropriate control population•Interpretation of patient's symptomatology	<p>The way forward:</p> <ul style="list-style-type: none">•Allows an accurate assessment of end-organ disease within an already selected cohort•Often permits longitudinal data•May offer the opportunity to obtain appropriate control data

Which battery?

Domain
Attention
Executive function
Verbal learning
Verbal memory
Fine motor
Speed of information processing

Which battery?

Domain	Study (PIVOT)	Study (POPPY)
Attention	Colour Trails Test 1	Cog State (card)
Executive function	Colour Trails Test 2	Cog State (maze)
Verbal learning	Hopkins Verbal Learning Test, learning	Cog State (words)
Verbal memory	Hopkins Verbal Learning Test, recall	Cog State (words)
Fine motor	Grooved Pegboard	-
Speed of information processing	-	Cog State (card)

Does it matter which battery for longitudinal studies?

Probably not

PIVOT – Control populations

- Neurocognitive testing undertaken prospectively in all subjects
- Baseline test results available for this analysis
- Raw scores for each test were transformed to z-scores using normative data (age matched all tests and education matched CTT)

Domain	Test	Standard normative data	Adjusted normative data
Attention	Colour Trails Test 1	n=1528, 70% Caucasian, [1]	n=182, inc. African American, [1]
Executive function	Colour Trails Test 2	as above	as above
Verbal learning	Hopkins Verbal Learning Test (HVLTL), learning	n=1179, [2]	n=246, 42% African American, [4]
Verbal memory	Hopkins Verbal Learning Test (HVLTL), recall	as above	as above
Fine motor	Grooved Pegboard	[3]	-

1. D’Elia LF et al. Color Trails Test. 1996 Odessa, FL: PAR
2. Brandt J and Benedict RHB. Hopkins Verbal Learning test-Revised. 2001 Odessa, FL:PAR
3. Trites R. Neuropsychological test manual. Ottawa, Ontario 1997
4. Journal of Clinical and Experimental Neuropsychology, Volume 33, Issue 7, 2011)

PIVOT – describing cognitive results

Description of neurocognitive results

Global score

- **composite score / average**
- NPZ-5

Categorise this score

- example < 1 SD mean
- expect approximately 16% of healthy population < 1 SD mean

Categorical score (such as Frascati score)

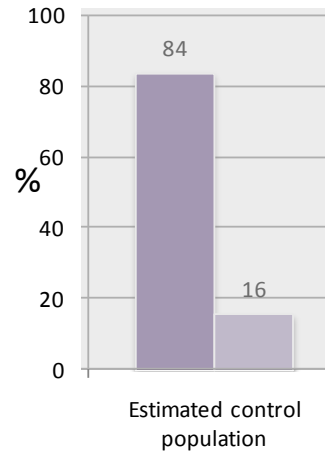
- **Impaired versus non-impaired (yes/no)**
- below 1 SD in at least 2 domains
- result normal or abnormal
- expect approximately 20% of healthy population abnormal
- no Instrumental Activities of Daily Living Scale assessed – therefore can't categorise ANI, MCD, HAD

PIVOT

Standard
normative data

Global scores
(NPZ-5)

N=560

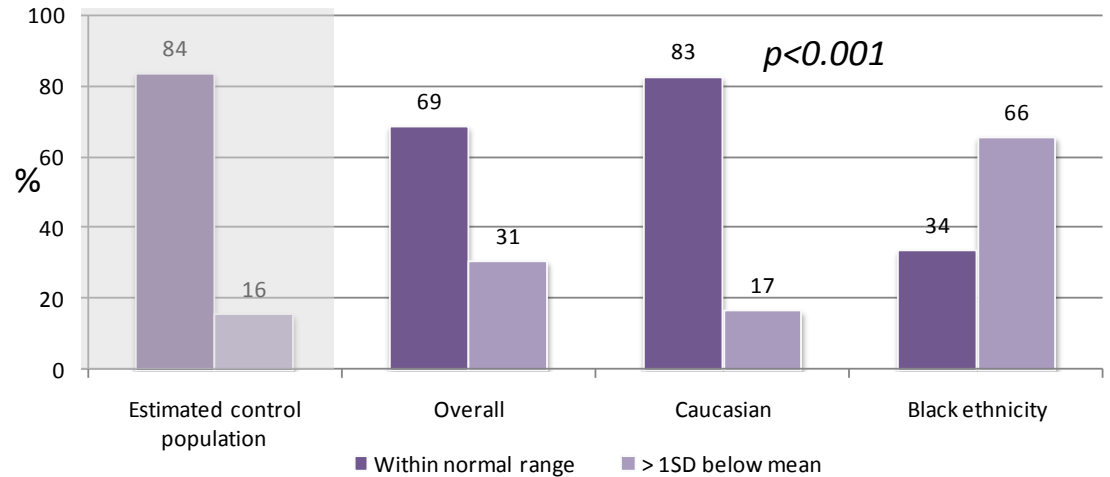


PIVOT

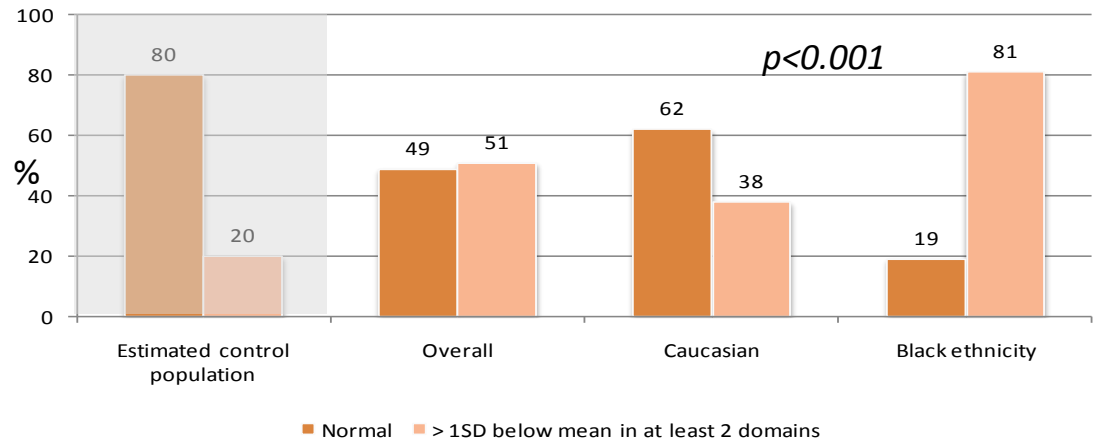
Standard
normative data

Global scores (NPZ-5)

N=560

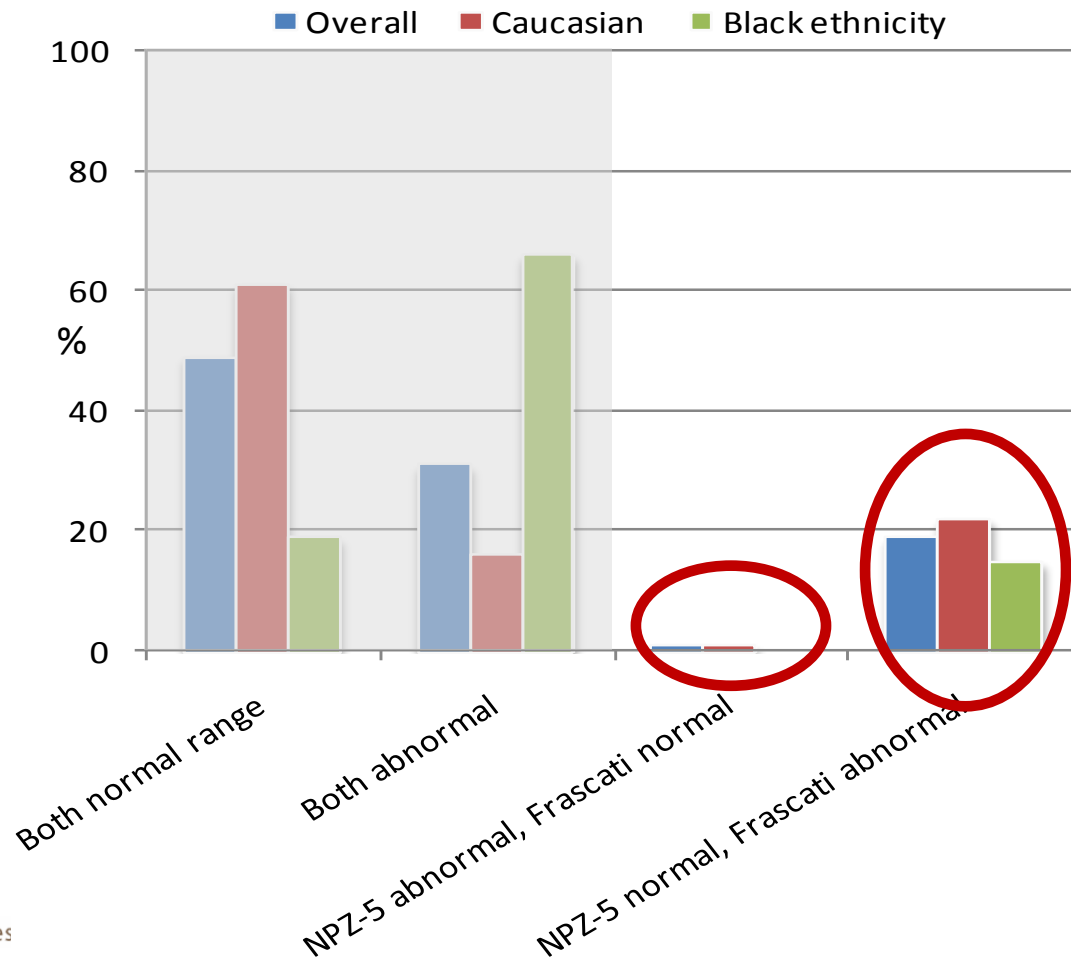


Categorical Score (Frascati)



PIVOT

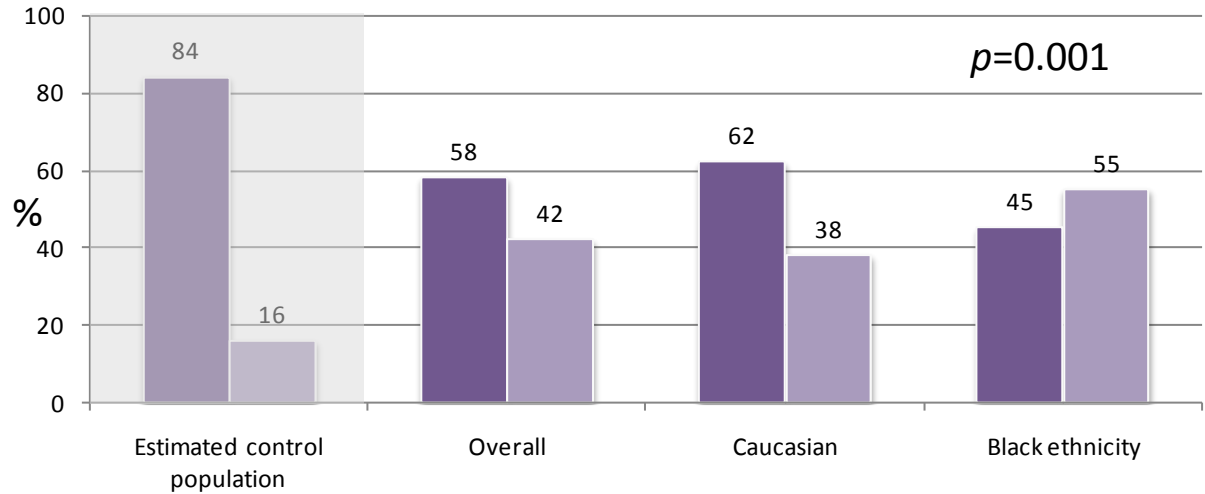
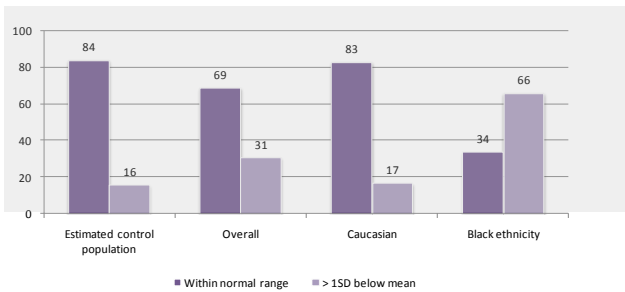
Association between global (NPZ-5) and categorical (Frascati) scores



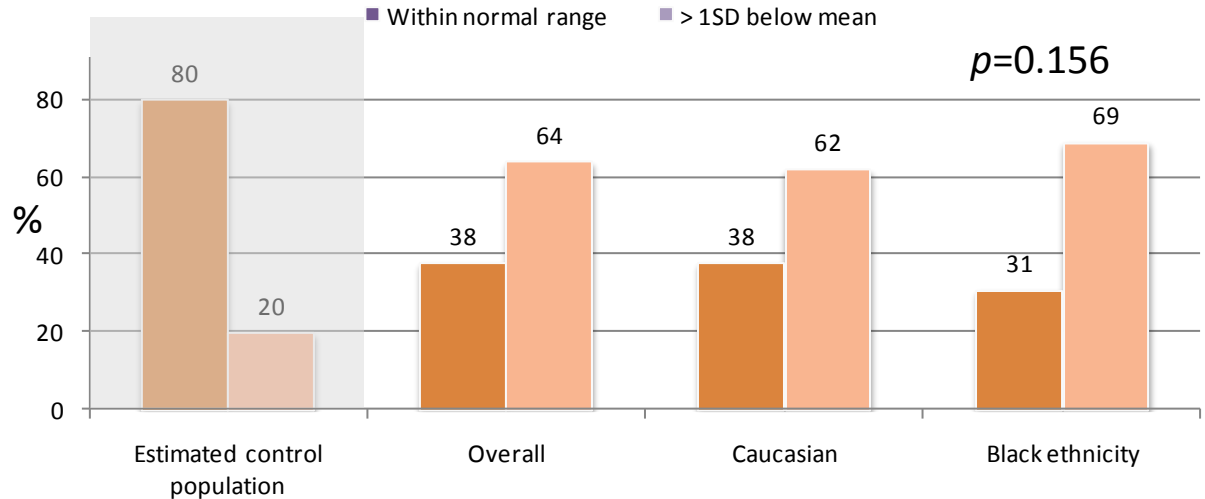
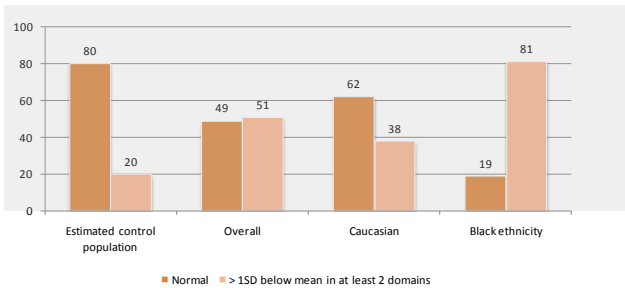
PIVOT

Adjusted normative data

Global scores (NPZ-5)



Categorical Score (Frascati)



A tale of 2 studies

PIVOT

Baseline results:

- need for population control data to interpret results
- need to challenge current diagnostic criteria



A tale of 2 studies

PIVOT

Baseline results:

- need for population control data to interpret results
- need to challenge current diagnostic criteria



Follow up results:

- differences in any changes in cognitive function between two treatment approaches
- factors associated with cognitive function (implications for screening etc. in different populations)

POPPY

Baseline results will include cognitive function in:

- 1000 HIV infected subjects over 50
- 500 HIV infected subjects under 50
- 500 HIV un-infected subjects over 50



Follow up results:

- differences in any changes in cognitive function between these groups

The logo of the British HIV Association (BHIVA) is a circular emblem with a complex, geometric pattern of lines and dots, resembling a stylized sun or a molecular structure. It is positioned behind the main title text.

British HIV Association
BHIVA

A light blue map of the United Kingdom is visible in the background. A red circular marker is placed on the map, indicating the location of Manchester in the north-western part of England.

**19th Annual Conference of the
British HIV Association (BHIVA)**

16–19 April 2013

#BHIVA2013

Manchester Central Convention Complex